AP - 111

ANNUAL GW MONITORING REPORT 2017 (2)

2019

APPENDIX A - RW-1 HYDROCARBON RECOVERY LOG
2/22/05 thru 12/2017

Measurement Date	Time	Quarter	Method	Status	Depth to Product (ft)	Depth to Water (ft)	Product Thickness Level [2] (ft)	Product Bailed or Purged [2] (gal)	Water Purged [2] (gal)
2/22/2005	8:30	1st	NR	Start	32.46	36.5	4.04	14	NR
3/2/2005	7:45	1st	NR	Start	32.42	36.44	4.02	9	NR
3/8/2005	8:30	1st	NR	Start	31.92	36.35	4.43	15	NR
3/9/2005	830	1st	NR	Start	31.92	37.5	5.58	4	NR
3/11 to 3/18/05	NR	1st	NR	Start	NR	NR	NR	74	NR
3/18 to 3/23/05	NR	1st	Pump	Continue pumping	NR	NR	NR	48	NR
3/23 to 4/1/05	NR	1st	Pump	Continue pumping	NR	NR	NR	62	NR
4/1 To 4/4/05		2nd	Pump	Pump shutdown to measure	NR	NR	NR	27	NR
4/5/2005	11:30	2nd	Pump		34.75	38.92	4.17	NR	NR
4/4 to 4/15/05	11:00	2nd	Pump	Continue pumping	NR	NR	NR	50	NR
4-15 to 5-5-05	12:30	2nd	Pump	Continue pumping	NR	NR	NR	45	154
5-5 to 6-17-05	11:30	2nd	Pump	Continue pumping	NR	NR	NR	24	196
6/27/2005	14:30	2nd		Pump shutdown to measure	NR	NR	NR	NR	NR
6/28/2005	11:30	2nd			32.46	33.25	0.79	NR	NR
6/28/2005		2nd	Pump	Continue pumping	NR	NR	NR	NR	NR
6/17 to 7/8/2005	10:30	2nd	Pump	Continue pumping	NR	NR	NR	18	146
7/8 to 8/9/2005	13:30	3rd	Pump	Continue pumping	NR	NR	NR	28	350
8/9 to 9/16/2005	11:35	3rd			36.46	36.54	0.08	8	240
12/5/2005	13:15	4th			31.92	34.71	2.79	NR	NR
12/8/2005	14:00	4th	Pump	Start	NR	NR	NR	NR	NR
12/22/2005	15:30	4th		stop	NR	NR	NR	5	120
12/29/2005	14:00	4th	Bailer	Hand bailed	NR	NR	NR	0.5	4.5
3/16/2006	13:00	1st.			NR	NR	NR	NR	NR
3/16/2006	14:30	1st.	Pump	Start	32.23	34.48	2.25	NR	NR
3/23/2006	14:30	1st.		Stop	NR	NR	NR	NR	NR
3/27/2006	15:30	1st.	Pump	Start	NR	NR	NR	NR	NR
3/31/2006	11:30	1st.	Pump	Continue pumping	NR	NR	NR	7	174
4/3/2006	11:30	2nd		Stop	NR	NR	NR	1	38
4/4/2006	11:00	2nd			32.75	33.08	0.33	NR	NR
6/6/2006	13:00	2nd			32.39	34.54	2.15	NR	NR
6/8/2006	15:00	2nd	Pump	Start	NR	NR	NR	NR	NR
6/29/2006	10:00	2nd		Stop	NR	NR	NR	8	365
7/31/2006	11:45	3rd			33.06	33.48	0.42	NR	NR
7/31/2006	11:45	3rd	Pump	Start pump	NR	NR	NR	NR	NR
8/3/2006	14:20	3rd		Stopped pump	NR	NR	NR	2	87
8/8/2006	9:00	3rd	Pump	Start pump	NR	NR	NR	NR	NR
8/10/2006	15:30	3rd	Pump	Start pump	NR	NR	NR	NR	NR
8/22/2006	9:00	3rd		Stopped. Pulled pump	NR	NR	NR	4.9	373
8/22/2006	9:45	3rd	Pump	Start pump	33.1	33.4	0.3	NR	NR
12/21/2006	15:55	4th	Pump	Start pump	35.2	36	0.8	0.62	70

APPENDIX A - RW-1 HYDROCARBON RECOVERY LOG
2/22/05 thru 12/2017

Measurement Date	Time	Quarter	Method	Status	Depth to Product (ft)	Depth to Water (ft)	Product Thickness Level [2] (ft)	Product Bailed or Purged [2] (gal)	Water Purged [2] (gal)
2/21/2007	10:15	1st.	Pump	Start pump	33.42	34.6	1.18	0.63	53.5
6/5/2007	10:00	2nd		Compressor Down	32.42	32.71	0.29	NR	NR
6/5/2007	10:10	2nd		Hand Bailed	NR	NR	NR	0.05	9
6/6/2007	8:40	2nd		Hand bailed	NR	NR	NR	0.1	11
6/13/2007	14:00	2nd		Hand bailed	NR	NR	NR	0.1	12
6/14/2007	10:40	2nd		Hand bailed	NR	NR	NR	0.05	8
7/10/2007	10:08	3rd		Hand bailed	32.42	32.71	0.29	0.3	18
7/11/2007	9:25	3rd		Hand bailed	NR	NR	NR	0.21	NR
7/23/2007	10:00	3rd		Hand bailed	NR	NR	NR	0.1	NR
11/26/2007	10:50	4th		Hand bailed	30.76	36.45	5.69	0.18	37
2/18/2008	15:32	1st.		Hand Bailed - pump frozen	30.18	34.77	4.59	1.66	36
5/21/2008	14:10	2nd	Pump	Used Pump	30.33	34.57	4.24	1.39	51
9/12/2008[1]	14:30	3rd		Bladder pump malfunctioned	30.03	34.59	4.56	Not Bailed	0
11/13/2008	13:00	4th	Pump	Used Pump	30.02	34.63	4.61	0.94	65
2/11/2009	14:05	1st.	Pump	Used Pump	30.21	31.72	1.51	0.29	90
5/5/2009	11:30	2nd	Pump	Used Pump	30.22	30.8	0.58	0.41	76
8/10/2009	9:22	3rd	Pump	Used Pump	30.69	31.02	0.33	0.89	98
10/28/2009	10:55	4th	Pump	Used Pump	30.56	30.75	0.19	0.19	74
3/3/2010	9:00	1st	Pump	Used Pump	30.89	31.05	0.16	0.21	31
6/3/2010	13:10	2nd	Pump	Used Pump	30.99	31.09	0.1	0.1	32
9/20/2010	14:00	3rd	Pump	Used Pump	29.91	30.06	0.15	0.25	34
11/3/2010	9:10	4th	Pump	Used Pump	30.89	31.01	0.12	0.1	31
3/9/2011	10:19	1st	Pump	Used Pump	30.04	30.15	0.11	0.12	40
6/27/2011	8:05	2nd	Pump	Used Pump	30.52	30.63	0.11	0.1	45
10/3/2011	15:07	Annual	Pump	Used Pump	30.81	30.9	0.09	0.11	42
11/8/2011	8:30		Pump	Used Pump	30.77	30.85	0.08	0.09	38
3/15/2012	10:30	1st	Pump	Used Pump	29.31	29.34	0.03	0.02	22
6/4/2012	9:00	2nd	Pump	Used Pump	29.39	29.41	0.02	0.05	40
8/13/2012	10:30	3rd	Pump	Used Pump	29.54	30.13	0.59	0.4	40
10/8/2012	9:40	4th	Pump	Used Pump	29.28	30.18	0.9	0.5	35
3/26/2013	10:25	1st	Pump	Used Pump	29.11	32.6	3.49	0.028	24
6/17/2013	11:50	2nd	Pump	Used Pump	29.37	33.1	3.73	0.75	18
9/16/2013	11:05	3rd	Pump	Used Pump	28.75	33.09	4.34	0.8	19
11/12/2013	9:25	4th	Pump	Used Pump	28.73	33.11	4.38	0.75	25
3/7/2014	NR	1st	Pump	Used Pump	28.15	31.65	3.5	0.75	28
6/9/2014	NR	2nd	Pump	Used Pump	28.31	33.06	4.75	0.75	25
9/18/2014 [3]	NR	3rd		Annual Sampling Only	28.05	Unknown			
11/13/2014	NR	4th	Pump	Used Pump	28.11	33.04	4.93	0.87	30
3/23/2015	3:00	1st	Pump	Pump	28.2	32.8	4.6	0.5	25
6/9/2015	4:25	2nd	Pump	Pump	27.7	32.1	4.4	0.75	15

APPENDIX A - RW-1 HYDROCARBON RECOVERY LOG
2/22/05 thru 12/2017

Measurement Date	Time	Quarter	Method	Status	Depth to Product (ft)	Depth to Water (ft)	Product Thickness Level [2] (ft)	Product Bailed or Purged [2] (gal)	Water Purged [2] (gal)
8/23/2015 [3]	10:10	3rd	Pump	Pump	28.08	30.02	1.94	None	None
10/29/2015	9:15	4th	Pump	Pump	27.65	30.1	2.45	0.75	14
3/4/2016	0:00	1st			28.05	30.55	2.5	None	None
6/8/2016	0:00	2nd			27.98	31.8	3.82	3.5	28
9/13/2016	2:05	3rd			27.9	32.04	4.14	2.5	10
11/16/2016	1:00	4th	Bailer		27.8	30.9	3.1	2.5	15
3/16/2017	0:00	1st	Pump		27.05	30.55	3.5	4	14
6/20/2017	0:00	2nd	Pump		26.77	28.42	1.65	2.5	18
9/19/2017	12:25	3rd	Bailer		26.52	27.6	1.08	2.5	10
12/12/2017	1:20	4th	Bailer		26.5	27.5	1	2	NR
							TOTALS	**490.758**	**3704**

NOTES:

FT - Feet *NR - Not recorded*

Gal - Gallon

1) Bladder pump has torn diaphragm. Pump non-repairable. Ordered new pump

2) Measurements given are estimated values based on the technicians interpretation and should not be viewed as accurate.

3) Annual Samples collected - no purging done at this time.

APPENDIX A - RW-5 HYDROCARBON RECOVERY LOG
2/22/05 thru 12/2017

Measurement Date	Time	Quarter	Method	Status	Depth to Product (ft)	Depth to Water (ft)	Product Thickness Level [1] (ft)	Product Bailed/Purged [1] (gal)	Water Purged [1] (gal)
2/22/2005	14:15	1st	Bailer	Start	32.92	34.01	1.09	4.5	NR
3/3/2005	14:00	1st	Bailer	Start	33.08	33.42	0.34	6	NR
6/24/2005	9:00	2nd	Bailer	Start	32.96	34.04	1.08	2.5	NR
9/16/2005	9:20	3rd	Bailer	Start	32.83	33.85	1.02	2.5	NR
12/5/2005	14:00	4th	Bailer	Start	32.52	33.21	0.69	1.5	NR
3/16/2006	14:50	1st	Bailer	Start	32.58	33.00	0.42	1	NR
7/26/2006	14:35	2nd	Bailer	Start	32.90	33.31	0.41	0.5	NR
10/16/2006	09:15	4th	Bailer	Start	32.73	33.42	0.69	0.25	NR
2/13/2007	09:00	1st	Bailer	Start	32.17	33.95	1.78	0.5	NR
4/30/2007	11:20	2nd	Bailer	Start	33.00	33.83	0.83	2.5	NR
7/10/2007	10:15	3rd	Bailer	Start	33.10	33.92	0.82	2.5	NR
11/26/2007	08:00	4th	Bailer	Start	33.01	33.91	0.9	1.75	NR
2/18/2008	15:15	1st	Bailer	Start	33.19	33.95	0.76	0.19	20
5/21/2008	14:20	2nd	Bailer	Start	32.77	33.84	1.07	0.14	18
9/12/2008	14:30	3rd	Bailer	Start	32.62	32.85	0.23	0.05	15
11/3/2008	14:00	4th	Bailer	Start	31.05	32.34	1.29	0.05	15
2/11/2009	13:40	1st	Bailer	Start	32.08	32.15	0.07	0.05	15
5/5/2009	10:02	2nd	Bailer	Start	0.00	31.91	0	0	0
8/10/2009	9:50	3rd	Bailer	Start	0.00	31.94	0	0	0
10/28/2009	10:45	4th	Bailer	Start	0.00	31.71	0	0	0
3/3/2010	9:35	1st	Bailer	Start	0.00	31.63	0	0	0
6/3/2010	13:40	2nd	Bailer	Start	0.00	31.37	0	0	0
9/20/2010	14:24	3rd	Bailer	Start	0.00	31.94	0	0	0
11/3/2010	9:30	4th	Bailer	Start	0.00	31.94	0	0	0
3/9/2011	10:29	1st	Bailer	Start	0.00	30.05	0	0	20
6/27/2011	8:40	2nd	Bailer	Start	0.00	28.96	0	0	20
10/4/2011	8:15	3rd	Bailer	Start	0.00	29.89	0	0	14
11/8/2011	9:20	4th	Bailer	Start	0.00	29.85	0	0	17
3/15/2012	9:50	1st	Bailer	Start	0.00	29.32	0	0	15
6/4/2012	9:20	2nd	Bailer	Start	0.00	29.37	0	0	10
8/13/2012	10:50	3rd	Bailer	Start	0.00	29.49	0	0	10
10/8/2012	10:10	4th	Bailer	Start	0.00	29.58	0	0	15
3/26/2013	9:10	2nd	Bailer	Start	0.00	29.45	0	0	10
6/17/2013	10:20	2nd	Bailer	Start	0.00	29.44	0	0	14
9/16/2013	9:30	3rd	Bailer	Start	0.00	28.98	0	0	15
11/12/2013	9:50	4th	Bailer	Start	0.00	28.96	0	0	16
3/17/2014	NR	1st	Bailer	Start	0.00	27.92	0	0	15

APPENDIX A - RW-5 HYDROCARBON RECOVERY LOG
2/22/05 thru 12/2017

Measurement Date	Time	Quarter	Method	Status	Depth to Product (ft)	Depth to Water (ft)	Product Thickness Level [1] (ft)	Product Bailed/Purged [1] (gal)	Water Purged [1] (gal)
6/9/2014	NR	2nd	Bailer	Start	0.00	28.80	0	0	20
9/18/2014 [2]	NR	3rd	Bailer	Start	0.00	28.81	0	0	0
11/13/2014	NR	4th	Bailer	Start	0.00	28.77	0	0	16
3/23/2015	3:15	1st	N/A	N/A	0.00	29.10	0	0	0
6/9/2015	4:10	2nd	Bailer	Start	0.00	28.80	0	0	15
8/23/2015	9:25	3rd	Bailer	Start	0.00	29.08	0	0	16
10/29/2015	1:35	4th	Bailer	Start	0.00	27.94	0	0	17
3/4/2016	0:00	1st	Bailer	Start	0.00	28.22	0	0	15
6/7/2016	3:47	2nd	Bailer	Start	0.00	28.22	0	0	17
9/13/2016	9:10	3rd	Bailer	Start	0.00	27.70	0	0	20
11/16/2016	9:12	4th	Bailer	Start	0.00	27.40	0	0	20
3/16/2017	0:00	1st	Bailer	Start	0.00	27.53	0	0	20
6/20/2017	3:47	2nd	Bailer	Start	25.30	33.30	8.00	10.5	21
9/19/2017	9:10	3rd	Bailer	Start	25.46	31.65	6.19	5.5	20
12/12/2017	11:08	4th	Bailer	Start	24.75	34.00	9.25	18	NR
							TOTALS	**60.48**	**491**

NOTES:

FT - Feet NR - Not recorded

Gal - Gallon

1) Measurements given are estimated values based on the technicians interpretation.

2) Annual grab samples collected - no purging of well at this time.

APPENDIX A - RW-6 HYDROCARBON RECOVERY LOG
2/22/05 thru 12/2017

Measurement Date	Time	Quarter	Method	Status	Depth to Product (ft)	Depth to Water (ft)	Product Thickness Level [1] (ft)	Product Bailed/Purged [1] (gal)	Water Purged [1] (gal)
2/22/2005	14:30	1st	Bailer	Start	33.12	34.50	1.38	4.5	NR
3/3/2005	14:00	2nd	Bailer	Start	33.15	34.00	0.85	6	NR
6/24/2005	11:00	2nd	Bailer	Start	33.31	34.46	1.15	3.5	NR
9/16/2005	10:20	3rd	Bailer	Start	32.98	34.33	1.35	3	NR
3/16/2006	12:45	1st	Bailer	Start	32.67	33.75	1.08	2.5	NR
7/26/2006	15:00	2nd	Bailer	Start	33.00	34.12	1.12	1.5	NR
10/16/2006	09:55	4th	Bailer	Start	33.71	34.63	0.92	0.75	NR
2/13/2007	09:50	1st	Bailer	Start	33.29	34.50	1.21	0.75	NR
4/30/2007	11:25	2nd	Bailer	Start	34.42	34.58	0.16	0.25	NR
7/10/2007	10:08	3rd	Bailer	Start	33.29	34.58	1.29	6.78	NR
11/28/2007	08:10	4th	Bailer	Start	33.25	34.47	1.22	4.5	NR
2/18/2008	15:11	1st	Bailer	Start	33.44	34.35	0.91	0.11	20
5/21/2008	14:30	2nd	Bailer	Start	33.02	34.12	1.10	0.13	18
9/12/2008	14:35	3rd	Bailer	Start	32.12	32.83	0.71	0.09	15
11/3/2008	14:35	4th	Bailer	Start	32.46	32.69	0.23	0.04	15
2/11/2009	13:30	1st	Bailer	Start	32.19	32.35	0.16	0.12	15
5/5/2009	9:45	2nd	Bailer	Start	32.08	32.26	0.18	0.04	15
8/10/2009	9:55	3rd	Bailer	Start	32.04	32.28	0.24	0.03	15
10/28/2009	10:55	4th	Bailer	Start	31.81	32.03	0.22	0.03	12
3/3/2010	9:40	1st	Bailer	Start	31.78	32.01	0.23	0.05	15
6/3/2010	13:45	2nd	Bailer	Start	31.61	31.70	0.09	0.05	15
9/20/2010	14:30	3rd	Bailer	Start	32.04	32.28	0.24	0.03	15
11/3/2010	9:35	4th	Bailer	Start	32.01	32.10	0.09	0.02	15
3/9/2011	10:34	1st	Bailer	Start	30.24	30.26	0.02	0.04	25
6/27/2011	9:25	2nd	Bailer	Start	30.11	30.15	0.04	0.04	30
10/4/2011	9:05	3rd	Bailer	Start	29.91	29.94	0.03	0.09	30
11/8/2011	9:45	4th	Bailer	Start	29.90	29.93	0.03	0.05	25
3/15/2012	9:55	1st	Bailer	Start	0.00	29.46	0.00	0	17
6/4/2012	9:25	2nd	Bailer	Start	0.00	29.54	0.00	0	20
8/13/2012	11:00	3rd	Bailer	Start	0.00	29.57	0.00	0	15
10/8/2012	10:15	4th	Bailer	Start	0.00	29.62	0.00	0	15
3/26/2013	9:15	1st	Bailer	Start	0.00	29.59	0.00	0	20
6/17/2013	10:25	2nd	Bailer	Start	0.00	29.52	0.00	0	15
9/16/2013	10:10	3rd	Bailer	Start	0.00	29.13	0.00	0	20
11/12/2013	9:50	4th	Bailer	Start	0.00	29.10	0.00	0	15
3/17/2014	NR	1st	Bailer	Start	0.00	27.92	0.00	0	15
6/9/2014	NR	2nd	Bailer	Start	0.00	28.80	0.00	0	20

APPENDIX A - RW-6 HYDROCARBON RECOVERY LOG
2/22/05 thru 12/2017

Measurement Date	Time	Quarter	Method	Status	Depth to Product (ft)	Depth to Water (ft)	Product Thickness Level [1] (ft)	Product Bailed/Purged [1] (gal)	Water Purged [1] (gal)
9/18/2014 [2]	NR	3rd	Bailer	Start	0.00	28.81	0.00	0	0
11/13/2014	NR	4th	Bailer	Start	0.00	28.77	0.00	0	16
3/23/2015	3:15	1st	N/A	N/A	0.00	29.18	0.00	0	0
6/9/2015	4:12	2nd	Bailer	Start	0.00	28.68	0.00	0	15
8/23/2015	9:27	3rd	Bailer	Start	0.00	29.06	0.00	0	20
10/29/2015	3:37	4th	Bailer	Start	0.00	27.97	0.00	0	19
3/4/2016	0:00	1st	Bailer	Start	0.00	28.25	0.00	0	14
6/7/2016	3:45	2nd	Bailer	Start	0.00	28.24	0.00	0	18
9/13/2016	9:50	3rd	Bailer	Start	0.00	27.99	0.00	0	20
11/16/2016	9:15	4th	Bailer	Start	0.00	27.72	0.00	0	20
3/16/2017	0:00	1st	Bailer	Start	0.00	27.50	0.00	0	20
6/20/2017	0:00	2nd	Bailer	Start	25.50	33.62	8.12	10	10
9/19/2017	0:00	3rd	Bailer	Start	25.89	30.97	5.08	8	20
12/12/2017	11:13	4th	Bailer	Start	24.83	33.85	9.02	13	NR
							TOTALS	**65.99**	**659**

NOTES:

FT - Feet NR - Not recorded

Gal - Gallon

1) Measurements given are estimated values based on the technicians interpretation.

2) Annual grab samples collected - no purging of well at this time.

APPENDIX A
ESTIMATED ANNUAL RECOVERY VOLUMES 2005 THRU 2017

RW-1

Year	Product Thickness Level [1] (ft)	Product Bailed/Purged [1] (gal)	Water Purged [1] (gal)
2005	25.9	431.5	1210.5
2006	6.25	23.52	1107
2007	7.45	1.72	148.5
2008	18	3.99	152
2009	2.61	1.78	338
2010	0.53	0.66	128
2011	0.39	0.42	165
2012	1.54	0.97	137
2013	15.94	2.328	86
2014	13.18	2.37	83
2015	13.39	2	54
2016	13.56	8.5	53
2017	7.23	11	42
TOTAL		**490.758**	**3704**

RW-5

Year	Product Thickness Level [1] (ft)	Product Bailed/Purged [1] (gal)	Water Purged [1] (gal)
2005	4.22	17	NR
2006	1.52	1.75	NR
2007	4.33	7.25	NR
2008	3.35	0.43	68
2009	0.07	0.05	15
2010	0	0	0
2011	0	0	71
2012	0	0	50
2013	0	0	55
2014	0	0	51
2015	0	0	48
2016	0	0	72
2017	23.44	34	61
TOTAL		**60.48**	**491**

RW-6

Year	Product Thickness Level [1] (ft)	Product Bailed/Purged [1] (gal)	Water Purged [1] (gal)
2005	4.73	17	NR
2006	3.12	4.75	NR
2007	3.88	12.28	NR
2008	2.95	0.37	68
2009	0.8	0.22	57
2010	0.65	0.15	60
2011	0.12	0.22	110
2012	0	0	67
2013	0	0	70
2014	0	0	51
2015	0	0	54
2016	0	0	72
2017	22.22	31	50
TOTAL		**65.99**	**659**

NOTES:

NR - Not recorded

1) Measurements given are estimated values based on the technicians interpretation and should not be viewed as accurate.

WESTERN REFINING - GALLUP REFINERY

1st QTR 2017 ~~2015~~

SAMPLE ID/LOCATION		TEST PARAMATERS								
NAPIS-2			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)	1203	7.18	22.58	1674	1.088	.85	80.5	-146.9
GAUGE TIME	1120	(2)	1205	7.16	22.44	1673	1.088	.85	76.7	-141.7
DTB (feet) Depth to Bottom	13.61	(3)	1207	7.14	22.31	1672	1.087	.85	75.5	-139.1
DEDICATED PUMP	—	(4)	1209	7.14	22.16	1657	1.077	.84	73.9	-135.8
DTW (feet) Depth to Water	7.89									
DTB - DTW	5.72									
Capacity per foot										
2 Well Volumes	3gals									
PURGE DATE										
PURGE TIME	1125									
SAMPLE DAY										
SAMPLE TIME	1208									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

Clear, breezy

WATER APPEARANCE

WTR - Clear - slight yw tint turned pwdr brn at end of bailing

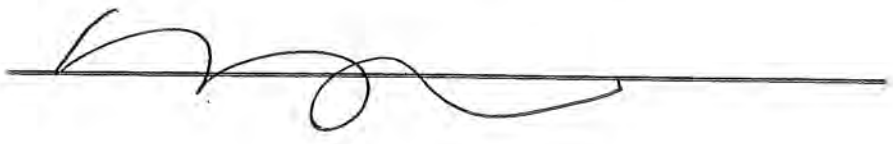
SAMPLE LOG

Vault - dry. E Bay NAPIS - Down

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:



WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
KA-3			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)	~~1222~~ 1210	7.10	22.74	1351	.878	.68	26.2	-100.4
GAUGE TIME	~~1120~~ 1120	(2)	1224	7.10	22.62	1354	.880	.68	~~25~~ -103.1	-103.1
DTB (feet) Depth to Bottom	23.20	(3)	26	7.11	22.49	1355	.881	.68	24.6	-106.0
DEDICATED PUMP		(4)	28	7.10	22.36	1354	.880	.68	26.3	-106.7
DTW (feet) Depth to Water	7.37									
DTB - DTW	15.83									
Capacity per foot	.163									
2 Well Volumes	8 gals									
PURGE DATE										
PURGE TIME	1130									
SAMPLE DAY										
SAMPLE TIME	~~1228~~									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

Clear, Breezy

WATER APPEARANCE

Clear-

SAMPLE LOG

Vault DRY - E Bay NAPIS - Open + OOS.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
NAPIS-3			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)	1531	8.17	19.69	1977	1.285	1.01	78.2	-115.0
GAUGE TIME	1127	(2)	1533	8.12	19.68	1978	1.285	1.01	58.9	-114.7
DTB (feet) Depth to Bottom	30.42	(3)	1535	8.12	19.67	1977	1.285	1.01	56.2	-114.6
DEDICATED PUMP	—	(4)	1537	8.13	19.66	1977	1.285	1.01	55.2	-114.6
DTW (feet) Depth to Water	9.2	WEATHER CONDITIONS								
DTB - DTW	21.22	Clear, Breezy								
Capacity per foot										
2 Well Volumes	10 gals									
PURGE DATE										
PURGE TIME	1138	WATER APPEARANCE								
SAMPLE DAY		purged 5.5 gals								
SAMPLE TIME	~~1234~~	Clear - murky brown								
PUMP DEPTH	1535									
DTW (feet) at end of Purging										

SAMPLE LOG

allowed to recharge - wtr pink/brown

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR 2015 7

/

SAMPLE ID/LOCATION		TEST PARAMATERS								
NAPIS - 1			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)	1328	7.7	13.14	2060	1.339	1.06	194.4	-124.1
GAUGE TIME	1320	(2)	1330	7.17	13.65	2028	1.318	1.04	14.9	-133.4
DTB (feet) Depth to Bottom	13.53	(3)	1332	7.19	13.74	2021	1.313	1.04	18.5	-136.5
DEDICATED PUMP	—	(4)	1334	7.19	13.74	2021	1.314	1.04	17.5	-135.9
DTW (feet) Depth to Water	6.7									
DTB - DTW	7.53									
Capacity per foot										
2 Well Volumes	4 gal									
PURGE DATE										
PURGE TIME	1323									
SAMPLE DAY										
SAMPLE TIME	1335									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

Clear, breezy, 55-60°

WATER APPEARANCE

Clear, no odor

SAMPLE LOG

Weed spraying in area.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1ST QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
STP1-NW			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)	1426	7.92	13.42	5950	3.867	3.25	34.3	-124.1
GAUGE TIME	1351	(2)	1428	7.87	13.47	5945	3.864	3.25	34.0	-123.1
DTB (feet) Depth to Bottom	50.00	(3)	1430	7.84	13.48	5947	3.866	3.25	35.0	-121.9
DEDICATED PUMP	/	(4)	1432	7.82	13.50	5947	3.865	3.25	34.5	-121.0
DTW (feet) Depth to Water	20.47									
DTB - DTW	29.53									
Capacity per foot	9163									
3 Well Volumes	14 gals									
PURGE DATE										
PURGE TIME	1									
SAMPLE DAY										
SAMPLE TIME	1432									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

clear - ptly cldy - breezy

WATER APPEARANCE

clear -

SAMPLE LOG

Weed spraying in area

Duplicate

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature: 

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2016~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
WLDU			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)								
GAUGE TIME	1555	(2)								
DTB (feet) Depth to Bottom		(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water	6.84	WEATHER CONDITIONS: clear breezy								
DTB - DTW										
Capacity per foot										
2 Well Volumes	1600 Sunny									
PURGE DATE		WATER APPEARANCE: yw - dk green - oily odor								
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME										
PUMP DEPTH										
DTW (feet) at end of Purging										

SAMPLE LOG

East Bay 005

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature: _____

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
ELDU			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)								
GAUGE TIME	1610	(2)								
DTB (feet) Depth to Bottom		(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water	3.31	WEATHER CONDITIONS								
DTB - DTW		Clear Breezy								
Capacity per foot										
2 Well Volumes										
PURGE DATE		WATER APPEARANCE								
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME	1615									
PUMP DEPTH										
DTW (feet) at end of Purging										

SAMPLE LOG

greenish color. slight odor

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

SWS Seal
2/21/17
1400

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017 1615

SAMPLE ID/LOCATION		TEST PARAMATERS								
GWM-01			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	3/16/17	(1)								
GAUGE TIME		(2)								
DTB (feet) Depth to Bottom	26.20	(3)								
~~DEDICATED PUMP~~ PTP	21.74	(4)								
DTW (feet) Depth to Water	22.04	WEATHER CONDITIONS								
~~DTB - DTW~~		Windy								
Capacity per foot										
2 Well Volumes										
PURGE DATE		WATER APPEARANCE								
PURGE TIME		Oily (dk yellow) Layer								
SAMPLE DAY										
SAMPLE TIME										
MP DEPTH										
DTW (feet) at end of Purging										

SAMPLE LOG

Bailed 1gal. Total w/ 3/4 of Hydrocarbons

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
GWM-2			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	3/16/17	(1)								
GAUGE TIME		(2)								
DTB (feet) Depth to Bottom	18.81	(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water	N/A	WEATHER CONDITIONS								
DTB - DTW		Breezy								
Capacity per foot										
2 Well Volumes										
PURGE DATE		WATER APPEARANCE								
PURGE TIME		DRY								
SAMPLE DAY										
SAMPLE TIME										
UMP DEPTH										
DTW (feet) at end of Purging										

SAMPLE LOG

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.

Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Bailer

Signature: _____

WESTERN REFINING - GALLUP REFINERY

1st QTR 2017 1615

SAMPLE ID/LOCATION		TEST PARAMATERS								
SWM-3			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	3/16/17	(1)								
GAUGE TIME		(2)								
DTB (feet) Depth to Bottom	17.80	(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water	N/A	WEATHER CONDITIONS								
DTB - DTW		Breezy								
Capacity per foot										
2 Well Volumes										
PURGE DATE		WATER APPEARANCE								
PURGE TIME		DRY								
SAMPLE DAY										
SAMPLE TIME										
PUMP DEPTH										
DTW (feet) at end of Purging										

SAMPLE LOG

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.

Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR 2017

MW-3
MW-2
MW-1 24.74
22.04

SAMPLE ID/LOCATION		TEST PARAMATERS								
RW-6			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	3-16-17	(1)								
GAUGE TIME	1135	(2)								
DTB (feet) Depth to Bottom	48.04	(3)								
~~DEDICATED PUMP~~	27.05	(4)								
DTW (feet) Depth to Water	30.35									
DTB - DTW										
Capacity per foot										
2 Well Volumes										
PURGE DATE										
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME										
PUMP DEPTH										
DTW (feet) at end of Purging										

DTP

3.89

Bailed 1 gal total .75 HC

WEATHER CONDITIONS

clear, breezy

NAP 2 - DTB = 14.33
KA 3 - 24.1
NAP 3 - 31.12

WATER APPEARANCE

hydro layer
yw-oily

SAMPLE LOG

Total 18 gals
4 gals hydrocarbons

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
OAPLS -1			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/21/17	(1)								
GAUGE TIME	1010	(2)								
DTB (feet) Depth to Bottom	26.0'	(3)								
DEDICATED PUMP	—	(4)								
DTW (feet) Depth to Water	11.6									
DTB - DTW	14.4									
Capacity per foot	.163									
3 Well Volumes	7 gals									
PURGE DATE										
PURGE TIME	1015									
SAMPLE DAY										
SAMPLE TIME	1038									
PUMP DEPTH										
DTW (feet) at end of Purging	—									

WEATHER CONDITIONS

Clear, slight breeze.

WATER APPEARANCE

yw tint w/ brown specs Sloughs sheen, slight odor

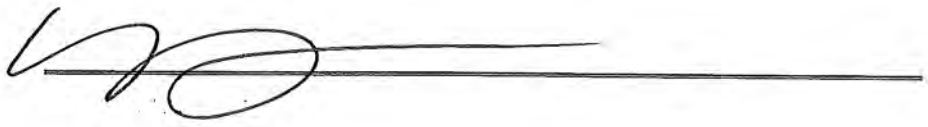
SAMPLE LOG

Carter on-site - weed spraying

@270 Dup

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature: 

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
RW-2			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	3/16/17	(1)								
GAUGE TIME	10 50	(2)								
DTB (feet) Depth to Bottom	3980	(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water	21.65									
DTB - DTW										
Capacity per foot										
2 Well Volumes										
PURGE DATE										
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME	1104									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

Clear / Breezy / 65°-70°

WATER APPEARANCE

Clear / cloudy Pink

SAMPLE LOG

Bail 20 gals.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature: 

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
RW-5			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	3/16/17	(1)								
GAUGE TIME	907	(2)								
DTB (feet) Depth to Bottom	39.59	(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water	27.53	WEATHER CONDITIONS								
DTB - DTW		Clear / Breezy / 65° - 70°								
Capacity per foot										
2 Well Volumes										
PURGE DATE		WATER APPEARANCE								
PURGE TIME										
SAMPLE DAY		Clear / clear with film								
SAMPLE TIME	10:28									
UMP DEPTH										
DTW (feet) at end of Purging										

SAMPLE LOG Bail 20 gals -

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature: S Vail

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
RW-6			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	3/16/17	(1)								
GAUGE TIME	9:13 ~~8:07~~	(2)								
DTB (feet) Depth to Bottom	40.90	(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water	27.57	WEATHER CONDITIONS								
DTB - DTW		Clear/Breezy/65°—70°								
Capacity per foot										
2 Well Volumes										
PURGE DATE		WATER APPEARANCE								
PURGE TIME										
SAMPLE DAY		Clear / film on top, vary slight Pink tint								
SAMPLE TIME	10:35									
UMP DEPTH										
DTW (feet) at end of Purging										

SAMPLE LOG bail 20 gals.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature: Eric Vail

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
OW - 14			Time (hrs)	pH	Temperature Deg C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	02/27/17	(1)	910	7.09	12.21	1.291	1.111	.87	21	-140.1
GAUGE TIME	0845	(2)	912	7.10	11.35	1.267	1.114	.87	17.9	-131.2
DTB (feet) Depth to Bottom	46.52 ~~22.83~~	(3)	914	7.11	10.71	1.250	1.117	.88	17.9	-122.7
DEDICATED PUMP		(4)	916	7.11	10.16	1.23	1.119	.88	18.2	-114.8
DTW (feet) Depth to Water	22.83									
DTB - DTW	~~23.69~~									
Capacity per foot	.74									
2 Well Volumes	53 gal									
PURGE DATE	02/27									
PURGE TIME	0850									
SAMPLE DAY										
SAMPLE TIME	0915									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

Overcast/Cloudy - Breezy, 30-35°

WATER APPEARANCE

Clear, no odor

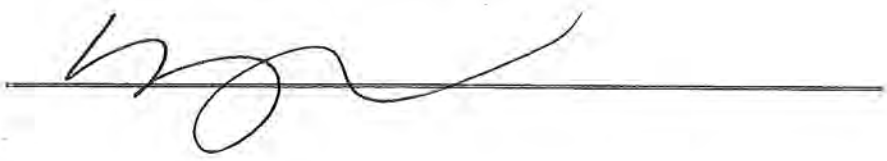
SAMPLE LOG

8260
8015
W & CC Metals
8011

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:



WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
OW 29			Time (hrs)	pH	Temperature Deg C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	02/27/17	(1)	1000	7.28	10.83	1.158	1.032	.81	19.9	-112.5
GAUGE TIME	0920	(2)	1004	7.25	10.42	1.154	1.040	.81	19.6	-110.7
DTB (feet) Depth to Bottom	51.08	(3)	1004	7.24	9.95	1.140	1.040	.81	19.0	-111.7
DEDICATED PUMP	yes	(4)	1006	7.25	9.62	1.130	1.040	.81	18.9	-112.9
DTW (feet) Depth to Water	17.82									
DTB - DTW	33.26									
Capacity per foot	.74									
2 Well Volumes	74 gals									
PURGE DATE										
PURGE TIME	0925									
SAMPLE DAY										
SAMPLE TIME	1005									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

Cloudy, breezy, 30-35°F

WATER APPEARANCE

Clear, no odor

SAMPLE LOG

8260
8015D
WQCC Metals
8011

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
OW-32			Time (hrs)	pH	Temperature Deg C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/27/17	(1)	1100	7.19	11.43	1.220	1.071	.84	22.6	-126.7
GAUGE TIME	1030	(2)	1102	7.17	10.78	1.206	1.077	.84	18.1	-128.9
DTB (feet) Depth to Bottom	49.90	(3)	1104	7.14	10.38	1.195	1.078	.84	17.0	-128.6
DEDICATED PUMP		(4)	1106	7.13	10.41	1.187	1.078	.84	16.2	-128.2
DTW (feet) Depth to Water	22.24									
DTB - DTW	27.66									
Capacity per foot	.74									
2 Well Volumes	6 gals									
PURGE DATE										
PURGE TIME	1035									
SAMPLE DAY										
SAMPLE TIME	1105									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

OC/cldy - brezy - 30-35

WATER APPEARANCE

clear, no odor

SAMPLE LOG

8260
8015
Well Nutrals
8011 for EDB

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
OW-13			Time (hrs)	pH	Temperature Deg C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/27/17	(1)	1223	8.19	11.43	1.048	.681	.52	14.2	-164.1
GAUGE TIME	1115	(2)	1225	8.20	11.15	1.049	.682	.52	12.4	-166.8
DTB (feet) Depth to Bottom	99.15	(3)	1227	8.20	10.83	1.050	.682	0.52	11.7	-167.1
DEDICATED PUMP	yes	(4)	1229	8.19	10.58	1.051	.683	0.52	11.2	-166.5
DTW (feet) Depth to Water	21.11									
DTB - DTW	78.04									
Capacity per foot	.74									
2 Well Volumes	173gal									
PURGE DATE										
PURGE TIME	1117									
SAMPLE DAY										
SAMPLE TIME	1228									
PUMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

oc/cldy, breezy, 30s50

WATER APPEARANCE

Clear, no odor

SAMPLE LOG

8260
8015D
WQCC metals

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR 2015 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
OW-1			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	~~DO~~ Dissolved Oxygen (%)	ORP (mV) DO%
GAUGE DATE	2/27/17	(1)	1410	8.98	10.14	1141	.742	.57	-150.9	38.9
GAUGE TIME	1300	(2)	1412	8.95	9.89	1141	742	1	-150.5	36.9
DTB (feet) Depth to Bottom	94.55	(3)	14	8.92	9.87	1136	.738	1	-150.1	37.6
DEDICATED PUMP	yes	(4)	16	8.94	9.60	1142	.742	1	-149.6	36.7
DTW (feet) Depth to Water	1.71									
DTB - DTW	92.84									
Capacity per foot										
2 Well Volumes	2806 gals									
PURGE DATE										
PURGE TIME	1305									
SAMPLE DAY										
SAMPLE TIME	1415									
UMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

OC/Cldy - Breezy - 35.40

WATER APPEARANCE

Clear - ~~pink~~ pink

SAMPLE LOG

8260
8015
8011
WQCC Met
Cat/Anions

purged 4 80 gallons - lost suction - allowed to recharge collect samples

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

1st QTR ~~2015~~ 2017

SAMPLE ID/LOCATION		TEST PARAMATERS								
OW - 10			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	2/27/17	(1)	~~1358~~ 1358	~~1.24~~ 7.58	~~24~~ 11.24	2170	1.41	1.12	19.1	-152.9
GAUGE TIME	1445	(2)	1541	7.53	10.57	2178	1.416	1.12	11.3	-157.8
DTB (feet) Depth to Bottom	60.33	(3)	1543	7.5	10.10	2182	1.418	1.12	9.1	-158.8
DEDICATED PUMP	YES	(4)	1545	7.49	9.66	2187	1.421	1.13	8.4	-158.4
DTW (feet) Depth to Water	56									
DTB - DTW	59.77									
Capacity per foot	.74									
2 Well Volumes	1329									
PURGE DATE	2/27									
PURGE TIME	1447									
SAMPLE DAY										
SAMPLE TIME	1545									
UMP DEPTH										
DTW (feet) at end of Purging										

WEATHER CONDITIONS

OC | cldy, Breezy, 35-40°

WATER APPEARANCE

Clear

SAMPLE LOG

8260 + Duplicate
8015
8011
WQCC Met
Cat / Anions

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Bailer

Signature:

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-13	
GAUGE DATE	3/16/17
GAUGE TIME	1240
DTB (feet) Depth to Bottom	21.25
DTP	—
DTW	12.6
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	8.65
Capacity per foot	.74
3 Well Volumes	19 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1343

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1339	8.16	22.70	51	.033	.02	10.9	-228.3
(2)	1341	6.93	13.16	1529	.994	.77	21.2	-263.2
(3)	1343	6.98	13.35	1528	.993	.77	16.8	-264.2
(4)	1345	7.00	13.57	1531	.995	.78	15.0	-262.8

WEATHER CONDITIONS

Overcast, calm, 60-65

WATER APPEARANCE

clear - yw - sheen - odor. Duplicate pink - silty

SAMPLE LOG/NOTES: Stopped @ 17 gals - WTR turned silty/muddy - will allow to recharge.

Duplicate @ 1350

MKTF-12	
GAUGE DATE	3/15/17
GAUGE TIME	1309
DTB (feet) Depth to Bottom	25.60
DTP	17.75
DTW	17.81
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	7.79
Capacity per foot	.74
3 Well Volumes	17
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1315

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Overcast calm, 60-65

WATER APPEARANCE

Hydrocarbon - black oily - odor

SAMPLE LOG/NOTES:

Total 10 gals - ½ gallon HC - Rest WTR

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-39	
GAUGE DATE	3-14-17
GAUGE TIME	1015
DTB (feet) Depth to Bottom	15.20
DTP	—
DTW	6.44
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	8.76
Capacity per foot	.163
3 Well Volumes	4 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1029

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1028	7.89	20.68	205	.134	.10	108.4	-133.1
(2)	1030	7.08	14.15	3916	2.548	2.08	14.5	-214.0
(3)								
(4)								

WEATHER CONDITIONS

ptly cldy - breeze - 40-45

WATER APPEARANCE

clear - sheen
odor

SAMPLE LOG/NOTES:

MKTF-20	
GAUGE DATE	3-14-17
GAUGE TIME	1050
DTB (feet) Depth to Bottom	9.89
DTP	—
DTW	5.7
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	4.19
Capacity per foot	.75
3 Well Volumes	3 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	3-14-17
SAMPLE TIME	1104

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1100	7.97	28.99	240	.156	.11	79.8	-126.5
(2)	1102	6.85	13.48	3468	2.254	1.83	11.5	-176.9
(3)	1104	6.89	13.54	3456	2.246	1.83	9.5	-177.9
(4)	1106	6.90	13.49	3466	2.253	1.83	9.2	-167.5

WEATHER CONDITIONS

ptly cldy - breeze - 40-45

WATER APPEARANCE

ltr - green - black - odor
sheen

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKMF-16	
GAUGE DATE	3/14/17
GAUGE TIME	1157
DTB (feet) Depth to Bottom	14.10
DTP	
DTW	7.45
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	~~7.45~~ 6.65
Capacity per foot	@.163
3 Well Volumes	3gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1115

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1111	7.35	15.97	2937	1.901	1.54	20.7	-148.0
(2)	1113	7.19	15.77	2900	1.885	1.52	20.0	-146.9
(3)	1115	7.19	15.77	2885	1.876	1.51	18.9	-147.2
(4)	1117	7.18	15.76	2877	1.870	1.5	18.7	-145.9

WEATHER CONDITIONS

ptly Cldy - breeze -40-45°F

WATER APPEARANCE

clear - slight sheen
no odor

SAMPLE LOG/NOTES: WR inside Vault

MKMF-21	
GAUGE DATE	3/14/17
GAUGE TIME	1143
DTB (feet) Depth to Bottom	9.89
DTP	
DTW	5.5
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	4.39
Capacity per foot	.74
3 Well Volumes	9gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1337

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1331	6.88	13.14	2290	1.488	1.18	12.3	-152.6
(2)	1333	6.90	13.61	2285	1.486	1.18	11.4	-150.3
(3)	1335	6.90	14.09	2283	1.484	1.18	11.8	-147.8
(4)	1337	6.92	13.25	2244	1.459	1.16	21.1	-155.6

WEATHER CONDITIONS

ptly Cldy - breeze -40-45°F

WATER APPEARANCE

SAMPLE LOG/NOTES: allowed to recharge (purged 4gals) before Collecting Samples.

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-2	
GAUGE DATE	3/16/17
GAUGE TIME	1325
DTB (feet) Depth to Bottom	20.48
DTP	
DTW	17.34
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	13.14
Capacity per foot	
3 Well Volumes	30 gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	3/16/17
SAMPLE TIME	1245

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	7.62	1240	11.51	2468	1.604	1.28	63.9	-177.9
(2)	7.65	1242	11.84	2478	1.610	1.29	56.1	-178.9
(3)	7.65	1244	12.27	2480	1.612	1.29	57.7	-177.3
(4)	7.67	1246	12.70	2483	1.614	1.29	54.2	-175.3

WEATHER CONDITIONS

clear, breezy, 60-65°F

WATER APPEARANCE

Clear

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

3/16/17

WATER APPEARANCE

RW-2 1112

RW-5 1028

RW-6 1035

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-38	
GAUGE DATE	3/14/17
GAUGE TIME	1155
DTB (feet) Depth to Bottom	20.29
DTP	
DTW	6.41
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	13.88
Capacity per foot	.163
3 Well Volumes	7 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1208

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1204	8.15	20.01	39	.025	.02	114.7	-133.1
(2)	1206	7.41	13.08	1439	.936	.73	31.6	-149.1
(3)	1208	7.36	13.18	1437	.934	.73	30.1	-151.8
(4)	1210	7.34	13.51	1433	.931	.72	29.4	-151.1

WEATHER CONDITIONS

Clear, Calm

WATER APPEARANCE

Clear - slight orange color - cloudy.

SAMPLE LOG/NOTES: WR inside vault. Duplicate

MKTF-2	
GAUGE DATE	3/14/17
GAUGE TIME	1233
DTB (feet) Depth to Bottom	20.48
DTP	
DTW	6.5
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	13.98
Capacity per foot	.74
3 Well Volumes	31
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear, Calm, 60-65°

WATER APPEARANCE

Clear, cloudy, slight yellow tint slight odor

SAMPLE LOG/NOTES:

CTT - purging sumps in vicinity. Purged 21 gals - hit btm - will allow to recharge before purging (24 hrs) (Stopped @ 1300)

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-1	
GAUGE DATE	3/14
GAUGE TIME	1234
DTB (feet) Depth to Bottom	17.42
DTP 4.65	~~17.75~~
DTW 4.81	4.65
DTP-DTW (Hydrocarbon Layer)	~~0~~ .26
DTW-DTB	12.77
Capacity per foot	
3 Well Volumes	28 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

oily layer.

SAMPLE LOG/NOTES: GTI purging sumps in area. purged 28 gals - approx - 1.25 gals hydrocarbon no samples collected

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-9	
GAUGE DATE	3/15/17
GAUGE TIME	0836
DTB (feet) Depth to Bottom	22.70
DTP	—
DTW	12.64
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	10.06
Capacity per foot	.74
3 Well Volumes	22
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1110

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1107	7.85	20.99	73	.048	.03	94.8	-225.8
(3)	1109	7.15	12.29	1558	1.013	.79	26.4	-271.0
(4)	1111	7.11	12.33	1555	1.91	.79	21.0	-269.1

WEATHER CONDITIONS

clear, calm, 35-40°

WATER APPEARANCE

clear - yw/OR tint - pink - cldy slight o clr

SAMPLE LOG/NOTES:

MKTF-8	
GAUGE DATE	3/15/17
GAUGE TIME	0830
DTB (feet) Depth to Bottom	21.98
DTP	11.99
DTW	12.6
DTP-DTW (Hydrocarbon Layer)	.61
DTW-DTB	9.38
Capacity per foot	—
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	Not Applicable							
(3)								
(4)								

WEATHER CONDITIONS

Clear, calm, 35-40

WATER APPEARANCE

Total Bailed ≈ 26 gals
½ gal - hydrocarbons
25½ - WTR

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF - 7	
GAUGE DATE	3-15-17
GAUGE TIME	0839
DTB (feet) Depth to Bottom	17.62
DTP 10.63	—
DTW 12.6	~~10.63~~
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	~~7.18~~
Capacity per foot	~~2.61~~
3 Well Volumes	~~46~~
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

clear, Calm, 35-40°F

WATER APPEARANCE

bailed 5 gals hydrocarbons
4 gals - WTR
Total bailed 9 gals.

SAMPLE LOG/NOTES:

MKTF - 6	
GAUGE DATE	3-15-17
GAUGE TIME	0843
DTB (feet) Depth to Bottom	23.77
DTP 15.95	—
DTW 16.05	~~16.00~~
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	~~9.77~~
Capacity per foot	~~1.6 gals~~
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

clear, Calm, 35-40°F

WATER APPEARANCE

total Gal bailed = 13 gal
1 gal Hydrocarbons
12 gal water

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-17	
GAUGE DATE	3/8/17
GAUGE TIME	1226
DTB (feet) Depth to Bottom	24.11
DTP	—
DTW	8.2
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	15.91
Capacity per foot	.163
3 Well Volumes	8 gals
PURGE DATE	
PURGE TIME	3/15/17
SAMPLE DAY	
SAMPLE TIME	~~1400~~ 1285

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1200	7.63	13.05	1167	.759	0.58	31.8	-216.3
(2)	1202	7.64	12.30	1168	0.759	0.58	30.0	-217.4
(3)	1204	7.64	11.71	1168	0.759	0.58	29.9	-215.8
(4)	1206	7.63	11.86	1155	0.751	0.58	30.5	-214.8

WEATHER CONDITIONS

Clear - Calm - 40-45°

WATER APPEARANCE

Clear - pink - silty

SAMPLE LOG/NOTES:

WTR inside vault - below pump - 1240 - Bailed 4 3.5 gals - WTR silty + only got 1/3 of a bail. Will allow to recharge 4 hrs.

MKTF - 19	
GAUGE DATE	3/8/17
GAUGE TIME	1248
DTB (feet) Depth to Bottom	17.47
DTP	—
DTW	9.82
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	7.65
Capacity per foot	.163
3 Well Volumes	4 gals
PURGE DATE	
PURGE TIME	3/15/17
SAMPLE DAY	
SAMPLE TIME	1235

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear - Calm - 40-45°

WATER APPEARANCE

Clear - pink - silty

SAMPLE LOG/NOTES:

Stopped @ 1303 hrs - bailed 4 gals - WTR silty will allow to recharge before sampling (24hrs)

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-43	
GAUGE DATE	3/8/17
GAUGE TIME	0904
DTB (feet) Depth to Bottom	15.43
DTP	—
DTW	5.34
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	10.09
Capacity per foot	0.163
3 Well Volumes	5 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0914

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	Did not Record data.							
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear, calm, 30 35°

WATER APPEARANCE

Clear - no oder

SAMPLE LOG/NOTES:

MKTF-44	
GAUGE DATE	3/8/17
GAUGE TIME	0946
DTB (feet) Depth to Bottom	51.15
DTP	—
DTW	25.39
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	25.76
Capacity per foot	.163
3 Well Volumes	13 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1017

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1012	7.66	12.86	10215	6.64	5.79	137.2	-140.3
(2)	1014	7.54	12.87	10193	6.625	5.78	76.7	-147.5
(3)	1016	7.60	13.13	10189	6.623	5.78	65.5	-147.1
(4)								

WEATHER CONDITIONS

Clear, calm, 30 35°

WATER APPEARANCE

Clear, Cloudy no oder

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-33	
GAUGE DATE	3/8/17
GAUGE TIME	1054
DTB (feet) Depth to Bottom	33.2
DTP	—
DTW	22.16
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	11.04
Capacity per foot	.1103
3 Well Volumes	5
PURGE DATE	
PURGE TIME	3/8/17
SAMPLE DAY	
SAMPLE TIME	1315

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1311	7.46	1331	1589	1.033	.81	131.2	-135.8
(2)	1313	7.41	1333	1561	1,014	0.79	63.3	-152.8
(3)	1315	7.38	13.66	1552	1,009	0.79	61.0	-150.9
(4)	1317	7.38	14.02	1552	1.009	0.79	46.1	-150.5

WEATHER CONDITIONS

Clear, slight breeze, 35-40°

WATER APPEARANCE

Clear, cloudy, pink - silty

SAMPLE LOG/NOTES: Bailed 5 gals - wtr silty - @ .1103. Will allow to recharge before collecting samples.

MKTF-22	
GAUGE DATE	3/8/17
GAUGE TIME	1110
DTB (feet) Depth to Bottom	35.25
DTP	—
DTW	25.1
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	10.15
Capacity per foot	.1103
3 Well Volumes	5 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1342

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1338	7.03	13.36	1445	.939	.73	54.7	-130.0
(2)	1340	7.05	13.34	1437	.934	0.73	29.5	-133.0
(3)	1342	7.06	13.44	1438	.935	0.73	26.5	-130.0
(4)	1344	7.06	13.54	1439	.935	0.73	25.2	-126.5

WEATHER CONDITIONS

clear, slight breeze, 35-40°

WATER APPEARANCE

clear - cloudy - pink - silty

SAMPLE LOG/NOTES: Stopped @ 1125 - purged 5 gals - wtr turned muddy - silty. Well allow to recharge before collecting sample.

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-23	
GAUGE DATE	3/8/17
GAUGE TIME	14:35
DTB (feet) Depth to Bottom	20.36
DTP	13.94
DTW	14.2
DTP-DTW (Hydrocarbon Layer)	.26
DTW-DTB	6.16
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear - slight breeze ~40-45°

WATER APPEARANCE

gw only -

SAMPLE LOG/NOTES:

Bailed 4.5 gals - hydrocarbon ~~layer~~ estimated @ less than .25 gallons.

MKTF-14	
GAUGE DATE	3/8/17
GAUGE TIME	1510
DTB (feet) Depth to Bottom	17.46
DTP	5.77
DTW	6.75
DTP-DTW (Hydrocarbon Layer)	.98
DTW-DTB	10.71
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

gw - oily -

SAMPLE LOG/NOTES:

Bailed ~ 25 gals w/ 1.25 product

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

Bailer

8011
8260
8015
8270
WDCC
Cat/An

MKTF-31	
GAUGE DATE	3/7/17
GAUGE TIME	1158
DTB (feet) Depth to Bottom	22.81
DTP	—
DTW	7.84
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	14.97
Capacity per foot	.163
3 Well Volumes	7.3
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1215

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1210	7.17	9.65	3564	2.316	1.88	29.5	-99.3
(2)	1212	7.17	9.85	3564	2.317	1.88	28.1	-100.5
(3)	1214	7.17	9.90	3575	2.324	1.89	27.9	-99.8
(4)	1216	7.16	10.15	3572	2.322	1.89	27.5	-99.5

WEATHER CONDITIONS

clear, breezy, 30-35°F

WATER APPEARANCE

clear - cloudy - pink

SAMPLE LOG/NOTES:

MKTF-40	
GAUGE DATE	3/7/17
GAUGE TIME	1250
DTB (feet) Depth to Bottom	23.64
DTP	—
DTW	13.14
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	10.5
Capacity per foot	.163
3 Well Volumes	5
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1311

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	13.07	7.2	12.56	11850	7.703	6.8	106.3	-112.
(2)	13.09	7.05	12.59	11791	7.664	6.76	42.7	-122.8
(3)	13.11	7.05	12.9	11795	7.667	6.76	40.3	-123.7
(4)	1313	7.03	13.26	11797	7.668	6.77	39.8	-122.1

WEATHER CONDITIONS

WATER APPEARANCE

clear - slight orange tint
no odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-42	
GAUGE DATE	3/7/17
GAUGE TIME	1334
DTB (feet) Depth to Bottom	33.15
DTP	
DTW	17.43
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	15.72
Capacity per foot	8 gals
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1400

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1354	8.25	13.25	2984	1.94	1.56	10.8	-145.2
(2)	1356	8.10	13.69	2995	1.947	1.57	7.6	-149.3
(3)	1358	8.07	14.19	2987	1.942	1.57	6.0	-149.1
(4)	1400	8.03	14.63	2978	1.936	1.56	4.9	-141.1

WEATHER CONDITIONS

Clear, breezy, 30-35°F

WATER APPEARANCE

Clear - orange tint - slight odor

SAMPLE LOG/NOTES:

~~purged 8 gals - wtr turned brown - silty - will allow to~~

MKTF-32	
GAUGE DATE	3/7/17
GAUGE TIME	1424
DTB (feet) Depth to Bottom	27.75
DTP	
DTW	13.7
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	14.05
Capacity per foot	1.63
3 Well Volumes	7 gals
PURGE DATE	
PURGE TIME	3/7/17
SAMPLE DAY	
SAMPLE TIME	1615

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1410	7.74	12.51	2292	1.49	1.18	58.8	-115.0
(2)	1412	7.78	12.47	2294	1.491	1.19	54.1	-122.4
(3)	1414	7.88	12.46	2295	1.492	1.19	51.4	-120.5
(4)	1416	7.85	12.41	2297	1.493	1.19	50.5	-118.5

WEATHER CONDITIONS

Clear, breezy, 35-40°F

WATER APPEARANCE

Clear - cloudy - pink

SAMPLE LOG/NOTES:

purged 8 gals - wtr turned brown - silty - will allow to recharge before collecting samples
Stopped purge @ 1440

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

8021

MKTF-41	
GAUGE DATE	3/7/18
GAUGE TIME	1456
DTB (feet) Depth to Bottom	40.10
DTP	
DTW	19.6
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	20.5
Capacity per foot	.163
3 Well Volumes	10
PURGE DATE	
PURGE TIME	3/7/17
SAMPLE DAY	
SAMPLE TIME	521

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1517	8.50	13.43	2632	1.711	1.37	30.5	-140.5
(2)	1519	8.48	13.42	2635	1.711	1.37	30.2	-157.2
(3)	1521	8.47	13.38	2630	1.713	1.37	31.5	-155.5
(4)	1523	8.41	17.30	1106	1.709	~~1.37~~ 0.55	81.0	-116.4

WEATHER CONDITIONS

WATER APPEARANCE

clear - cloudy - no odor

Duplicate 1530

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

8011
8260
8270
WQCC
Cat/Anio

MKTF-30	
GAUGE DATE	3/6/17
GAUGE TIME	0942
DTB (feet) Depth to Bottom	23.20
DTP	—
DTW	14.13
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	9.07
Capacity per foot	.163
3 Well Volumes	4.5
PURGE DATE	3/6/17
PURGE TIME	0945
SAMPLE DAY	
SAMPLE TIME	1005

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	959	7.52	11.73	3518	2.281	1.84	45.3	-85.1
(2)	1001	7.54	11.27	3530	2.294	1.87	44.7	-87.7
(3)	1003	7.54	10.90	3536	2.298	1.87	44.7	-110.2
(4)	1005	7.54	10.64	3537	2.299	1.87	44.7	-98.2

WEATHER CONDITIONS

Cldy, breezy (20-25), 25-30°

WATER APPEARANCE

clear - pink - cloudy
no odor

SAMPLE LOG/NOTES:

8260

MKTF-29	
GAUGE DATE	3/6/17
GAUGE TIME	1040
DTB (feet) Depth to Bottom	22.84
DTP	—
DTW	0.99
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	21.85
Capacity per foot	.163
3 Well Volumes	11 gals
PURGE DATE	
PURGE TIME	3/6/17
SAMPLE DAY	
SAMPLE TIME	1115

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1111	7.52	10.30	2073	1.348	1.06	18.0	-106.7
(2)	1113	7.48	10.33	2077	1.350	1.07	17.3	-106.3
(3)	1115	7.48	10.29	2079	1.351	1.07	16.9	-107.8
(4)	1117	7.48	10.25	2080	1.352	1.07	17.2	-107.8

WEATHER CONDITIONS

cldy, breezy, 25-30°

WATER APPEARANCE

clear - cloudy - pink
no-odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

8260

MKTF-27	
GAUGE DATE	3/6/17
GAUGE TIME	1140
DTB (feet) Depth to Bottom	14.72
DTP	—
DTW	6.02
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	8.7
Capacity per foot	~~4.3~~ 4.6
3 Well Volumes	~~4.30~~ 4.60
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	~~1215~~ 1155

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1150	6.92	9.04	17483	11.364	10.3	27.6	-85.4
(2)	1152	6.90	9.54	17627	11.457	10.38	248	-89.6
(3)	1154	6.89	8.23	17663	11.474	10.39	243	-90.2
(4)	1156	6.90	8.04	17661	11.480	10.39	235	-90.2

WEATHER CONDITIONS

Cldy - Breezy - 25-30°F

WATER APPEARANCE

Clear - slight yw tint Cloudy

no odor

SAMPLE LOG/NOTES:

*Bail 8011 dry 8260

MKTF-26	
GAUGE DATE	3/6/17
GAUGE TIME	1215
DTB (feet) Depth to Bottom	17.15
DTP	~~7.44~~
DTW	8.19
DTP-DTW (Hydrocarbon Layer)	~~0.75~~
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)			No Samples					
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

yw - oily - odor

SAMPLE LOG/NOTES:

No Samples Collected - has hydrocarbon tapes retention panels Full - East of wells

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

3/29/17

MKTF-24	
GAUGE DATE	3/6/17
GAUGE TIME	1236
DTB (feet) Depth to Bottom	30.47
DTP	—
DTW	20.61
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	9.86
Capacity per foot	.163
3 Well Volumes	5gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	~~3/6/17~~
SAMPLE TIME	~~1445~~ (1255)

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1010	7.03	11.69	3250	2.112	1.71	16.1	-231.1
(2)	1012	7.03	11.35	3264	2.121	1.72	14.4	-231.4
(3)	1014	7.02	11.22	3264	2.121	1.72	16.2	-232.3
(4)	1016	7.02	10.98	3267	2.123	1.72	16.3	-233.6

WEATHER CONDITIONS

Cldy - breezy - 25-30°

WATER APPEARANCE

clear - pink - cloudy - muddy

SAMPLE LOG/NOTES: Stopped @ 5gals - wtr muddy will allow to recharge before sampling.
Resampled 3/29/17 @ 1015AM

MKTF-25	
GAUGE DATE	3/6/17
GAUGE TIME	1335
DTB (feet) Depth to Bottom	19.43
DTP	—
DTW	9.52
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.91
Capacity per foot	.163
3 Well Volumes	5
PURGE DATE	
PURGE TIME	
SAMPLE DAY	3/6/17
SAMPLE TIME	1408

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1402	7.03	8.41	2684	1.744	1.39	22.8	~~-96.0~~ -97.7
(2)	1404	7.05	8.44	2683	1.744	1.34	22.9	-96.0
(3)	1406	7.06	8.47	2685	1.745	1.39	21.4	-93.7
(4)	1408	7.07	8.46	2688	1.747	1.4	20.9	-93.6

WEATHER CONDITIONS

windy

WATER APPEARANCE

clear

8011
8260
8015
WQCC
Cat/Anion
8270
+
Duplicate
1414

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-28	
GAUGE DATE	3/6/17
GAUGE TIME	1500
DTB (feet) Depth to Bottom	16.16
DTP	—
DTW	4.68
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	11.48
Capacity per foot	.163
3 Well Volumes	6 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1514

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1508	8.25	16.05	51	.033	.02	76.1	-94.6
(2)	1510	8.26	17.03	50	.033	.02	77.3	-93.3
(3)	1512	8.39	17.11	51	.033	.02	78.3	-94.4
(4)	1514	8.43	17.11	47	.031	.02	78.4	-95.0

WEATHER CONDITIONS

WATER APPEARANCE

- clear - slight orange tint
no odor.

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

missing 2011

MKTF-37	
GAUGE DATE	3/1/17
GAUGE TIME	1000
DTB (feet) Depth to Bottom	24.60
DTP	
DTW	6.9
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	17.7
Capacity per foot	.163
3 Well Volumes	8 gals
PURGE DATE	3/1/17
PURGE TIME	1004
SAMPLE DAY	
SAMPLE TIME	1025

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	Not Available -							
(2)								
(3)	Did not record readings.							
(4)								

WEATHER CONDITIONS

Clear, slight breeze, 30-35°F

WATER APPEARANCE

clear - gray - sheen - odor

SAMPLE LOG/NOTES: WTR inside vault - below Plug.

MKTF-18	
GAUGE DATE	3/1/17
GAUGE TIME	1058
DTB (feet) Depth to Bottom	25.38
DTP	
DTW	7.81
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	17.57
Capacity per foot	.163
3 Well Volumes	9 gals
PURGE DATE	
PURGE TIME	1100
SAMPLE DAY	
SAMPLE TIME	1418

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1414	7.24	12.87	1367	.888	.69	32.4	-161.7
(2)	1416	7.20	12.34	1371	.891	.69	29.8	-159.1
(3)	1418	7.22	11.98	1374	.893	.69	28.9	-159.1
(4)	1420	7.22	11.78	1372	.892	.69	29.9	-160.3

WEATHER CONDITIONS

Clear

WATER APPEARANCE

Clear - pink - brown - no odor

stopped purge @ 1108

SAMPLE LOG/NOTES: Bailed ~4.5 gallons - mud - will allow to recharge 5 to

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF - 04	
GAUGE DATE	3/2/17
GAUGE TIME	0940
DTB (feet) Depth to Bottom	22.15 23.77
DTP	
DTW	8.31
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	~~15.46~~ 13.84
Capacity per foot	.74
3 Well Volumes	30
PURGE DATE	~~0942~~
PURGE TIME	0942
SAMPLE DAY	3/2/17
SAMPLE TIME	1130

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1126	7.01	12.27	1809	1.176	.92	36.6	-91.6
(2)	1128	7.01	12.17	1814	1.179	.93	32.9	-88.1
(3)	~~1130~~ 1130	7.0	12.06	1819	1.182	.93	31.1	-85.4
(4)	1132	7.01	12.12	1819	1.182	.93	29.8	-83.6

WEATHER CONDITIONS

clear, slight breeze, 25-30°

WATER APPEARANCE

clear - gray - muddy - sheen slight odor

SAMPLE LOG/NOTES: Stopped purge @ 21 gallons - turned muddy, (1000) Silty - will allow to recharge.

MKTF - 05	
GAUGE DATE	3/2/17
GAUGE TIME	0935
DTB (feet) Depth to Bottom	17.75
DTP	13.33
DTW	13.62
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

Need bail

WEATHER CONDITIONS

clear - slight breeze 25-30°

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

*Bail dry

MKTF-07B	
GAUGE DATE	3/2/17
GAUGE TIME	
DTB (feet) Depth to Bottom	~~22.15~~ 18.45
DTP	6.42
DTW	7.59
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	.74
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear, slight breeze, 30.35°

WATER APPEARANCE

Odor

SAMPLE LOG/NOTES:

MKTF-11	
GAUGE DATE	3/2/17
GAUGE TIME	1021
DTB (feet) Depth to Bottom	18.14
DTP	
DTW	6.96
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	11.18
Capacity per foot	.74
3 Well Volumes	~~2.5~~
PURGE DATE	3/2/17
PURGE TIME	1035
SAMPLE DAY	3/2/17
SAMPLE TIME	1146

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1141	8.23	1708	13	.009	0	78.0	-94.9
(2)	1143	7.24	13.22	3168	2.059	1.67	17.6	-111.7
(3)	1145	7.25	11.77	3187	2.071	1.68	15.1	-111.9
(4)	1147	7.26	11.48	3194	2.076	1.68	15.1	-110.8

WEATHER CONDITIONS

clear, breeze, 30.35°F

WATER APPEARANCE

Clear - gray - murky - odor sheen

SAMPLE LOG/NOTES:

Bailed 2 gals - wtr - gray-murky - will allow to recha before sumpling. Stopped @ 1044.

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-10	
GAUGE DATE	3/2/17
GAUGE TIME	1054
DTB (feet) Depth to Bottom	15.99
DTP	—
DTW	7.47
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	8.52
Capacity per foot	.74
3 Well Volumes	19
PURGE DATE	
PURGE TIME	1057
SAMPLE DAY	
SAMPLE TIME	1212

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1208	7.0	12.14	1847	1.201	.94	22.9	-112.2
(2)	1210	7.07	11.63	1859	1.209	.95	17.8	-106.7
(3)	1212	7.09	11.32	1864	1.212	.95	17.6	-103.0
(4)								

WEATHER CONDITIONS

Clear, breezy, 30-35°F

WATER APPEARANCE

Clear - pink - gray - murky

8260
8015D
WQCC
Cat/An
8270

SAMPLE LOG/NOTES: bailed 4 gals - turned murky - brown
Stopped purge @ 1108 - will allow to recharge before collecting sample
Collected - Dup

MKTF-15	
GAUGE DATE	3/2/17
GAUGE TIME	1248
DTB (feet) Depth to Bottom	19.48
DTP	—
DTW	12.15
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	7.33
Capacity per foot	.163
3 Well Volumes	4 gals
PURGE DATE	
PURGE TIME	1250
SAMPLE DAY	
SAMPLE TIME	1310

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1305	6.68	13.45	10220	6.643	5.80	27.7	-134.7
(2)	1307	6.70	13.19	10278	6.681	5.83	19.8	-141.0
(3)	1309	6.71	13.13	10290	6.689	5.84	16.7	-130.2
(4)	1311	6.71	13.09	10311	6.702	5.85	15.2	-134.5

WEATHER CONDITIONS

WATER APPEARANCE

odor, clear - pink

SAMPLE LOG/NOTES: WR inside vault - below plug

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-36	
GAUGE DATE	3/11/17
GAUGE TIME	1125
DTB (feet) Depth to Bottom	15.45
DTP	
DTW	5.56
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.89
Capacity per foot	.163
3 Well Volumes	5 gal
PURGE DATE	
PURGE TIME	1127
SAMPLE DAY	
SAMPLE TIME	1138

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1132	7.64	12.93	1412	.918	.71	83.7	-180.2
(2)	1134	7.0	10.54	1463	.951	.74	18.2	-199.1
(3)	1136	6.99	9.70	1466	.953	.74	22.7	-198.4
(4)	1138	6.98	9.29	1466	.953	.74	20.4	-195.2

WEATHER CONDITIONS

clear, breezy, 30-35°F

WATER APPEARANCE

WTR inside vault - bailed before removing opening plug

clear - gray - sheen - odor

8011
8260
WQCC
Cat/An
8270

SAMPLE LOG/NOTES:

@ 1240
+ Duplicate
8011
Sodium thiosulfate

MKTF-35	
GAUGE DATE	3/11/17
GAUGE TIME	1200
DTB (feet) Depth to Bottom	16.45
DTP	
DTW	6.18
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.27
Capacity per foot	.163
3 Well Volumes	5 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1220

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1214	7.35	9.9	1236	.803	.62	21.4	-224.4
(2)	1216	7.37	9.11	1240	.806	.62	18.9	-223.6
(3)	1218	7.37	8.45	1243	.808	.62	16.4	-221.4
(4)	1220	7.33	8.01	1246	.810	.62	15.7	-217.1

WEATHER CONDITIONS

w

WATER APPEARANCE

WTR inside vault - below plug

clear - slightly gray - no odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-34	
GAUGE DATE	3/1/17
GAUGE TIME	1310
DTB (feet) Depth to Bottom	27.68
DTP	
DTW	16.5
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	11.18
Capacity per foot	.163
3 Well Volumes	55 gal
PURGE DATE	
PURGE TIME	1313
SAMPLE DAY	
SAMPLE TIME	1327

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1314	7.69	13.14	1684	1.095	.86	48.8	-161.9
(2)	1316	7.67	12.89	1692	1.1	.86	48.6	-158.8
(3)	1318	7.66	12.97	1690	1.098	.86	48.3	-163.5
(4)	1320	7.67	13.01	1690	1.099	.86	48.5	-177.1

WEATHER CONDITIONS

Clear, breezy, 30-35°

WATER APPEARANCE

clear - no odor detected

SAMPLE LOG/NOTES:

MKTF-45	
GAUGE DATE	3-1-17
GAUGE TIME	1428
DTB (feet) Depth to Bottom	30.24
DTP	10.32
DTW	10.63
DTP-DTW (Hydrocarbon Layer)	.31
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			None taken					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

yw - clear - odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

Resample

MKTF-27	
GAUGE DATE	3/29/17
GAUGE TIME	0810
DTB (feet) Depth to Bottom	14.72
DTP	
DTW	6.55
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	8.17
Capacity per foot	.163
3 Well Volumes	4 gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0820

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)	
(1)	814	7.41	12.03	1387	8.571	7.62	46.05	-124.6	
(2)	816	7.21	8.36	14414	9.369	8.35	52.9	-162.4	
(3)	818	7.22	7.71	14521	9.439	8.41	43.8	-167.1	
(4)	820	7.23	7.41	14589	9.483	8.44	39.4	-191.1	

WEATHER CONDITIONS

Clear, calm, 30-35°

WATER APPEARANCE

Clear - turned punk

SAMPLE LOG/NOTES:

MKTF-28	
GAUGE DATE	3/29/17
GAUGE TIME	0840
DTB (feet) Depth to Bottom	16.16
DTP	
DTW	11.48
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	4.68
Capacity per foot	
3 Well Volumes	2gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0851

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)	
(1)	848	8.11	12.96	56	.036	.03	91.6	-150.3	
(2)	850	7.76	13.77	2426	1.573	1.25	46.5	-170.3	
(3)	852	7.72	13.11	2467	1.564	1.25	41.6	-168.8	
(4)									

WEATHER CONDITIONS

Clear - breezy - 30-35°

WATER APPEARANCE

clear - Cldy - Orange tint

SAMPLE LOG/NOTES:

Excavation near mill - BWON project - FW Line

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

Resample 8011

MKTF-30	
GAUGE DATE	3/29/17
GAUGE TIME	904
DTB (feet) Depth to Bottom	23.20
DTP	—
DTW	13.10
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	10.1
Capacity per foot	
3 Well Volumes	5
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0920

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	917	7.54	10.51	2584	2.329	1.90	46.7	-186.6
(3)	919	7.50	10.26	2573	2.322	1.89	26.3	-187.2
(4)	921	7.50	9.40	2595	2.337	1.90	33.6	-188.2

WEATHER CONDITIONS

~~Clear~~ P/C, breezy, 30-35°

WATER APPEARANCE

Clear - oily - purple

SAMPLE LOG/NOTES:

Dup 0950

MKTF-29	
GAUGE DATE	3/29/17
GAUGE TIME	0926
DTB (feet) Depth to Bottom	22.84
DTP	—
DTW	10
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	22.74
Capacity per foot	
3 Well Volumes	11 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0944

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	938	7.62	10.75	2128	1.383	1.09	23.4	-224.4
(2)	940	7.54	10.25	2123	1.38	1.09	18.1	-225.8
(3)	942	7.52	9.88	2116	1.375	1.09	17.0	-225.1
(4)	944	7.51	9.57	2117	1.376	1.09	15.3	-224.1

WEATHER CONDITIONS

P/C, breezy, 30-35°

WATER APPEARANCE

clear

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

Resample

8011

MKTF-24	
GAUGE DATE	3/29/17
GAUGE TIME	1000
DTB (feet) Depth to Bottom	30.47
DTP	
DTW	20.66
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.81
Capacity per foot	
3 Well Volumes	5gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1015

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)	
(1)	1010	7.03	11.69	3250	2.112	1.71	16.1	-23	1.1
(2)	1012	7.03	11.35	3264	2,121	1.72	14.4	-23	1.4
(3)	1014	7.02	11.22	3264	2.121	1.72	16.2	-232	.3
(4)	1016	7.02	10.98	3267	2.123	1.72	16.3	-233	.6

WEATHER CONDITIONS

P/C, breezy, 30.35

WATER APPEARANCE

clear, cldy, pink

SAMPLE LOG/NOTES:

Resample

8011

MKTF-25	
GAUGE DATE	3/29/17
GAUGE TIME	1040
DTB (feet) Depth to Bottom	19.43
DTP	
DTW	9.7
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.73
Capacity per foot	
3 Well Volumes	5gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1054

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)	
(1)		7.17	9.50	2402	1.561	1.24	83.6	-17	3.1
(2)		7.14	9.04	2441	1.587	1.26	17.4	-21	0.8
(3)		7.15	8.81	2446	1.59	1.27	16.3	-21	4.7
(4)		7.15	8.79	2436	1.583	1.26	16.0	-21	2.6

WEATHER CONDITIONS

P/C, breezy, 30-35°F

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW-56	
GAUGE DATE	3/29/17
GAUGE TIME	1134
DTB (feet) Depth to Bottom	18.59
DTP	
DTW	12.29
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	6.3
Capacity per foot	
3 Well Volumes	3gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1146

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1142	8.81	19.27	35	.023	.02	98.2	-152.4
(2)	1144	8.49	11.63	2386	1.551	1.24	31.2	-199.0
(3)	1146	7.43	11.84	2388	1.552	1.24	28.5	-199.2
(4)	1148	7.45	12.22	2387	1.552	1.24	28.5	-199.2

WEATHER CONDITIONS

P/C breezy, 35-40

WATER APPEARANCE

clear - cldy - orange tint

SAMPLE LOG/NOTES:

OW-55	
GAUGE DATE	3/29/17
GAUGE TIME	1209
DTB (feet) Depth to Bottom	30.70
DTP	
DTW	18.39
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1215

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1210	6.98	13.51	2173	1.412	1.12	14.7	-231.7
(2)	1212	6.95	13.22	2179	1.416	1.12	11.4	-225.2
(3)	1214	6.96	13.05	2183	1.419	1.13	10.4	-219.5
(4)	1216	6.95	12.95	2185	1.420	1.13	10.6	-213.2

WEATHER CONDITIONS

P/C, breezy, 35-40

WATER APPEARANCE

clear -- brown/pink

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW-54	
GAUGE DATE	3/29/17
GAUGE TIME	1235
DTB (feet) Depth to Bottom	31.04
DTP	—
DTW	18.44
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	
Capacity per foot	
3 Well Volumes	6 gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1249

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1242	7.42	12.13	1897	1.233	.97	37.8	-204.7
(2)	44	7.23	12.22	1878	1.221	.96	14.8	-211.5
(3)	46	7.22	12.32	1878	1.221	.96	14.7	-210.4
(4)	48	7.22	12.32	1878	1.221	.96	14.0	-209.0

WEATHER CONDITIONS

plc, breezy, 45-50°

WATER APPEARANCE

clear - pink - brown

SAMPLE LOG/NOTES:

OW-53	
GAUGE DATE	3/29/17
GAUGE TIME	1306
DTB (feet) Depth to Bottom	33.90
DTP	—
DTW	DRY
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

plc, breezy, 45-50°.

WATER APPEARANCE

~~clear~~ N/A.

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

flush mount @ End up RR Road

OW-58	
GAUGE DATE	3/29/17
GAUGE TIME	1420
DTB (feet) Depth to Bottom	47.2 ~~47.31~~
DTP	
DTW	25.31
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	21.89
Capacity per foot	
3 Well Volumes	11 gals
PURGE DATE	
PURGE TIME	3/29/17
SAMPLE DAY	
SAMPLE TIME	1450

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1444	7.58	18.19	1461	.95	.74	118.5	-193.4
(2)	46	6.98	1382	1550	1.008	.79	17.6	-212.2
(3)	48	6.94	1352	1552	1.008	.79	16.4	-207.5
(4)	50	6.96	1334	1551	1.008	.79	15.5	-205.2

WEATHER CONDITIONS

WATER APPEARANCE

clear - pink

SAMPLE LOG/NOTES:

Bailed ~ 4 gals - wtr turned pink/brn. - < 1" wtr inside vault - below plug

NW Cor 574

OW-57	
GAUGE DATE	3/29/17
GAUGE TIME	1510
DTB (feet) Depth to Bottom	28.1
DTP	
DTW	20.75
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	3.5
PURGE DATE	
PURGE TIME	Stopped @ 1320
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

Unit removed Cloudy water meter malfunction

WEATHER CONDITIONS

WATER APPEARANCE

1320 hrs Clear - Cldy - pk

SAMPLE LOG/NOTES:

Purged ~ 2 gals - turned muddy - will allow to recharge before collecting samples.

1.28
3
3.75
4.63
5.22
5.50
1330
2.75
3.15
3.45

Back @ 1240 to collected Samples -

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

STP 1 to EP 2	
GAUGE DATE	3-30-17
GAUGE TIME	~~0830~~
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	3-30-17
SAMPLE TIME	0840

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

O/C - calm, 35-40°

WATER APPEARANCE

SAMPLE LOG/NOTES:

EP-2	
GAUGE DATE	3/30/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	0845
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EP-3	
GAUGE DATE	3/2017
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0910

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

EP-4	
GAUGE DATE	3/2017
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0920

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EP-5	
GAUGE DATE	3/30/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0945

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

EP-6	
GAUGE DATE	3/30/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0955

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EP-7	
GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1015

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

EP-11	
GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1025

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EP-12A	
GAUGE DATE	3/30/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1110

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

green

SAMPLE LOG/NOTES:

EP-12B	
GAUGE DATE	3/30/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1120

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

green

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EP-8	
GAUGE DATE	3/30/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1138

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

green

SAMPLE LOG/NOTES:

EP-9	
GAUGE DATE	3/30
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1205

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

PW-4	
GAUGE DATE	3/30/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1220

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW-29	
GAUGE DATE	5/30/17
GAUGE TIME	1050
DTB (feet) Depth to Bottom	51.08
DTP	—
DTW	17.76
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	33.32
Capacity per foot	.74
3 Well Volumes	74 gals
PURGE DATE	5/30
PURGE TIME	1057
SAMPLE DAY	
SAMPLE TIME	1140

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1134	7.51	13.60	1652	1.074	.84	11.3	-98
(2)	1136	7.50	13.81	1642	1.067	.83	10.7	-95.1
(3)	1138	7.49	14.05	1637	1.064	.83	9.4	-88.0
(4)	1140	7.48	14.33	1635	1.063	.85	8.9	-87.5

WEATHER CONDITIONS

plc, slight breeze, 70-75° F

WATER APPEARANCE

Clear - no odor.

SAMPLE LOG/NOTES:

purged ~ 57 gals - lost suction. Allowed to recharge before collecting samples. @ Purge WTR collected in 55 gal drum.

OW 14	
GAUGE DATE	5-30-17
GAUGE TIME	1:40
DTB (feet) Depth to Bottom	46.52
DTP	—
DTW	22.55
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	23.97
Capacity per foot	.74
3 Well Volumes	53.20
PURGE DATE	5/30/17
PURGE TIME	1446
SAMPLE DAY	5/30/17
SAMPLE TIME	2:15

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1410	7.25	15.56	1711	1.112	.87	45.4	-136.4
(2)	1412	7.24	15.99	1710	1.111	.87	41.4	-132.5
(3)	1414	7.27	16.41	1709	1.111	.87	40.9	-131.1
(4)	1416	7.28	16.74	1711	1.112	.87	40.1	-129.6

WEATHER CONDITIONS

windy/cloudy 68°

WATER APPEARANCE

clear, no odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW 13	
GAUGE DATE	5-31-17
GAUGE TIME	8:58
DTB (feet) Depth to Bottom	99.15
DTP	—
DTW	21.1
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	78.05
Capacity per foot	.74
3 Well Volumes	173.27
PURGE DATE	5-31-17
PURGE TIME	9 02
SAMPLE DAY	5-31-17
SAMPLE TIME	12:03

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1154	8.24	13.99	1050	.683	.52	11.9	-187.9
(2)	1156	8.26	1442	1052	.684	.52	9.7	-194.0
(3)	1158	8.26	14.81	1052	.684	.52	9.7	-189.0
(4)	1200	8.24	15.20	1055	.684	.52	150	-191.2

WEATHER CONDITIONS

Breezy / overcast / 51°

WATER APPEARANCE

Clear no odor

SAMPLE LOG/NOTES: Safety Alarm shut down - did not start purge process. Restart Purge time 10:17

OW 30	
GAUGE DATE	5-31-17
GAUGE TIME	7:58
DTB (feet) Depth to Bottom	49.90
DTP	—
DTW	22.09
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	~~27.81~~ ~~39.80~~
Capacity per foot	.74
3 Well Volumes	61.73 ~~77.27~~
PURGE DATE	5-31-17
PURGE TIME	8:05
SAMPLE DAY	5-31-17
SAMPLE TIME	8:20

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	816	7.33	12.80	1631	1.06	.83	30.9	-156.5
(2)	818	7.29	12.86	1631	1.06	.83	16.2	-161.9
(3)	820	7.30	12.93	1632	1.061	.83	12.7	-162.1
(4)	822	7.29	12.99	1631	1.06	.83	11.6	-159.5

WEATHER CONDITIONS

windy 46° Overcast

WATER APPEARANCE

Clear no Order

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW 1		TEST PARAMATERS								
			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	5-31-17	(1)	1349	9.10	14.49	1160	.754	.58	9.1	-197.2
GAUGE TIME	1248	(2)	1351	9.15	14.88	1168	.759	.58	9.2	-196.3
DTB (feet) Depth to Bottom	94.55	(3)	1353	9.13	1536	1172	.762	.59	8.0	-187.4
DTP	-	(4)	1355	9.07	1571	1176	.764	59	8.4	-188.3
DTW	1.77	WEATHER CONDITIONS								
DTP-DTW (Hydrocarbon Layer)	-									
DTW-DTB	92.78	Overcast / Breezy 66°								
Capacity per foot	.74	WATER APPEARANCE								
3 Well Volumes	205.97									
PURGE DATE	5-31-17									
PURGE TIME	1251									
SAMPLE DAY	5-31-17	Clear no odor								
SAMPLE TIME	1:53									

SAMPLE LOG/NOTES:

OW 10		TEST PARAMATERS								
			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	5-31-17	(1)	1500	7.72	14.14	3152	2.049	1.66	14.7	-134.4
GAUGE TIME	2:15-PM	(2)	1502	7.70	14.52	3158	2.053	1.66	13.4	-131.2
DTB (feet) Depth to Bottom	60.33	(3)	1504	7.70	14.79	3160	2.054	1.66	12.8	-128.7
DTP	-	(4)	1506	7.68	15.07	3162	2.055	1.66	12.2	-127.7
DTW	1.07	WEATHER CONDITIONS								
DTP-DTW (Hydrocarbon Layer)	-									
DTW-DTB	59.26	Partly cloudy - windy 68°								
Capacity per foot	.74	WATER APPEARANCE								
3 Well Volumes	131.55									
PURGE DATE	5-31-17									
PURGE TIME	2 20									
SAMPLE DAY	5-31-17									
SAMPLE TIME	3:05	water clear / NO smell								

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OAP 1S 1	
GAUGE DATE	6-1-17
GAUGE TIME	8:32
DTB (feet) Depth to Bottom	26.0
DTP	-
DTW	11.46
DTP-DTW (Hydrocarbon Layer)	-
DTW-DTB	14.54
Capacity per foot	.163
3 Well Volumes	7.11
PURGE DATE	6-1-17
PURGE TIME	8 36
SAMPLE DAY	6-1-17
SAMPLE TIME	8:54

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	850	7.21	15.03	5604	3.642	3.05	13.7	-134.9
(2)	852	7.18	15.02	5615	3.650	3.06	10.3	-131.3
(3)	854	7.18	1511	5620	3.653	3.06	11.3	-135.4
(4)	856	7.18	15.19	5634	3.662	3.07	116.7	-118.1

WEATHER CONDITIONS

Breezy - Sunny 51°

WATER APPEARANCE

Clear with Yellow tint

SAMPLE LOG/NOTES:

NAP-2	
GAUGE DATE	6-1-17
GAUGE TIME	9:26
DTB (feet) Depth to Bottom	13.61
DTP	
DTW	8.35
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	5.26
Capacity per foot	2.57
3 Well Volumes	.163
PURGE DATE	6-1-17
PURGE TIME	9:39
SAMPLE DAY	6-1-17
SAMPLE TIME	1245

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1238	7.28	20.95	1710	1.112	.87	14.0	-146.4
(2)	1240	7.30	21.07	1713	1.114	.87	12.8	-145.7
(3)	1242	7.36	21.18	1717	1.116	.87	11.8	-146.2
(4)	1244	7.37	21.29	1719	1.117	.87	11.6	-142.7

WEATHER CONDITIONS

Breezy 51° Clear Sunny

WATER APPEARANCE

Clear

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

KA 3	
GAUGE DATE	6-1-17
GAUGE TIME	9:26
DTB (feet) Depth to Bottom	23.20
DTP	
DTW	8.22
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	14.98
Capacity per foot	.163
3 Well Volumes	7.32
PURGE DATE	6-1-17
PURGE TIME	9:36
SAMPLE DAY	6-1-17
SAMPLE TIME	1300

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1256	7.25	21.60	1631	1.06	.82	20.7	-81.6
(2)	1258	7.25	21.61	1633	1.061	.83	20.1	-79.2
(3)	1300	7.25	21.66	1635	1.062	.83	20.6	-76.3
(4)	1302	7.26	21.74	1636	1.064	.83	26.3	-74.2

WEATHER CONDITIONS

Breezy Sunny 51°

WATER APPEARANCE

Clear

SAMPLE LOG/NOTES: West API Bay 005 - Covers off

NAP-3	
GAUGE DATE	6-1-17
GAUGE TIME	9:28
DTB (feet) Depth to Bottom	30.42
DTP	
DTW	10.2
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	29.22
Capacity per foot	.163
3 Well Volumes	14.28
PURGE DATE	6-1-17
PURGE TIME	10:01
SAMPLE DAY	6-2-17
SAMPLE TIME	7:50

TEST PARAMATERS 6/2/18

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	743	8.18	18.34	987	.641	.49	44.5	-64.1
(2)	745	8.07	18.33	1804	1.172	.92	31.7	-68.6
(3)	747	8.01	17.77	814	1.179	.93	30.0	-67.1
(4)	749	7.98	17.51	1818	1.182	.93	28.6	-67.2

WEATHER CONDITIONS

Breezy, Sunny 51°

WATER APPEARANCE

Clear

SAMPLE LOG/NOTES: 6-1 Lighting Storm did not complete Returned 6-2 7:44 for sampling

Collected Duplicate

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

NAPIS-1	
GAUGE DATE	6-2
GAUGE TIME	0748
DTB (feet) Depth to Bottom	13.53
DTP	—
DTW	6.85
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	6.68
Capacity per foot	.163
3 Well Volumes	3
PURGE DATE	
PURGE TIME	0750
SAMPLE DAY	6/2/17
SAMPLE TIME	0854

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	848	8.02	16.17	1745	1.134	0.89	139.5	-330
(2)	850	7.37	15.76	1740	1.131	0.89	39.1	-80.7
(3)	852	7.37	15.80	1740	1.131	0.89	38.1	-94.8
(4)	854	7.37	15.84	1739	1.131	0.89	37.7	-95.4

WEATHER CONDITIONS

P/C, calm

WATER APPEARANCE

clear - no odor

SAMPLE LOG/NOTES: 854 API - West bay 005

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

GWM-3	
GAUGE DATE	6/2/17
GAUGE TIME	0850
DTB (feet) Depth to Bottom	
DTP	
DTW	DRY
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

GWM-2	
GAUGE DATE	6/2/17
GAUGE TIME	0852
DTB (feet) Depth to Bottom	
DTP	
DTW	DRY
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

GWM-1	
GAUGE DATE	6/2/17
GAUGE TIME	0853
DTB (feet) Depth to Bottom	26.20
DTP	21.54
DTW	
DTP-DTW (Hydrocarbon Layer) DTW	21.98
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

oily Layer (yellow)

SAMPLE LOG/NOTES:

STP-1NW	
GAUGE DATE	6-2-1
GAUGE TIME	9:10
DTB (feet) Depth to Bottom	50
DTP	—
DTW	20.66
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	29.34
Capacity per foot	.162
3 Well Volumes	14.25
PURGE DATE	6.2.17
PURGE TIME	9:15
SAMPLE DAY	6.2.17
SAMPLE TIME	9:40

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	935	7.77	13.66	6000	3.9	3.28	37.3	-140.8
(2)	937	7.86	13.5	6007	3.905	3.28	34.5	-125.5
(3)	939	7.92	13.83	6021	3913	3.29	33.5	-121.0
(4)	941	7.95	13.98	6023	3915	3.29	33.3	-118.2

WEATHER CONDITIONS

clear 53°

WATER APPEARANCE

SAMPLE LOG/NOTES:

X Did not gauge STP1-DTW Due to high H_2S levels in area. Not authorize entry.

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY
2017 Annual/Quarterly Well Log

Aerator Pond 2

EV 3/4S	
GAUGE DATE	6/2/17
GAUGE TIME	1~~2~~0
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1020

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

STP-1 to EP2	
GAUGE DATE	6-2-16
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	6-2-17
SAMPLE TIME	1037

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Sunny 53°

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:
YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

LDU R	
GAUGE DATE	6-2-17
GAUGE TIME	11 00
DTB (feet) Depth to Bottom	
DTP	
DTW	8
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	1104
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Sunny Breezy

WATER APPEARANCE

SAMPLE LOG/NOTES:

LDU W	
GAUGE DATE	6-2-17
GAUGE TIME	11 02
DTB (feet) Depth to Bottom	
DTP	
DTW	9.42
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1115

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Sunny Breezy

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

Sample

MKTF-16	
GAUGE DATE	6-7-17
GAUGE TIME	1550
DTB (feet) Depth to Bottom	14.10
DTP	
DTW	7.66
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	6.44
Capacity per foot	.163
3 Well Volumes	3 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	6-8-17
SAMPLE TIME	1000 PM

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1252	8.47	2835	38	0025	.02	73.6	-81.7
(2)	1254	7.32	20.05	3092	2.01	1.62	19.8	-102.8
(3)	1256	7.27	2023	3085	2.005	1.61	15.8	-95.3
(4)	1258	7.25	20.35	3087	2.007	1.62	14.6	-91.9

WEATHER CONDITIONS

plc, breezy, 85-88°

WATER APPEARANCE

Clear slt brwn - cloudy - slight purple tint.

Duplicate #300

SAMPLE LOG/NOTES: WL above vault below plug - purged x 3 gals. Not enough WL to sample - will allow to recharge before sampling. Returned to sample 6-8-17

MKTF20	
GAUGE DATE	6/8/17
GAUGE TIME	1400
DTB (feet) Depth to Bottom	9.89
DTP	
DTW	5.57
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	12.94
Capacity per foot	.740
3 Well Volumes	9.50
PURGE DATE	6-8-17
PURGE TIME	~~1145~~
SAMPLE DAY	
SAMPLE TIME	1400

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Windy 79° Sunny

WATER APPEARANCE

Purged 5 gals before empty did not sample

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 33	
GAUGE DATE	6-7-17
GAUGE TIME	7:48
DTB (feet) Depth to Bottom	33.2
DTP	-
DTW	22.07
DTP-DTW (Hydrocarbon Layer)	-
DTW-DTB	11.13
Capacity per foot	5.44
3 Well Volumes	.163
PURGE DATE	6-7-17
PURGE TIME	07.53
SAMPLE DAY	6-7-17
SAMPLE TIME	0805

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	756	8.57	12.75	1693	1.101	.80	83.7	-133.6
(2)	758	7.74	13.04	1508	.98	.76	27.3	-159.3
(3)	800	7.66	13.06	1480	.962	.75	21.9	-156.1
(4)	802	7.64	13.01	1480	.962	.75	21.1	-157.7

WEATHER CONDITIONS

Breezy / 57°

WATER APPEARANCE

Clear - cloudy - pink

SAMPLE LOG/NOTES:

MKTF 22	
GAUGE DATE	6-7-17
GAUGE TIME	8:20
DTB (feet) Depth to Bottom	35.25
DTP	
DTW	25.31
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.94
Capacity per foot	.163
3 Well Volumes	4.86
PURGE DATE	6.7.17
PURGE TIME	8.24
SAMPLE DAY	
SAMPLE TIME	1240

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1230	7.35	14.00	1526	.992	.77	25.2	-77.9
(2)	1232	7.28	14.89	1520	.988	.71	20.7	-74.7
(3)	1234	7.25	15.12	1520	.994	.77	19.8	-70.1
(4)	1236	7.23	15.74	1532	.996	.78	22.0	-85.3

WEATHER CONDITIONS

Windy 58° Sunny/Partly Cloudy

WATER APPEARANCE

clear - cloudy - Muddy Brown

End @ 8:37

muddy stop purge - Recharge for sampling

Sample 6-8-17

SAMPLE LOG/NOTES:

6/8/17 - Collected samples @ 1240

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 23	
GAUGE DATE	6-7-17
GAUGE TIME	845
DTB (feet) Depth to Bottom	20.36
DTP	14.2
DTW	14.9
DTP-DTW (Hydrocarbon Layer)	0.7
DTW-DTB	5.46
Capacity per foot	2.604
3 Well Volumes	.163
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Partly Cloudy Sunny 58°

WATER APPEARANCE

NO Samples collected

Has Product Layer

SAMPLE LOG/NOTES: Bailed 3 gals w/ ¼ in layer of product

MKTF-14	
GAUGE DATE	6/7/17
GAUGE TIME	905
DTB (feet) Depth to Bottom	17.46
DTP	16.68
DTW	17.52
DTP-DTW (Hydrocarbon Layer)	.84
DTW-DTB	0.94
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

NO Samples Collected

Bailed 21 Gal out

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MCF-13	
GAUGE DATE	6/7/17
GAUGE TIME	0920
DTB (feet) Depth to Bottom	21.25
DTP	13.35
DTW	13.41
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

PC, breezy,

WATER APPEARANCE

Hydrocarbon - NO Samples Collected

Bailed 16 Gals

Bailed to dryness

SAMPLE LOG/NOTES:

MKTF 17	
GAUGE DATE	6-7-17
GAUGE TIME	9:45
DTB (feet) Depth to Bottom	25.60
DTP	18.60
DTW	18.79
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	.074
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

sunny / windy

WATER APPEARANCE

Hydrocarbons - no samples

Bailed 10 Gals

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MTKF 1	
GAUGE DATE	6-7-17
GAUGE TIME	1045
DTB (feet) Depth to Bottom	17.42
DTP	4.89
DTW	5.42
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Windy Sunny 70

WATER APPEARANCE

Bailed 20 gals
Did not Sample

SAMPLE LOG/NOTES:

MKTF 2	
GAUGE DATE	6/7/17
GAUGE TIME	1050
DTB (feet) Depth to Bottom	20.48
DTP	17.1
DTW	17.11
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Windy 71°

WATER APPEARANCE

Bailed 20 gal
No samples

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-5 MW-23	
GAUGE DATE	6/7/17
GAUGE TIME	1320
DTB (feet) Depth to Bottom	17.75
DTP	13.79
DTW	14.25
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Overcast, breezy, 70-75°

WATER APPEARANCE

N/C layer - No Samples Collected

SAMPLE LOG/NOTES:

MKTF-4	
GAUGE DATE	6/7/17
GAUGE TIME	1345
DTB (feet) Depth to Bottom	22.15
DTP	
DTW	9.28
DTP-DTW (Hydrocarbon Layer)	.74
DTW-DTB	12.87
Capacity per foot	.74
3 Well Volumes	29.8gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	6-8-17
SAMPLE TIME	8:30

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	822	7.26	14.76	1801	1.170	0.92	29.0	-76.9
(2)	824	7.24	14.86	1815	1.179	0.93	29.3	-74.4
(3)	826	7.24	15.10	1817	1.181	0.93	27.8	-74.6
(4)	828	7.25	15.40	1817	1.181	0.93	28.5	-68.7

Sample

WEATHER CONDITIONS

Sunny windy 60°

WATER APPEARANCE

Bailed 18 gals - water turned cloudy murky - will allow to recharge before collecting samples Stopped @ 1400 hrs.

SAMPLE LOG/NOTES: 8:30 Returned to sample well

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-03	
GAUGE DATE	6.07.17
GAUGE TIME	1400
DTB (feet) Depth to Bottom	18.45
DTP	6.95
DTW	8.25
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

h/c layer - Red tint
bailed ~ 2 Bgals ~ 1 gal HC

SAMPLE LOG/NOTES:

Sample

MKTF-11	
GAUGE DATE	6.7.17
GAUGE TIME	1440
DTB (feet) Depth to Bottom	18.14
DTP	
DTW	7.39
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.75
Capacity per foot	.14
3 Well Volumes	2.3
PURGE DATE	
PURGE TIME	
SAMPLE DAY	6/8/17
SAMPLE TIME	855

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	848	7.55	15.24	3035	1.973	1.59	3.00	-161.5
(2)	850	7.49	15.39	3037	1.974	1.59	18.8	-161.1
(3)	852	7.48	15.43	3038	1.974	1.59	17.5	-149.4
(4)	854	7.47	15.54	3036	1.974	1.59	17.3	-138.9

WEATHER CONDITIONS

plc, breezy, 75-80°

WATER APPEARANCE

clear - gray. stop bailed @ 1500hrs
~ 2 gals - WTR gradual - will allow to recha before sampling

SAMPLE LOG/NOTES: Returned 6/8/17 to sample well

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

Sample

MKTF-10

GAUGE DATE	6/7/17
GAUGE TIME	1510
DTB (feet) Depth to Bottom	15.99
DTP	
DTW	7.02
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	8.97
Capacity per foot	.74
3 Well Volumes	20
PURGE DATE	
PURGE TIME	
SAMPLE DAY	6-8-17
SAMPLE TIME	9:35

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	930	7.24	15.26	1845	1.2	.94	19.3	-89.1
(2)	932	7.21	15.17	1850	1.203	.95	17.7	-97.8
(3)	934	7.21	15.33	1839	1.196	.94	17.1	-94.7
(4)	936	7.21	15.49	1831	1.19	.93	16.6	-88.4

WEATHER CONDITIONS

plc, breeze, 75-80°

WATER APPEARANCE

Clear 1st bail – brown – murky. ~~purged~~ bailed w/ 5 gals – turned murky but allow to recha before sampling

SAMPLE LOG/NOTES:

Returned to sample 6-8-17

Sample

MKTF-15

GAUGE DATE	6/7/17
GAUGE TIME	1530
DTB (feet) Depth to Bottom	19.48
DTP	
DTW	11.93
DTP-DTW (Hydrocarbon Layer)	7.55
DTW-DTB	1.63
Capacity per foot	~~24~~ gal 4
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	6-8-17
SAMPLE TIME	1000

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	952	6.65	15.08	10124	6.58	5.74	10.1	-139.0
(2)	954	6.66	15.34	10155	6.601	5.76	9.7	-115.4
(3)	956	6.67	15.75	10140	6.595	5.75	9.7	-96.6
(4)	958	6.67	15.97	10159	6.603	5.76	10.5	-117.2

WEATHER CONDITIONS

windy 70° Sunny

WATER APPEARANCE

odor – Clear – Cloudy – pink – murky bailed 4 gals – will allow to recha before sampling. stopped @ 1540

SAMPLE LOG/NOTES: WTR inside vault below plug.

Returned 6-8-17 to Sample had a shine on top of water

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKT 39	
GAUGE DATE	6/8/17
GAUGE TIME	1:15
DTB (feet) Depth to Bottom	15.20
DTP	
DTW	6.25
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	8.95
Capacity per foot	0.163
3 Well Volumes	~~4.37~~
PURGE DATE	6/8/17
PURGE TIME	13:15
SAMPLE DAY	6/8/17
SAMPLE TIME	13:35

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1330	7.13	18.81	3130	2.034	1.64	14.7	-160.6
(2)	1332	7.14	19.10	3130	2.035	1.64	14.4	-152.1
(3)	1334	7.14	19.37	3130	2.035	1.64	13.8	-144.3
(4)	1336	7.15	19.63	3133	2.037	1.64	13.2	-135.4

WEATHER CONDITIONS

Windy Sunny 80°

WATER APPEARANCE

order & sheen

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-20	
GAUGE DATE	6/21/17
GAUGE TIME	1350
DTB (feet) Depth to Bottom	9.89
DTP	
DTW	5.09
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	4.8
Capacity per foot	.74
3 Well Volumes	11
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1415

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)		did not collect data						
(3)								
(4)								

WEATHER CONDITIONS

plc - calm - HOT

WATER APPEARANCE

clear - gray - odor

SAMPLE LOG/NOTES:

MKTF-38	
GAUGE DATE	6/21/17
GAUGE TIME	1420
DTB (feet) Depth to Bottom	20.29
DTP	
DTW	6.40
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	13.89
Capacity per foot	.163
3 Well Volumes	7 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1435

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	did not store data							
(3)								
(4)								

WEATHER CONDITIONS

Cldy - Rain Sprinkles, windy

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

V210672LM SV076LFM ASO ?

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MCTF-37	
GAUGE DATE	6/14/17
GAUGE TIME	0835
DTB (feet) Depth to Bottom	24.60
DTP	7.2
DTW	7.24
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear, calm

WATER APPEARANCE

No Samples Collected
has ↑C layer + odor

SAMPLE LOG/NOTES:

@ 1045

MCTF-18	
GAUGE DATE	6/14/17
GAUGE TIME	0850
DTB (feet) Depth to Bottom	29.38
DTP	
DTW	6.3
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	19.08
Capacity per foot	.163
3 Well Volumes	9 gals
PURGE DATE	6/14/17
PURGE TIME	0855
SAMPLE DAY	
SAMPLE TIME	1045

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)	
(1)	1038	7.36	15.50	1391	.904	.70	39.4	-97.	1
(2)	1040	7.41	15.61	1380	.901	.70	36.1	-105.	1
(3)	1042	7.42	15.62	1388	.902	.70	35.3	-105	4
(4)									

WEATHER CONDITIONS

Clear, calm,

WATER APPEARANCE

Bailed ~ 6 gals - WTR turned brown, murky - will allow to recha. for sampling. stopped @ 0905
Clear - Brown/muddy.

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

0935 Sampled 8011

MKTF-36	
GAUGE DATE	6/14/17
GAUGE TIME	0915
DTB (feet) Depth to Bottom	15.45
DTP	
DTW	5.4
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.05
Capacity per foot	.163
3 Well Volumes	5gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	0919
SAMPLE TIME	0935

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	926	7.07	17.26	1386	.901	.70	26.1	-119.1
(2)	928	7.05	17.24	1379	.897	.69	14.6	-118.4
(3)	930	7.05	17.24	1374	.893	.69	11.8	-114.6
(4)	932	7.01	17.17	1363	.886	.69	11.7	-118.6

WEATHER CONDITIONS

Clear, calm

WATER APPEARANCE

clear - gray - cloudy sheen - odor

SAMPLE LOG/NOTES: WTR inside vault > plug - bailed WTR before removing plug.

1015 8011

MKTF-35	
GAUGE DATE	6/14/17
GAUGE TIME	0955
DTB (feet) Depth to Bottom	16.45
DTP	
DTW	7.12
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.33
Capacity per foot	.163
3 Well Volumes	5gal
PURGE DATE	
PURGE TIME	0957
SAMPLE DAY	
SAMPLE TIME	1015

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1004	7.31	15.79	1244	.809	.62	18.0	-124.7
(2)	1006	7.31	15.83	1240	.806	.62	17.9	-132.2
(3)	1008	7.30	15.78	1239	.806	.62	17.2	-136.4
(4)	1010	7.31	15.73	1239	.805	.62	17.0	-136.5

WEATHER CONDITIONS

Clear - slight breeze

WATER APPEARANCE

clear, odor - gray

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

1330

MKTF-19	
GAUGE DATE	6/14/17
GAUGE TIME	1230
DTB (feet) Depth to Bottom	17.47
DTP	
DTW	10.58
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	6.89
Capacity per foot	.163
3 Well Volumes	3 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1330

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1320	7.30	14.40	1613	1.049	.82	17.3	-132.4
(2)	1322	7.12	14.64	1607	1.045	.82	14.1	-133.4
(3)	1324	7.08	14.91	1608	1.045	.82	13.4	-131.4
(4)	1326	7.08	15.33	1607	1.045	.82	13.0	-128.7

WEATHER CONDITIONS

Clear, calm,

WATER APPEARANCE

clear - pink - odor

SAMPLE LOG/NOTES:

MKTF-17	
GAUGE DATE	6/14/17
GAUGE TIME	1340
DTB (feet) Depth to Bottom	24.11
DTP	
DTW	9.98
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	14.13
Capacity per foot	.163
3 Well Volumes	4 gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1410

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1400	8.41	34.96	71	.046	.03	83.8	-27.1
(2)	1402	7.27	15.11	1181	.767	.59	21.0	-223.1
(3)	1404	7.32	15.49	1175	.764	.59	18.5	-242.2
(4)	1406	7.39	17.61	547	.356	.27	19.1	-249.6

WEATHER CONDITIONS

Clear, Calm

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

1450

MKTF 34	
GAUGE DATE	6/14/17
GAUGE TIME	1430
DTB (feet) Depth to Bottom	27.68
DTP	
DTW	17.63
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.05
Capacity per foot	@ .16
3 Well Volumes	5 gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1450

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1445	7.92	1482	1700	1.105	.87	65.7	+31.9
(2)	1447	7.87	1553	1696	1.102	.86	100.9	-29.6
(3)	1449	7.84	1627	1692	1.100	.86	58.6	-26.5
(4)	1451	7.82	1686	1693	1.101	.86	58.1	-23.4

WEATHER CONDITIONS

Clear, slight breeze

WATER APPEARANCE

Clear - No odor

Duplicate 1500

SAMPLE LOG/NOTES:

MKTF 45	
GAUGE DATE	6/14/17
GAUGE TIME	1330
DTB (feet) Depth to Bottom	30.24
DTP	1.5
DTW	12.0
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

HC - odor

no samples

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-06	6/12/17
GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	23.77
DTP	16.6
DTW	17.24
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

no samples collected H Clayey

odor -

SAMPLE LOG/NOTES:

MKTF-07	6/12/17
GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	17.62
DTP	10.2
DTW	11.5
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

Odor - no Samples collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-08	
GAUGE DATE	6/12/17
GAUGE TIME	
DTB (feet) Depth to Bottom	21.98
DTP	11.98
DTW	12.4
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear, breezy, 70-75°

WATER APPEARANCE

No Samples - HC layer

SAMPLE LOG/NOTES:

MKTF-09	
GAUGE DATE	6/12/17
GAUGE TIME	
DTB (feet) Depth to Bottom	22.70
DTP	
DTW	12.64
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.06
Capacity per foot	.74
3 Well Volumes	22.8gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1320

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1312	7.28	14.19	1602	1.041	0.81	36.3	-137.8
(2)	1314	7.28	14.42	1604	1.043	.81	25.4	-151.6
(3)	1316	7.28	14.94	1603	1.042	.81	22.5	-162.6
(4)	1318	7.28	15.21	1617	1.051	.82	21.9	-165.0

WEATHER CONDITIONS

Clear, breezy, 70-75°

WATER APPEARANCE

Clear - grey - slight odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 20	
GAUGE DATE	6/12/17
GAUGE TIME	1345
DTB (feet) Depth to Bottom	9.89
DTP	
DTW	5.57
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	4.32
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	6/12/17
SAMPLE TIME	1400

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	~~1350~~							
(2)	1352	6.96	20.97	2541	1.652	1.31	19.1	-194.6
(3)	1354	6.98	20.96	2536	1.648	1.31	11.0	-188.1
(4)	1356	6.98	21.08	2536	1.648	1.31	10.0	-175.0

WEATHER CONDITIONS

clear

WATER APPEARANCE

clear w/ yellow tint, odor

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 26	
GAUGE DATE	6/5/17
GAUGE TIME	0830
DTB (feet) Depth to Bottom	16.16
DTP	
DTW	7.9
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	8.26
Capacity per foot	.163
3 Well Volumes	4 gal
PURGE DATE	
PURGE TIME	0835
SAMPLE DAY	
SAMPLE TIME	0845

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	836	7.76	18.48	2252	1.464	1.16	90.9	-30.9
(2)	838	7.64	17.24	2313	1.503	1.19	33.7	-50.8
(3)	840	7.67	17.39	2319	1.507	1.20	32.0	-51.3
(4)	842	7.70	17.53	2322	1.509	1.20	30.9	-52.3

WEATHER CONDITIONS

p/c - calm

WATER APPEARANCE

Clear - no odor

Cloudy

SAMPLE LOG/NOTES:

MKTF -27	
GAUGE DATE	6/5/17
GAUGE TIME	0910
DTB (feet) Depth to Bottom	14.72
DTP	
DTW	6.2
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	8.4
Capacity per foot	.163
3 Well Volumes	4 gal
PURGE DATE	
PURGE TIME	0912
SAMPLE DAY	
SAMPLE TIME	0925

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	918	7.15	13.65	10492	6.82	5.96	16.6	-61.0
(2)	920	7.15	13.78	10504	6.828	5.97	17.8	-61.6
(3)	922	7.16	13.93	10514	6834	5.98	16.6	-60.2
(4)	924	7.16	14.01	10530	6.845	5.99	16.6	-59.1

WEATHER CONDITIONS

p/c - calm

WATER APPEARANCE

Clear - slightly cloudy / precipitant

no odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.

Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.

Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.

55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-30	
GAUGE DATE	6/5/17
GAUGE TIME	0947
DTB (feet) Depth to Bottom	23.20
DTP	—
DTW	13.89
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	9.33
Capacity per foot	.163
3 Well Volumes	5gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1005

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1000	7.65	15.29	3155	2.051	1.66	28.9	-102.8
(2)	1002	7.64	15.46	3157	2.052	1.66	28.3	-101.6
(3)	1004	7.63	15.48	3161	2.054	1.66	27.8	-100.4
(4)	1006	7.62	15.5	3163	2.056	1.66	27.3	-98.6

80 11

WEATHER CONDITIONS

plc, breezy

WATER APPEARANCE

Clear - pink - cldy - No Odor

SAMPLE LOG/NOTES:

MKTF-29	
GAUGE DATE	6/5/17
GAUGE TIME	1025
DTB (feet) Depth to Bottom	22.84
DTP	—
DTW	0.95
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	21.89
Capacity per foot	.163
3 Well Volumes	11gal
PURGE DATE	6/5/17
PURGE TIME	1037
SAMPLE DAY	6/5/17
SAMPLE TIME	1045

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1040	8.40	26.33	17	.011	.01	328.8	-66.1
(2)	1042	7.66	14.75	2163	1.406	1.11	18.2	-102.0
(3)	1044	7.65	14.97	2161	1.405	1.11	15.5	-115.4
(4)								

WEATHER CONDITIONS

plc, breezy

WATER APPEARANCE

Clear - brownish pink -

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 26	
GAUGE DATE	6/5/17
GAUGE TIME	1115
DTB (feet) Depth to Bottom	17.15
DTP	8.03
DTW	8.99
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	.163
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

plc, slight breeze

WATER APPEARANCE

has HC layer

~~clear~~ no samples collected

SAMPLE LOG/NOTES:

MKTF 24	
GAUGE DATE	6/5/17
GAUGE TIME	1125
DTB (feet) Depth to Bottom	30.47
DTP	
DTW	21.07
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.4
Capacity per foot	.163
3 Well Volumes	5 gal
PURGE DATE	
PURGE TIME	1127
SAMPLE DAY	
SAMPLE TIME	1615

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1609	8.38	14.01	2645	1.719	1.38	321.6	15
(2)	1611	7.36	13.6	2586	1.681	1.34	34.4	-5.3
(3)	1613	7.31	14.05	2586	1.681	1.35	28.1	-10.9
(4)	1615	7.30	14.41	2587	1.681	1.35	27.0	-13.9

WEATHER CONDITIONS

plc - slight breeze

WATER APPEARANCE

clear - pinkish brown - turned silty @ end of samplings will allow to recharge before collecting samples.

SAMPLE LOG/NOTES:

2011

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 25	
GAUGE DATE	6/5/17
GAUGE TIME	1145
DTB (feet) Depth to Bottom	19.43
DTP	
DTW	10.23
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	9.2
Capacity per foot	.163
3 Well Volumes	5
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1205

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1200	7.27	12.91	2366	1.528	1.22	24.1	-68.4
(2)	1202	7.26	13.65	2363	1.536	1.22	16.3	-70.7
(3)	1204	7.25	14.22	2365	1.537	1.22	15.0	-65.4
(4)	1206	7.25	14.47	2379	1.546	1.23	14.2	-58.8

WEATHER CONDITIONS

P/C, breezy

WATER APPEARANCE

clear, slightly cldy - pink tint

SAMPLE LOG/NOTES:

Collected DUPLICATE @ 1220

MKTF-40	
GAUGE DATE	6/5/17
GAUGE TIME	1320
DTB (feet) Depth to Bottom	23.64
DTP	13.29
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.35
Capacity per foot	.163
3 Well Volumes	5 gal
PURGE DATE	
PURGE TIME	1325
SAMPLE DAY	
SAMPLE TIME	1310

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1334	7.23	14.59	10353	6.729	5.88	55.4	11.4
(2)	1336	7.24	14.95	10367	6.738	5.89	53.5	12.8
(3)	1338	7.24	15.28	10383	6.749	5.90	50.6	14.4
(4)								

WEATHER CONDITIONS

P/C, breezy, 75-80°

WATER APPEARANCE

clear

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 31	
GAUGE DATE	6/5/17
GAUGE TIME	1415
DTB (feet) Depth to Bottom	22.81
DTP	
DTW	7.58
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	15.23
Capacity per foot	4.83
3 Well Volumes	73.6 gals
PURGE DATE	
PURGE TIME	1420
SAMPLE DAY	
SAMPLE TIME	1445

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1440	7.26	15.31	3423	2.225	1.81	27.2	33.9
(2)	1442	7.28	15.57	3430	2.229	1.81	25.4	26.9
(3)	1444	7.29	15.81	3437	2.234	1.81	26.0	23.3
(4)	1446	7.30	16.07	3441	2.237	1.82	27.3	19.3

WEATHER CONDITIONS

WATER APPEARANCE

8011

SAMPLE LOG/NOTES:

MKTF-44	
GAUGE DATE	6/5/17
GAUGE TIME	1515
DTB (feet) Depth to Bottom	51.15
DTP	
DTW	32.9
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	18.25
Capacity per foot	4.83
3 Well Volumes	264.6 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1550

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)		Not Available						
(2)								
(3)								
(4)								

WEATHER CONDITIONS

7 Clear, cloudy, windy

WATER APPEARANCE

P/C, slight brown 2

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MCTF-43	
GAUGE DATE	6/6/17
GAUGE TIME	1415
DTB (feet) Depth to Bottom	15.43
DTP	
DTW	3.62
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	11.81
Capacity per foot	.163
3 Well Volumes	6
PURGE DATE	
PURGE TIME	1417
SAMPLE DAY	
SAMPLE TIME	1435

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1430	8.20	14.54	30466	19.803	18.95	33.8	54.3
(2)	1432	7.83	14.84	30538	19.843	18.99	26.6	47.3
(3)	1434	6.96	15.20	30577	19.875	19.03	24.7	-10.1
(4)	[illegible]							

WEATHER CONDITIONS

Cloudy, breezy

WATER APPEARANCE

Clear - cloudy - no odor

SAMPLE LOG/NOTES:

MCTF-42	
GAUGE DATE	6/6
GAUGE TIME	1444
DTB (feet) Depth to Bottom	33.15
DTP	
DTW	17.12
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	16.03
Capacity per foot	.163
3 Well Volumes	8 gals
PURGE DATE	
PURGE TIME	1445
SAMPLE DAY	
SAMPLE TIME	1505

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1504	8.40	16.26	3248	2.111	1.71	45.5	33.6
(3)	1506	8.32	16.55	3257	2.117	1.71	30.3	-31.7
(4)								

WEATHER CONDITIONS

Cloudy - breezy -

WATER APPEARANCE

Clear - slight orange tint

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MWTF-32	
GAUGE DATE	6/6/17
GAUGE TIME	1520
DTB (feet) Depth to Bottom	27.75
DTP	
DTW	13.79
DTP-DTW (Hydrocarbon Layer)	13.96
DTW-DTB	~~25.66~~
Capacity per foot	.163
3 Well Volumes	~~13.95 gals~~ gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1535

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

clear - cloudy

8011

SAMPLE LOG/NOTES:

MCTF 41	
GAUGE DATE	6/6/17
GAUGE TIME	3:50
DTB (feet) Depth to Bottom	40.10
DTP	-
DTW	18.49
DTP-DTW (Hydrocarbon Layer)	-
DTW-DTB	21.61
Capacity per foot	.0163
3 Well Volumes	10.56
PURGE DATE	6-6-17
PURGE TIME	15:37
SAMPLE DAY	6/6/17
SAMPLE TIME	1615

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	NO Data available							
(3)	~~1482 7.11~~ 1522			2638	1.686	1.32		
(4)								

WEATHER CONDITIONS

Overcast 84°

WATER APPEARANCE

clear - cloudy

8/011

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

Trip Blank 6/20/17

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

RW-5	
GAUGE DATE	6/20/17
GAUGE TIME	0900
DTB (feet) Depth to Bottom	39.59
DTP	25.3
DTW	33.3
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

No Samples

WEATHER CONDITIONS

WATER APPEARANCE

Clear, odor, sheen

SAMPLE LOG/NOTES:

RW-6	
GAUGE DATE	6/20/17
GAUGE TIME	0905
DTB (feet) Depth to Bottom	40.90
DTP	25.5
DTW	33.62
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

No Samples

WEATHER CONDITIONS

WATER APPEARANCE

Clear, odor - sheen

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

RW-2	
GAUGE DATE	6/20/17
GAUGE TIME	
DTB (feet) Depth to Bottom	39.80
DTP	
DTW	21.19
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	18.61
Capacity per foot	.74
3 Well Volumes	41.3
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1450

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear, calm. HOT!

WATER APPEARANCE

Clear

SAMPLE LOG/NOTES:

6/21/17

1345,

OW-57	
GAUGE DATE	6/20/17
GAUGE TIME	0930
DTB (feet) Depth to Bottom	
DTP	
DTW	20.52
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	6/20/17
PURGE TIME	1400
SAMPLE DAY	6/21/17
SAMPLE TIME	1345

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	Data not recorded						/	
(3)	Collected							
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

Bailed ~ 15 gals - clear 1st bail, brown murky rust bail. Will allow to recharge to 4 collecting samples stopped @ 1400 hrs

SAMPLE LOG/NOTES: ~ oc alert - shut down for 2.5 hours.

1345 - 6/21/17 Collected Samples.

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.

Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.

Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.

55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

RW - 1	
GAUGE DATE	10/20/17
GAUGE TIME	1515
DTB (feet) Depth to Bottom	43.04
DTP	26.77
DTW	28.42
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1535

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

plc. Culm, HOT!!! 100

WATER APPEARANCE

Took Sample for Distillate - WR Lab

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW-53	
GAUGE DATE	6/21/17
GAUGE TIME	0945
DTB (feet) Depth to Bottom	33.9
DTP	
DTW	DRY
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Clear, Calm, HOT!!

WATER APPEARANCE

DRY - No Samples

SAMPLE LOG/NOTES:

Sampled 1010

OW-54	
GAUGE DATE	6/21/17
GAUGE TIME	0950
DTB (feet) Depth to Bottom	31.04
DTP	
DTW	18.63
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	12.41
Capacity per foot	.163
3 Well Volumes	6 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1010

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	Data not collected							
(3)								
(4)								

WEATHER CONDITIONS

Clear, Calm, HOT!!

WATER APPEARANCE

Clear - Clay - pink

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW-55	
GAUGE DATE	6/21/17
GAUGE TIME	1030
DTB (feet) Depth to Bottom	30.70
DTP	
DTW	18.47
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	12.23
Capacity per foot	.163
3 Well Volumes	6 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1050

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	Data not collected							
(3)								
(4)								

WEATHER CONDITIONS

Clear, calm, HOT!! 90

WATER APPEARANCE

clear - cldy - gray

SAMPLE LOG/NOTES:

1130

OW-56	
GAUGE DATE	6/21/17
GAUGE TIME	1120
DTB (feet) Depth to Bottom	18.59
DTP	
DTW	13.53
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	5.06
Capacity per foot	
3 Well Volumes	2
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1130

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	Data not collected							
(3)								
(4)								

WEATHER CONDITIONS

Clear, calm, Hot !!

WATER APPEARANCE

Clear, cldy, slight Orange tint

Dup 1135

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

OW-58	
GAUGE DATE	6/2017
GAUGE TIME	1445
DTB (feet) Depth to Bottom	47.55
DTP	25.14
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	22.41
Capacity per foot	1.63
3 Well Volumes	11.8 gal
PURGE DATE	1
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1505

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	Data not collected							
(3)								
(4)								

WEATHER CONDITIONS

Cldy - breezy -

WATER APPEARANCE

clear - pink
baled

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

NAPIS-1

GAUGE DATE	9/5/17
GAUGE TIME	0930
DTB (feet) Depth to Bottom	13.53
DEDICATED PUMP	N
DTW (feet) Depth to Water	6.32
DTB - DTW	7.18 DTP
Capacity per foot	0.163
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(3)								
(4)								

WEATHER CONDITIONS

Clear, breezy

WATER APPEARANCE

Odor - clear, slight yellow tint

SAMPLE LOG

TOOK 8015D only @ 1215

NO Samples Collected - Detection of product.

NAPIS-2

GAUGE DATE	9/5/17
GAUGE TIME	0949
DTB (feet) Depth to Bottom	13.61
DEDICATED PUMP	N
DTW (feet) Depth to Water	8.32
DTB - DTW	5.29
Capacity per foot	0.163
3 Well Volumes	2.5
PURGE DATE	
PURGE TIME	0950
SAMPLE DAY	9/5/17
SAMPLE TIME	1000

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1030	805	22.71	1701	1.106	.89	33.1	-105.2
(2)	1032	797	22.84	1703	1.107	.89	27.7	-112.8
(3)	1034	794	22.89	1703	1.107	.86	25.5	-114.1
(4)	1036	794	22.95	1704	1.107	.86	24.7	-111.5

WEATHER CONDITIONS

Clear, calm

WATER APPEARANCE

Clear.

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Polyethylene Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

NAPIS-3	
GAUGE DATE	9/5/17
GAUGE TIME	0945
DTB (feet) Depth to Bottom	30.42
DTP	
DTW	9.10
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10
Capacity per foot	0.163
3 Well Volumes	10.43
PURGE DATE	9/5
PURGE TIME	1015
SAMPLE DAY	
SAMPLE TIME	1145

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1138	8.88	19.94	2207	1.434	1.13	29.3	-80.3
(2)	1140	8.81	20.03	2210	1.436	1.14	27.3	-76.7
(3)	1142	8.77	20.09	2215	1.440	1.14	26.2	-73
(4)	1144	8.75	20.16	2221	1.443	1.14	25.4	-69.3

WEATHER CONDITIONS

Clear

WATER APPEARANCE

Clear - murky

SAMPLE LOG/NOTES: Bailed ~7 gals - turned murky @ end of purge - allowed to recharge before collecting samples

KA-3	
GAUGE DATE	9/5/17
GAUGE TIME	0947
DTB (feet) Depth to Bottom	23.20
DTP	
DTW	8.21
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	14.99
Capacity per foot	0.163
3 Well Volumes	7.33
PURGE DATE	
PURGE TIME	1000
SAMPLE DAY	
SAMPLE TIME	1115

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1100	7.93	24.27	1597	1.038	0.8	32.4	-55.5
(2)	1102	7.83	24.39	1596	1.037	0.8	30.4	-48.6
(3)	1104	7.80	24.47	1596	1.037	0.8	29.6	-43.5
(4)	1106	7.79	24.55	1597	1.038	0.8	29.3	-39.4

WEATHER CONDITIONS

Clear

WATER APPEARANCE

clear w/slight orange tint

Dup @ 1125

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY
3RD QTR 2017

Oil Sump LDU		WEATHER CONDITIONS
GAUGE DATE	9/5/17	Clear, calm - 75-80°
GAUGE TIME	1300	WATER APPEARANCE
DTB (feet) Depth to Bottom	NA	NOT APPLICABLE
DTW (feet) Depth to Water	DRY	
DTB - DTW	NA	NOTES
PURGE DATE	NA	No samples collected - dry
PURGE TIME	NA	
SAMPLE DATE	N/A	
SAMPLE TIME		

East LDU		WEATHER CONDITIONS
GAUGE DATE	9/5/17	Clear, calm - 75-80°
GAUGE TIME	1305	WATER APPEARANCE
DTB (feet) Depth to Bottom	NA	Clear, grayish tint
DTW (feet) Depth to Water	~~11.16~~ Full	
DTB - DTW	NA	NOTES
PURGE DATE	NA	Leakings from flanged patch
PURGE TIME	NA	area
SAMPLE DATE	N/A	
SAMPLE TIME	1315	

West LDU		WEATHER CONDITIONS
GAUGE DATE	9/5/17	Clear, calm 75-80°
GAUGE TIME	1310	WATER APPEARANCE
DTB (feet) Depth to Bottom	NA	greenish tint · odor
DTW (feet) Depth to Water	~~12.12~~ 5.7	
DTB - DTW	NA	NOTES
PURGE DATE	NA	
PURGE TIME	NA	
SAMPLE DATE	1325	
SAMPLE TIME	~~N/A~~	

INSTRUMENTS USED:
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Polyethylene Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

STP1-NW

GAUGE DATE	9/5/17
GAUGE TIME	1400
DTB (feet)	
Depth to Bottom	50.00
DEDICATED PUMP	N
DTW (feet) Depth to Water	20.81
DTB - DTW	29.19
Capacity per foot	0.163
3 Well Volumes	14 gals
PURGE DATE	
PURGE TIME	1405
SAMPLE DAY	
SAMPLE TIME	1435

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1428	8.52	28.72	46	.03	.02	101.4	11.0
(2)	1430	8.39	25.64	42	.027	.02	103.9	9.6
(3)	1432	8.35	23.38	40	.026	.02	109.0	7.9
(4)	1434	8.34	21.79	40	.026	.02	113.8	5.6

WEATHER CONDITIONS

Clear, Calm, 80-85°

WATER APPEARANCE

Clear - slight yellow tint

SAMPLE LOG

STP1-SW

GAUGE DATE	9/5/17
GAUGE TIME	1400
DTB (feet)	
Depth to Bottom	29.10
DEDICATED PUMP	N
DTW (feet) Depth to Water	DRY
DTB - DTW	
Capacity per foot	0.163
2 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	N/A
SAMPLE TIME	

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	**None taken - dry well**							
(3)								
(4)								

WEATHER CONDITIONS

~~75-80~~ 80-85°

Clear, calm ~~65-70~~ degrees

WATER APPEARANCE

Not Applicable

SAMPLE LOG

High H_2S levels @ STP-1 - No entry allowed.

INSTRUMENTS USED:

Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Polyethylene Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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GWM-2		TEST PARAMETERS							
		Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/6/17	(1)							
GAUGE TIME		(2)	None taken - well is DRY						
DTB (feet)									
Depth to Bottom	19.07 ~~18.81~~	(3)							
DEDICATED PUMP	N	(4)							
DTW (feet) Depth to Water	DRY								
DTB - DTW									
Capacity per foot	0.163								
2 Well Volumes									
PURGE DATE									
PURGE TIME									
SAMPLE DAY									
SAMPLE TIME									

WEATHER CONDITIONS

ptly cldy, slight breeze, 80-85°

WATER APPEARANCE

Not Applicable

SAMPLE LOG

GWM-3		TEST PARAMETERS							
		Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/5/17	(1)							
GAUGE TIME	1500	(2)	None taken - well is DRY						
DTB (feet)									
Depth to Bottom	17.80	(3)							
DEDICATED PUMP	N	(4)							
DTW (feet) Depth to Water	DRY								
DTB - DTW									
Capacity per foot	0.163								
2 Well Volumes									
PURGE DATE									
PURGE TIME									
SAMPLE DAY									
SAMPLE TIME									

WEATHER CONDITIONS

ptly Cldy, slight breeze, 80-85°

WATER APPEARANCE

Not Applicable

SAMPLE LOG

INSTRUMENTS USED:
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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GWM-1			TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/5/17	(1)								
GAUGE TIME	1510	(2)	None taken - has hydrocarbon level							
DTB (feet) Depth to Bottom	26.20	(3)								
Depth to Product	21.49	(4)								
DTW (feet) Depth to Water	21.71									
PRODUCT LAYER										
Capacity per foot	0.163									
2 Well Volumes										
PURGE DATE										
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME										

WEATHER CONDITIONS

ptly cloudy, slight breeze
80-85

WATER APPEARANCE

Oily - Odor

SAMPLE LOG

No samples collected

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Polyethylene Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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OAPIS-1		TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/5/17	(1)	~~1518~~	~~8.26~~	~~16.29~~	~~5765~~	~~3.747~~	~~3.14~~		
GAUGE TIME	1520	(2)	1544	8.56	16.42	5629	3.659	3.06	21.3	-22.7
DTB (feet) Depth to Bottom	28.30	(3)	1540	8.38	16.61	5645	3.669	3.07	15.6	-220.9
DEDICATED PUMP	N	(4)	1548	8.23	16.80	5660	3.671	3.08	13.6	-209.5
DTW (feet) Depth to Water	11.09									
DTB - DTW	17.21									
Capacity per foot	0.163									
3 Well Volumes	8 gals									
PURGE DATE										
PURGE TIME	1530									
SAMPLE DAY										
SAMPLE TIME	1550									
PUMP DEPTH										
DTW (feet) at end of Purging	1									

WEATHER CONDITIONS

pt cldy, breezy, 80-85°F

WATER APPEARANCE

clear - yellow tint

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Polyethylene Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

Dup @ 1000

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

8/11

OW-29

GAUGE DATE	8/16/17
GAUGE TIME	0915
DTB (feet)	
Depth to Bottom	51.08
DEDICATED PUMP	Y
DTW (feet)	18.05
Depth to Water	
DTB - DTW	33.03
Capacity per foot	0.740
3 Well Volumes	73
PURGE DATE	8/16/17
PURGE TIME	925
SAMPLE DAY	8/16/17
SAMPLE TIME	1000

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	~~953~~							
(2)	955	8.60	14.03	1648	1.071	.84	32.4	-25.5
(3)	957	8.33	14.24	1642	1.067	.83	22.0	-33.2
(4)	959	8.14	14.51	1637	1.064	.83	18.4	-36.6

WEATHER CONDITIONS

ptly cldy, slight breeze,

WATER APPEARANCE

clear, no odor

SAMPLE LOG

Purged water collected in 55 gallon drums and disposed of upstream of the WW treatment Plant.

8/11

OW-30

GAUGE DATE	8/16/17
GAUGE TIME	0805
DTB (feet)	
Depth to Bottom	49.90
DEDICATED PUMP	Y
DTW (feet)	22.28
Depth to Water	
DTB - DTW	27.62
Capacity per foot	0.740
3 Well Volumes	61
PURGE DATE	8/16/17
PURGE TIME	0820
SAMPLE DAY	8/16/17
SAMPLE TIME	0845

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	840	8.23	13.27	1628	1.058	.83	21.4	-8.4
(2)	842	8.10	13.27	1630	1.06	.83	17.4	-9.2
(3)	844	8.01	13.35	1631	1.06	.83	15.1	-9.6
(4)	846	7.95	13.48	1632	1.061	.83	13.9	-9.5

WEATHER CONDITIONS

ptly cldy, calm, 70-75°

WATER APPEARANCE

clear, no odor

SAMPLE LOG

Purged water collected in 55 gallon drums and disposed of upstream of the WW treatment Plant.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Dedicated pumps

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

*8011

OW-13

GAUGE DATE	9/6/17
GAUGE TIME	1110
DTB (feet)	
Depth to Bottom	99.15
DEDICATED PUMP	Y
DTW (feet)	21.41
Depth to Water	77.74
DTB - DTW	
Capacity per foot	0.740
3 Well Volumes	173
PURGE DATE	
PURGE TIME	1115
SAMPLE DAY	
SAMPLE TIME	1220

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1212	9.26	13.45	1043	.678	0.52	29.0	-33.4
(2)	1214	9.08	13.75	1042	.677	.52	20.7	-39.3
(3)	1216	8.96	14.16	1043	.678	.52	17.9	-41.6
(4)	1218	8.87	14.59	1044	.679	.52	17.4	-43

WEATHER CONDITIONS

Clear, breezy, 75-80°

WATER APPEARANCE

Clear - no odor

SAMPLE LOG

Purged water collected in 55 gallon drums and disposed of upstream of the WW treatment Plant.

*8011

OW-14

GAUGE DATE	9/6/17
GAUGE TIME	1025
DTB (feet)	
Depth to Bottom	46.52
DEDICATED PUMP	Y
DTW (feet)	22.56
Depth to Water	23.96
DTB - DTW	
Capacity per foot	0.740
3 Well Volumes	53
PURGE DATE	
PURGE TIME	1030
SAMPLE DAY	
SAMPLE TIME	1055

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1050	8.83	17.89	1517	.986	.77	169.5	-64.8
(2)	52	8.23	14.09	1642	1.067	.83	28.5	-170.6
(3)	54	8.03	14.18	1645	1.069	.84	21.1	-191.4
(4)	56	7.96	14.37	1647	1.071	.84	19.0	-195.1

WEATHER CONDITIONS

Clear - breezy, 75-80°

WATER APPEARANCE

Clear, no odor

SAMPLE LOG

Purged water collected in 55 gallon drums and disposed of upstream of the WW treatment Plant.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Dedicated pumps

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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#8011

OW-1

GAUGE DATE	9/6/17
GAUGE TIME	1500
DTB (feet) Depth to Bottom	94.55
DEDICATED PUMP	Y
DTW (feet) Depth to Water	1.7
DTB - DTW	92.85
Capacity per foot	0.740
3 Well Volumes	206
PURGE DATE	9/7/17
PURGE TIME	1505
SAMPLE DAY	9/7/17
SAMPLE TIME	~~1550~~ 1615

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	944	9.53	13.56	1176	.764	.59	34.2	48.6
(2)								
(3)	946	9.50	13.62	1176	.764	.59	24.2	45.3
(4)								

WEATHER CONDITIONS

Overcast / windy, 75-80

WATER APPEARANCE

clear, no odor

SAMPLE LOG

Lost suction @ 75 gals - will allow to recharge overnight
Stopped @ 1615
9/7/17 @ 0935 started purge. Sampled @ 0950

OW-10

GAUGE DATE	9/7/17
GAUGE TIME	1055
DTB (feet) Depth to Bottom	60.33
DEDICATED PUMP	Y
DTW (feet) Depth to Water	1.88
DTB - DTW	58.45
Capacity per foot	0.740
3 Well Volumes	130 gals
PURGE DATE	9/7/17
PURGE TIME	1100
SAMPLE DAY	9/7/17
SAMPLE TIME	1140

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1132	8.34	14.07	2843	1.818	1.49	18.5	28.8
(2)	1134	8.29	14.34	2851	1.853	1.49	15.9	27.1
(3)	1136	8.22	14.77	2849	1.852	1.49	15.3	26.2
(4)	1138	8.16	15.20	2848	1.851	1.49	14.1	25.6

WEATHER CONDITIONS

Overcast, breezy, 70-75°

WATER APPEARANCE

Clear - no odor.

#8011 Dup 1155

SAMPLE LOG

Purged water collected in 55 gallon drums and disposed of upstream of the WW treatment Plant.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
bailer.

Signature:

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WESTERN REFINING - GALLUP REFINERY
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STP1 to EP2

GAUGE DATE	9/7/17
GAUGE TIME	1220
DTB (feet) Depth to Bottom	
DEDICATED PUMP DTW (feet) Depth to Water	
DTB - DTW Capacity per foot 3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1225

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

overcast, breezy, 75-80°

WATER APPEARANCE

white, cloudy

SAMPLE LOG

grab samples only @ creek to EP-2

E/V-3/4-N

GAUGE DATE	9/7/17
GAUGE TIME	
DTB (feet) Depth to Bottom	
DEDICATED PUMP DTW (feet) Depth to Water	
DTB - DTW Capacity per foot 3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1240

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

Cloudy, breezy, 75-80°

WATER APPEARANCE

gray - ~~odor~~

SAMPLE LOG

grab sample only for TDS - North Sprayer

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

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WESTERN REFINING - GALLUP REFINERY
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OW-56	
GAUGE DATE	9/11/17
GAUGE TIME	0755
DTB (feet) Depth to Bottom	18.59
DEDICATED PUMP DTW (feet) Depth to Water	14.50
DTB - DTW	4.09
Capacity per foot	2 gals
3 Well Volumes	.163
PURGE DATE	
PURGE TIME	0758
SAMPLE DAY	
SAMPLE TIME	0805

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	800	7.67	13.24	2474	1.608	1.28	48.1	28.8
(2)	802	7.51	13.10	2478	1.610	1.29	34.7	23.8
(3)	804	7.45	12.97	2480	1.612	1.29	32.3	22.4
(4)	806	7.42	12.89	2482	1.613	1.29	29.5	22.1

WEATHER CONDITIONS

pthy Cldy, calm

WATER APPEARANCE

clear - slight yw tint - last bail

SAMPLE LOG

OW-55	
GAUGE DATE	9/11/17
GAUGE TIME	0830
DTB (feet) Depth to Bottom	30.7
DEDICATED PUMP DTW (feet) Depth to Water	18.49
DTB - DTW	12.21
Capacity per foot	6 gals
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0855

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	850	7.41	13.90	2048	1.31	1.05	23.2	-200.1
(2)	852	7.28	13.99	2049	1.332	1.05	17.1	-224.3
(3)	854	7.26	14.12	2049	1.332	1.05	14.7	-234.7
(4)	856	7.27	14.21	2052	1.334	1.05	13.4	-232.7

WEATHER CONDITIONS

~~pthy~~ Clear, calm

WATER APPEARANCE

Clear-1st bail - cldy - gray - remaining sheen on wtr

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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Duplicate 0950

OW-54	
GAUGE DATE	9/11/17
GAUGE TIME	0915
DTB (feet) Depth to Bottom	31.04
DEDICATED PUMP DTW (feet) Depth to Water	18.7
DTB - DTW Capacity per foot	12.34
3 Well Volumes	6 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0940

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	934	7.61	13.87	1811	1.177	.93	26.0	-106.5
(2)	936	7.58	14.20	1810	1.176	.92	24.4	-105.1
(3)	938	7.56	14.47	1811	1.177	.92	23.5	-103.8
(4)	940	7.55	14.83	1808	1.176	.92	23.1	-101.5

WEATHER CONDITIONS

clear, slight breeze,

WATER APPEARANCE

clear - first bail, pink - brownish remainin

SAMPLE LOG

OW-53	
GAUGE DATE	9/11/17
GAUGE TIME	1045
DTB (feet) Depth to Bottom	~~3089~~
DEDICATED PUMP DTW (feet) Depth to Water	33.64 DRY
DTB - DTW Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

DRY - NO Samples

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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EDB

OW-50

			TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/11/17	(1)								
GAUGE TIME	1146	(2)	1220	8.37	20.11	988	.643	.49	10.6	-48.7
DTB (feet) Depth to Bottom	64.00	(3)	1222	8.37	20.18	990	.643	.49	10.7	-48.7
DEDICATED PUMP	N	(4)								
DTW (feet) Depth to Water	15.6									
DTB - DTW	48.4									
Capacity per foot	0.163									
3 Well Volumes	24gal									
PURGE DATE										
PURGE TIME	1200									
SAMPLE DAY										
SAMPLE TIME	1225									

WEATHER CONDITIONS

ptly cldy, slight breeze

WATER APPEARANCE

clear - no odor

SAMPLE LOG

EDB

OW-52

			TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/11/17	(1)	1124	8.48	14.54	840	.546	.42	17.4	-73.3
GAUGE TIME	1055	(2)	1126	8.47	14.79	841	.546	.42	16.3	-94.6
DTB (feet) Depth to Bottom	77.74	(3)	1128	8.49	15.01	841	.547	.42	15.6	-72.5
DEDICATED PUMP	N	(4)	1130	8.48	15.23	841	.547	.42	14.8	-69.7
DTW (feet) Depth to Water	14.85									
DTB - DTW	62.89									
Capacity per foot	0.163									
3 Well Volumes	31gal									
PURGE DATE										
PURGE TIME	1058									
SAMPLE DAY										
SAMPLE TIME	1130									

WEATHER CONDITIONS

ptly cldy - slight breeze

WATER APPEARANCE

clear - no odor

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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SMW-2

GAUGE DATE	9/11/17
GAUGE TIME	1400
DTB (feet) Depth to Bottom	52.80
DEDICATED PUMP	Y
DTW (feet) Depth to Water	24.79
DTB - DTW	28.01
Capacity per foot	0.163
3 Well Volumes	14 gals
PURGE DATE	
PURGE TIME	1419
SAMPLE DAY	
SAMPLE TIME	1441

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1436	7.98	20.43	9524	6.191	5.36	58.7	-19.3
(2)	1438	7.90	20.68	9528	6.193	5.37	64.5	-18.8
(3)	1440	7.86	20.91	9526	6.192	5.36	57.1	-18.3
(4)	1442	7.84	21.09	9528	6.193	5.36	56.0	-17.8

WEATHER CONDITIONS

Cldy, calm,

WATER APPEARANCE

Clear - slight yellow tint - no odor

SAMPLE LOG

SMW-4

GAUGE DATE	9/11/17
GAUGE TIME	1457
DTB (feet) Depth to Bottom	69.68
DEDICATED PUMP	Y
DTW (feet) Depth to Water	29.33
DTB - DTW	40.35
Capacity per foot	0.163
3 Well Volumes	20 gals
PURGE DATE	
PURGE TIME	1505
SAMPLE DAY	
SAMPLE TIME	1530

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1524	9.17	17.16	1089	.708	.54	58.0	27.2
(2)	1526	8.95	17.23	1075	.699	.54	35.4	40.5
(3)	1528	9.11	17.43	1078	.700	.54	30.6	29.2
(4)	1530	9.06	17.59	1079	.701	.54	30.3	30.7

WEATHER CONDITIONS

Cldy, calm.

WATER APPEARANCE

Clear, cloudy -

SAMPLE LOG

bailed 13 gals - lost suction - allowed to recharge.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

MW-4

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	121.72
DEDICATED PUMP	Y
DTW (feet) Depth to Water	
DTB - DTW	
Capacity per foot	1.020
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG

MW-5

GAUGE DATE	9/11/17
GAUGE TIME	1545
DTB (feet) Depth to Bottom	130.83
DEDICATED PUMP	Y
DTW (feet) Depth to Water	11.22
DTB - DTW	119.61
Capacity per foot	0.740
3 Well Volumes	2.16 gal
PURGE DATE	
PURGE TIME	1555
SAMPLE DAY	
SAMPLE TIME	1745

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1743	9.33	13.96	964	.627	.48	67.7	36
(3)	1745	9.41	14.37	954	0.62	0.47	21.8	29.1
(4)								

WEATHER CONDITIONS

Cldy, breezy.

WATER APPEARANCE

Clear - no odor

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature: _____

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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BW-1A		TEST PARAMETERS							
		Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/13/17	(1)							
GAUGE TIME	0815	(2)	None taken - well is DRY						
DTB (feet)	48.62								
Depth to Bottom	46.06	(3)							
DEDICATED PUMP	N	(4)							
DTW (feet) Depth to Water	DRY								
DTB - DTW Capacity per foot 2 Well Volumes	0.163								
PURGE DATE	NA								
PURGE TIME	NA								
SAMPLE DAY	N/A								
SAMPLE TIME									

WEATHER CONDITIONS

clear, calm

WATER APPEARANCE

DRY

SAMPLE LOG No Samples Collected.

BW-1B		TEST PARAMETERS							
		Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/13/17	(1)							
GAUGE TIME		(2)	None taken - well is DRY						
DTB (feet)	73.9								
Depth to Bottom	76.29	(3)							
DEDICATED PUMP	N	(4)							
DTW (feet) Depth to Water	DRY								
DTB - DTW Capacity per foot 2 Well Volumes	0.163								
PURGE DATE	NA								
PURGE TIME	NA								
SAMPLE DAY	N/A								
SAMPLE TIME									

WEATHER CONDITIONS

clear, calm

WATER APPEARANCE

DRY

SAMPLE LOG No Samples Collected

INSTRUMENTS USED:
Plastic dipper

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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BW-1C

GAUGE DATE	9/13/17
GAUGE TIME	0820
DTB (feet)	
Depth to Bottom	141.89
DEDICATED PUMP	Y
DTW (feet)	12.46
Depth to Water	~~12.65~~
DTB - DTW	129.29
Capacity per foot	0.163
3 Well Volumes	63 gals
PURGE DATE	
PURGE TIME	0830
SAMPLE DAY	
SAMPLE TIME	0900

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	850	8.92	15.92	1111	.722	.55	36.7	55.4
(2)	852	8.88	1581	1103	.717	.55	21.3	30.7
(3)	854	8.88	15.96	1106	.719	.55	15.0	15.4
(4)	856	8.9	16.15	1107	.720	.55	13.3	8.1

WEATHER CONDITIONS

Clear, calm

WATER APPEARANCE

clear, no odor

SAMPLE LOG

BW-2A

GAUGE DATE	9/13/17
GAUGE TIME	1215
DTB (feet)	
Depth to Bottom	67.57
DEDICATED PUMP	Y
DTW (feet)	32.44
Depth to Water	35.13
DTB - DTW	
Capacity per foot	0.163
3 Well Volumes	17 gals
PURGE DATE	
PURGE TIME	1315
SAMPLE DAY	
SAMPLE TIME	1420

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1414	8.75	2437	17	0.011	.01	117.3	23.1
(2)	1416	8.59	14.73	1142	.742	.57	26.4	-26.6
(3)	1418	8.42	1514	1140	.741	.57	21.4	-44.9
(4)	1420	8.31	1558	1141	.742	.57	19.5	-50.2

WEATHER CONDITIONS

WATER APPEARANCE

Stopped due to Rainshowers - Resume @ 1405 hrs

SAMPLE LOG

Purged water collected in 55 gallon drum and disposed of upstream of the WWT plant.

INSTRUMENTS USED:

YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Polyethylene Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

1510
#* Duplicate

WESTERN REFINING - GALLUP REFINERY
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BW-2B	
GAUGE DATE	9/13/17
GAUGE TIME	1210
DTB (feet) Depth to Bottom	92.26
DEDICATED PUMP	Y
DTW (feet) Depth to Water	28.28
DTB - DTW	63.98
Capacity per foot	0.163
3 Well Volumes	31 gals
PURGE DATE	
PURGE TIME	1455
SAMPLE DAY	
SAMPLE TIME	~~1435~~
SAMPLE LOG	Lost suction @9 gals

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1449	8.29	14.31	1867	1.214	.95	11.3	-79.0
(2)	1451	8.22	14.7	1871	1.216	.96	10.5	-82.8
(3)	1453	8.16	15.12	1875	1.219	.96	10.5	-83.8
(4)	1455	8.12	15.46	1884	1.224	.96	10.4	-84.5

WEATHER CONDITIONS

Cldy, breezy

WATER APPEARANCE

Clear - cldy

BW-2C	
GAUGE DATE	9/13/17
GAUGE TIME	1205
DTB (feet) Depth to Bottom	152.84
DEDICATED PUMP	N
DTW (feet) Depth to Water	20.9
DTB - DTW	131.94
Capacity per foot	0.163
3 Well Volumes	65 gal
PURGE DATE	
PURGE TIME	1230
SAMPLE DAY	
SAMPLE TIME	1305
SAMPLE LOG	Lost suction, @18 gals

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1301	9.20	18.72	1130	.735	.56	74.6	14.0
(2)	1303	9.13	18.90	1124	.730	.56	42.2	19.2
(3)	1305	9.17	19.33	1124	.730	.56	36.3	16.5
(4)								

WEATHER CONDITIONS

ptly cldy, Breezy - Rain

WATER APPEARANCE

Clear, cloudy no odor

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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BW-3A	
GAUGE DATE	9/13/17
GAUGE TIME	1020
DTB (feet) Depth to Bottom	52.35
DEDICATED PUMP	N
DTW (feet) Depth to Water	DRY
DTB - DTW	
Capacity per foot	0.163
2 Well Volumes	
PURGE DATE	NA
PURGE TIME	NA
SAMPLE DAY	N/A
SAMPLE TIME	

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	None taken - well is DRY							
(3)								
(4)								

WEATHER CONDITIONS

Partly cloudy, breezy, 75-80 Deg F.
Clear, calm

WATER APPEARANCE

Not Applicable

SAMPLE LOG

No Samples collected

BW-3B	
GAUGE DATE	9/13/17
GAUGE TIME	1015
DTB (feet) Depth to Bottom	69.40
DEDICATED PUMP	Y
DTW (feet) Depth to Water	33.38
DTB - DTW	36.02
Capacity per foot	0.163
3 Well Volumes	18 gals
PURGE DATE	
PURGE TIME	1130
SAMPLE DAY	
SAMPLE TIME	1150

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1144	8.83	17.4	1272	.827	.64	25	-136.5
(2)	1146	8.81	17.54	1275	.829	.64	23.5	-153.9
(3)	1148	8.79	17.71	1277	.830	.64	22.9	-163.4
(4)	1150	8.78	17.80	1280	.832	.64	22.6	-164.1

WEATHER CONDITIONS

Clear, calm

WATER APPEARANCE

Clear

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Disposable Bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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BW-3C	
GAUGE DATE	9/13/17
GAUGE TIME	1017
DTB (feet)	
Depth to Bottom	154.55
DEDICATED PUMP	N
DTW (feet)	7.8
Depth to Water	
DTB - DTW	146.75
Capacity per foot	0.163
3 Well Volumes	72 gal
PURGE DATE	
PURGE TIME	1030
SAMPLE DAY	
SAMPLE TIME	1120

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1112	8.42	13.92	1287	.836	.65	20.1	-122.6
(2)	1114	8.47	14.51	1283	.834	.64	17.6	-158.8
(3)	1116	8.42	15.25	1278	.831	.64	17.8	-178.9
(4)	1118	8.39	15.65	1280	.832	.64	17.1	-165.2

WEATHER CONDITIONS

clear, calm

WATER APPEARANCE

clear, slightly cloudy, no odor

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

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WESTERN REFINING - GALLUP REFINERY
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PW-3		TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/18/17	(1)								
GAUGE TIME	1120	(2)	N/A							
DTB (feet) Depth to Bottom		(3)								
DEDICATED PUMP DTW (feet) Depth to Water		(4)								
DTB - DTW Capacity per foot 3 Well Volumes		WEATHER CONDITIONS: Clear, breezy								
PURGE DATE		WATER APPEARANCE								
PURGE TIME										
SAMPLE DAY	~~1185~~									
SAMPLE TIME	1125									

SAMPLE LOG Opened Valve - allow to Run for 5min before collecting samples

PW-4		TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/18/17	(1)								
GAUGE TIME	1200	(2)	N/A							
DTB (feet) Depth to Bottom		(3)								
DEDICATED PUMP DTW (feet) Depth to Water		(4)								
DTB - DTW Capacity per foot 3 Well Volumes		WEATHER CONDITIONS: Clear - breezy								
PURGE DATE		WATER APPEARANCE								
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME	1210									

SAMPLE LOG Opened Valve - allow to run for 5 mins before sampling.

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

PW-2		TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/18/17	(1)								
GAUGE TIME	1230	(2)	N/A							
DTB (feet)										
Depth to Bottom		(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water										
DTB - DTW										
Capacity per foot										
3 Well Volumes										
PURGE DATE										
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME	1240									

WEATHER CONDITIONS

clear, breezy

WATER APPEARANCE

clear

SAMPLE LOG Opened valve allowed to run 5 mins before collecting samples

Duplicate		TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE		(1)								
GAUGE TIME		(2)								
DTB (feet)										
Depth to Bottom		(3)								
DEDICATED PUMP		(4)								
DTW (feet) Depth to Water										
DTB - DTW										
Capacity per foot										
3 Well Volumes										
PURGE DATE										
PURGE TIME										
SAMPLE DAY										
SAMPLE TIME	1250									

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

OW-11		TEST PARAMETERS								
			Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/18/17	(1)	Did not sample data							
GAUGE TIME	1335	(2)								
DTB (feet) Depth to Bottom	65.79	(3)								
DEDICATED PUMP	N	(4)								
DTW (feet) Depth to Water	18.08	WEATHER CONDITIONS: clear, breezy								
DTB - DTW	47.71									
Capacity per foot	0.740									
3 Well Volumes	106 gals									
PURGE DATE										
PURGE TIME	1345	WATER APPEARANCE: clear no odor								
SAMPLE DAY										
SAMPLE TIME	1420									

SAMPLE LOG

OW-12		TEST PARAMETERS								
			Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE		(1)								
GAUGE TIME		(2)								
DTB (feet) Depth to Bottom	128.85	(3)								
DEDICATED PUMP	N	(4)								
DTW (feet) Depth to Water		WEATHER CONDITIONS: partly cloudy, breezy								
DTB - DTW										
Capacity per foot	0.740									
3 Well Volumes										
PURGE DATE										
PURGE TIME		WATER APPEARANCE: Clear, no odor detected.								
SAMPLE DAY										
SAMPLE TIME										

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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OW-11

GAUGE DATE	9/18/17
GAUGE TIME	1335
DTB (feet) Depth to Bottom	65.79
DEDICATED PUMP	N
DTW (feet) Depth to Water	18.08
DTB - DTW	47.71
Capacity per foot	0.740
3 Well Volumes	106 gals
PURGE DATE	
PURGE TIME	1345
SAMPLE DAY	
SAMPLE TIME	1420

SAMPLE LOG

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

clear, breezy

WATER APPEARANCE

clear no odor

OW-12

GAUGE DATE	9/19/17
GAUGE TIME	0900
DTB (feet) Depth to Bottom	128.85
DEDICATED PUMP	N
DTW (feet) Depth to Water	46.74
DTB - DTW	82.11
Capacity per foot	0.740
3 Well Volumes	182
PURGE DATE	
PURGE TIME	0910
SAMPLE DAY	
SAMPLE TIME	0950

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	944	9.55	14.0	929	.604	.46	53.5	77.2
(2)	948	9.60	13.84	928	.603	.46	49.4	78.5
(3)	950	9.58	13.88	926	.602	.46	47.1	78.7
(4)	952	9.58	13.86	928	.603	.46	51.6	78.9

WEATHER CONDITIONS

partly cloudy, ~~breezy~~ Windy 14mph+

WATER APPEARANCE

Clear, no odor detected.

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
bailer

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
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OW-57	
GAUGE DATE	9/19/17
GAUGE TIME	1024
DTB (feet) Depth to Bottom	28.1
DEDICATED PUMP DTW (feet) Depth to Water	20.15
DTB - DTW	17.95
Capacity per foot	.163
3 Well Volumes	4 gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1050

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1046	8.78	26.40	46	.03	.02	118.5	263
(2)		7.95	14.66	1520	.988	.77	29.6	-112.7
(3)	1048							
(4)	1050	7.70	14.94	1512	.983	.77	23.4	-132.7

WEATHER CONDITIONS

ptly cldy, windy

WATER APPEARANCE

clear - pink

SAMPLE LOG Bailed 1.5 gals - turned pinkish brown.

OW-58	
GAUGE DATE	9/19/17
GAUGE TIME	1140
DTB (feet) Depth to Bottom	47.3
DEDICATED PUMP DTW (feet) Depth to Water	25.04
DTB - DTW	22.26
Capacity per foot	.163
3 Well Volumes	10
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1215

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1210	7.84	14.63	1513	.983	.77	24.4	-126.2
(2)	1212	7.72	14.65	1514	.984	.77	22.5	-147.0
(3)	1214	7.54	14.91	1511	.982	.76	21.6	-152.5
(4)	1216	7.44	15.24	1512	.983	.77	21.5	-145.3

WEATHER CONDITIONS

ptly cldy, windy

WATER APPEARANCE

clear, cldy - pink

SAMPLE LOG

915 @ 914

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
2017 QUARTERLY INSPECTION

RW-1 (Recovery Well)				WEATHER CONDITIONS
GAUGE DATE	9/19/17	Product Thickness (ft)		
GAUGE TIME	1225	Volume of Product Purged (Gallons)		
DTB (feet) Depth to Bottom	43.04	Volume of Water Purged (Gallons)		WATER APPEARANCE
		PURGE DATE		
DTP (feet) Depth to Product	26.52	PURGE TIME		
DTW (feet) Depth to Water	27.6	SAMPLE DAY	N/A	
DTB - DTW		SAMPLE TIME	N/A	
WELL PURGING				Notes
START DATE	START TIME	END DATE	END TIME	

ADDITIONAL NOTES:

Used a 2" bailer to collect the hydrocarbon layer in the well - bailed approximately 2.5 gallons of product. Bailed a total of 10 gallons of water.

RW-2 (Recovery Well)				WEATHER CONDITIONS
GAUGE DATE	9/19/17	Product Thickness (ft)		
GAUGE TIME	1105	Volume of Product Purged (Gallons)		
DTB (feet) Depth to Bottom	39.80	Volume of Water Purged (Gallons)		WATER APPEARANCE
		PURGE DATE		
DTP (feet) Depth to Product	—	PURGE TIME		
DTW (feet) Depth to Water	20.71	SAMPLE DAY	1125	
DTB - DTW	19.09	SAMPLE TIME		
WELL PURGING				Notes
START DATE	START TIME	END DATE	END TIME	
N/A				

ADDITIONAL NOTES:

Purged water disposed of upstream of WWTP.

INSTRUMENTS USED:
YSI 556 MPS Instrument with flow cell. Used to collect water quality parameters.
WaterMark oil Water Interface Meter (100 ft), Model 101L/SMOIL, S/N 01-5509
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
5 gallon buckets to catch purge water.
Dedicated portable pump used for RW-1

SIGNATURE: /s/ *Cheryl Johnson* / Environmental Specialist

WESTERN REFINING - GALLUP REFINERY
2017 QUARTERLY INSPECTION

RW-5 (Recovery Well)				WEATHER CONDITIONS
GAUGE DATE	9/19/17	Product Thickness (ft)		ptly Cldy, windy
GAUGE TIME	0959	Volume of Product Purged (Gallons)	N/A	
DTB (feet) Depth to Bottom	39.59	Volume of Water Purged (Gallons)	20	WATER APPEARANCE
		PURGE DATE		has hydrocarbons
DTP (feet) Depth to Product	25.46	PURGE TIME		
DTW (feet) Depth to Water	31.65	SAMPLE DAY		
DTB - DTW		SAMPLE TIME		
WELL PURGING				Notes
START DATE	START TIME	END DATE	END TIME	No Samples Collected

ADDITIONAL NOTES:

Purged water disposed of upstream of the WWTP.

RW-6 (Recovery Well)				WEATHER CONDITIONS
GAUGE DATE	9/~~13~~19/2017	Product Thickness (ft)	0.000	Ptly cloudy, ~~breezy~~ windy
GAUGE TIME	1004 ~~950~~	Volume of Product Purged (Gallons)	N/A	
DTB (feet) Depth to Bottom	40.90	Volume of Water Purged (Gallons)	20	WATER APPEARANCE
		PURGE DATE		Clear - cloudy - sheen - odor
DTP (feet) Depth to Product	25.89 ~~0.00~~	PURGE TIME		hydrocarbons
DTW (feet) Depth to Water	30.97 ~~27.98~~	SAMPLE DAY	9/13/2016	
DTB - DTW	~~12.91~~	SAMPLE TIME	1025	
WELL PURGING				Notes
START DATE	START TIME	END DATE	END TIME	~~Bailed 20 gallons - samples~~ collected.
				No Samples Collected

ADDITIONAL NOTES:

Purged water disposed of upstream of the WWTP.

INSTRUMENTS USED:
YSI 556 MPS Instrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
5 gallon buckets to catch purge water.
3 foot disposable bailer.

SIGNATURE: /s/ *Cheryl Johnson* / Environmental Specialist

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

MW-1	
GAUGE DATE	9/20/17
GAUGE TIME	1000
DTB (feet)	
Depth to Bottom	130.83
DEDICATED PUMP	Y
DTW (feet)	
Depth to Water	7.02
DTB - DTW	123.81
Capacity per foot	1.020
3 Well Volumes	378 gals
PURGE DATE	
PURGE TIME	1015
SAMPLE DAY	
SAMPLE TIME	1200

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1184	9.34	17.81	964	.627	.48	72.3	303
(2)	1156	9.34	17.09	965	.627	.48	62.1	255
(3)	1158	9.33	17.34	966	.628	.48	57.5	19.6
(4)	1200	9.29	18.08	960	.624	0.48	53.3	13.5

WEATHER CONDITIONS

clear, windy

WATER APPEARANCE

clear, no odor

SAMPLE LOG

Duplicate
1645

MW-2	
GAUGE DATE	9/20/17
GAUGE TIME	1430
DTB (feet)	
Depth to Bottom	137.48
DEDICATED PUMP	Y
DTW (feet)	
Depth to Water	15.64
DTB - DTW	121.84
Capacity per foot	1.020
3 Well Volumes	373 gals
PURGE DATE	
PURGE TIME	1450
SAMPLE DAY	
SAMPLE TIME	1630

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1624	9.18	16.07	952	.619	.47	15.9	48.3
(2)	1626	9.21	16.49	948	.617	.47	16.0	45.0
(3)	1628	9.22	16.61	950	.618	.47	17.1	44.7
(4)	1630	9.22	16.90	952	.619	.47	17.1	47.6

WEATHER CONDITIONS

clear, windy

WATER APPEARANCE

clear, no odor

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

MW-4		TEST PARAMETERS							
			Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/21/17	(1)								
GAUGE TIME	0545	(2)								
DTB (feet) Depth to Bottom	121.72	(3)	No Data Available							
DEDICATED PUMP DTW (feet) Depth to Water	7.56	(4)								
DTB - DTW	114.16									
Capacity per foot	1.02									
3 Well Volumes	349.8 gal									
PURGE DATE		WEATHER CONDITIONS: Clear, slight breeze								
PURGE TIME										
SAMPLE DAY		WATER APPEARANCE: Clear, no odor								
SAMPLE TIME	1056									

SAMPLE LOG

		TEST PARAMETERS							
		Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	(1)								
GAUGE TIME	(2)								
DTB (feet) Depth to Bottom	(3)								
DEDICATED PUMP DTW (feet) Depth to Water	(4)								
DTB - DTW	WEATHER CONDITIONS								
Capacity per foot									
3 Well Volumes									
PURGE DATE	WATER APPEARANCE								
PURGE TIME									
SAMPLE DAY									
SAMPLE TIME									

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature: _____

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

BW-5C		TEST PARAMETERS							
		Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	9/21/17	(1) 1324	8.40	14.80	43.08	2.8	2.31	16.5	-99.3
GAUGE TIME	1228	(2) 1326	8.33	15.13	43.01	2.799	2.31	13.5	-150.8
DTB (feet) Depth to Bottom	76.35	(3) 1328	8.25	15.01	43.09	2.799	2.30	12.9	-164.2
DEDICATED PUMP DTW (feet) Depth to Water	29.9	(4) 1330	8.19	14.95	43.06	2.799	2.30	12.5	-159.0
DTB - DTW	73.36								
Capacity per foot	1.63	WEATHER CONDITIONS							
3 Well Volumes	3.6gal	Clear, Windy							
PURGE DATE		WATER APPEARANCE							
PURGE TIME	1300	Clear, slight tint							
SAMPLE DAY									
SAMPLE TIME	1330								

SAMPLE LOG

		TEST PARAMETERS							
		Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE		(1)							
GAUGE TIME		(2)							
DTB (feet) Depth to Bottom		(3)							
DEDICATED PUMP DTW (feet) Depth to Water		(4)							
DTB - DTW		WEATHER CONDITIONS							
Capacity per foot									
3 Well Volumes									
PURGE DATE		WATER APPEARANCE							
PURGE TIME									
SAMPLE DAY									
SAMPLE TIME									

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

+ Duplicate 1505

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

OW-59	
GAUGE DATE	9/21/17
GAUGE TIME	1110
DTB (feet) Depth to Bottom	38.3
DEDICATED PUMP DTW (feet) Depth to Water	24.3
DTB - DTW	14.0
Capacity per foot	.163
3 Well Volumes	7 gals
PURGE DATE	
PURGE TIME	1117
SAMPLE DAY	
SAMPLE TIME	1450

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1448	8.22	14.17	9476	6.159	5.35	48.3	-9.9
(3)								
(4)	1450	8.11	14.96	9424	6.126	5.32	42.5	-12.9

WEATHER CONDITIONS

Clear, windy

WATER APPEARANCE

clear 1st bail - pink - brown

SAMPLE LOG

will allow to recharge before collection
Samples - WTR brown - silty Stopped @ 1120.

OW 60	
GAUGE DATE	9/21/17
GAUGE TIME	1520
DTB (feet) Depth to Bottom	45.5
DEDICATED PUMP DTW (feet) Depth to Water	16.45
DTB - DTW	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	1530
SAMPLE DAY	
SAMPLE TIME	1605

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1602	8.16	1527	6081	3.952	3.33	25.7	34.9
(3)	1604	8.13	1546	6088	3.957	3.33	23.8	26.7
(4)	1606	8.06	1547	6076	3.949	3.32	20.8	25.0

WEATHER CONDITIONS

Clear, windy

WATER APPEARANCE

clear, pink, brown

SAMPLE LOG

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

BW-4A

GAUGE DATE	9/21/17
GAUGE TIME	1145
DTB (feet) Depth to Bottom	38.8
DEDICATED PUMP DTW (feet) Depth to Water	DRY
DTB - DTW	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	N/A							
(3)								
(4)								

WEATHER CONDITIONS

Clear, windy

WATER APPEARANCE

DRY

SAMPLE LOG

BW-4B

GAUGE DATE	9/21/17
GAUGE TIME	1149
DTB (feet) Depth to Bottom	63.5
DEDICATED PUMP DTW (feet) Depth to Water	31.58
DTB - DTW	31.92
Capacity per foot	1 Gal
3 Well Volumes	
PURGE DATE	
PURGE TIME	1200
SAMPLE DAY	
SAMPLE TIME	1430

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1426	9.38	11.10	1301	.8446	.65	52.3	70.4
(2)	1428	9.27	10.95	1302	.8446	.65	51.0	63.4
(3)	1430	9.21	10.81	1304	.8448	.66	50.8	58.9
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

Clear - pink - brown/silty

SAMPLE LOG Stopped @1210 - will allow to recharge before collecting samples. Checked @1430 - Sampled - muddy

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY
3RD QTR/ANNUAL 2017

BW-5A	9/21/17
GAUGE DATE	9/21/17
GAUGE TIME	1220
DTB (feet) Depth to Bottom	23.0
DEDICATED PUMP DTW (feet) Depth to Water	DRY
DTB - DTW	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (uS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	N/A							
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

DRY

SAMPLE LOG

BW-5B	9/21/17
GAUGE DATE	9/21/17
GAUGE TIME	1225
DTB (feet) Depth to Bottom	61.45
DEDICATED PUMP DTW (feet) Depth to Water	8.65 52.8
DTB - DTW	52.8
Capacity per foot	.163
3 Well Volumes	26gals
PURGE DATE	
PURGE TIME	1235
SAMPLE DAY	
SAMPLE TIME	1405

TEST PARAMETERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1406	9.35	14.41	1042	.678	.52	34.1	-25.1
(2)	1402	9.29	14.47	1042	.677	.52	28.5	-26.9
(3)	1404	9.22	14.99	1044	.679	.52	28.1	-26.0
(4)	1406	9.2	15.54	1036	.673	.52	25.2	-25.1

WEATHER CONDITIONS

WATER APPEARANCE

clear - mild - brown

SAMPLE LOG

allowed to recharge

INSTRUMENTS USED:
YSI 556 MPS instrument used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Signature:

Cheryl Johnson / Environmental Specialist / Gallup Refinery

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-42	
GAUGE DATE	9/25/17
GAUGE TIME	0904
DTB (feet) Depth to Bottom	33.15
DTP	/
DTW	16.83
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	16.32
Capacity per foot	163
3 Well Volumes	8820
PURGE DATE	
PURGE TIME	0908
SAMPLE DAY	
SAMPLE TIME	0915

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	902	8.72	12.53	3038	1.975	1.59	25.4	209.0
(2)	904	8.7	12.09	3041	1.977	1.60	19.5	204.0
(3)	906	8.87	12.12	3058	1.988	1.60	19.0	199.5
(4)	908	8.86	12.15	3053	1.984	1.60	16.0	196.0

WEATHER CONDITIONS

clear, calm

WATER APPEARANCE

clear w/ orange tint -

SAMPLE LOG/NOTES:

EDB

MKTF-32	
GAUGE DATE	9/25/17
GAUGE TIME	0930
DTB (feet) Depth to Bottom	27.75
DTP	/
DTW	14.11
DTP-DTW (Hydrocarbon Layer)	/
DTW-DTB	13.64
Capacity per foot	.163
3 Well Volumes	7 gals
PURGE DATE	
PURGE TIME	0935
SAMPLE DAY	
SAMPLE TIME	0958

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	954	8.50	14.36	2297	1.493	1.19	46.2	182.5
(3)	956	8.48	14.65	2295	1.492	1.19	39.2	173.0
(4)	958	8.58	14.95	2296	1.492	1.19	37.5	165.0

WEATHER CONDITIONS

Clear calm

WATER APPEARANCE

Clear, ~~slight tint~~ cloudy

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EDB

MKTF-41	
GAUGE DATE	9/25/17
GAUGE TIME	1010
DTB (feet) Depth to Bottom	40.10
DTP	—
DTW	19.85
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	20.25
Capacity per foot	.163
3 Well Volumes	10 gals
PURGE DATE	
PURGE TIME	1015
SAMPLE DAY	
SAMPLE TIME	1030

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1024	9.22	13.30	2608	1.695	1.36	74.1	149.0
(3)	1028	9.14	13.17	2612	1.698	1.36	54.2	148.0
(4)	1030	9.10	13.13	2615	1.700	1.36	49.2	146.6

WEATHER CONDITIONS

Clear, calm

WATER APPEARANCE

Clear - cloudy

SAMPLE LOG/NOTES:

1130 Duplicate

MKTF-43	
GAUGE DATE	9/25/17
GAUGE TIME	1045
DTB (feet) Depth to Bottom	15.43
DTP	—
DTW	4.14
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	11.29
Capacity per foot	.163
3 Well Volumes	6 gals
PURGE DATE	
PURGE TIME	1050
SAMPLE DAY	
SAMPLE TIME	1115

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1113	7.73	17.65	26428	17.35	16.08	28.8	114.1
(3)	1115	7.74	16.38	26402	17.16	16.2	20.3	110.8
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

Clear - slightly cldy

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-33	
GAUGE DATE	9/25/17
GAUGE TIME	1330
DTB (feet) Depth to Bottom	33.2
DTP	
DTW	22.5
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.7
Capacity per foot	0.163
3 Well Volumes	5 gals
PURGE DATE	
PURGE TIME	1335
SAMPLE DAY	
SAMPLE TIME	1348

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)	1348	8.40	13.19	1553	1.009	.79	81.6	43.9
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

clear - cloudy

SAMPLE LOG/NOTES:

MKTF-44	
GAUGE DATE	9/25
GAUGE TIME	1420
DTB (feet) Depth to Bottom	51.15
DTP	
DTW	30.18
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	20.97
Capacity per foot	
3 Well Volumes	10 gals
PURGE DATE	
PURGE TIME	1425
SAMPLE DAY	
SAMPLE TIME	1450

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)	1448	8.71	12.88	4701	3.055	2.53	54.6	132.2
(4)	1450	8.59	13.00	4703	3.057	2.53	42.5	130.2

WEATHER CONDITIONS

WATER APPEARANCE

clear, no odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-40	
GAUGE DATE	9/25/17
GAUGE TIME	1500
DTB (feet) Depth to Bottom	23.64
DTP	
DTW	13.28
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.36
Capacity per foot	0.163
3 Well Volumes	5
PURGE DATE	
PURGE TIME	1505
SAMPLE DAY	25
SAMPLE TIME	1530

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

NO Data recorded

WEATHER CONDITIONS

WATER APPEARANCE

Clear, cloudy

SAMPLE LOG/NOTES:

EDB

MKTF-31	
GAUGE DATE	9/25/17
GAUGE TIME	1540
DTB (feet) Depth to Bottom	22.81
DTP	
DTW	8.29
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	14.52
Capacity per foot	0.163
3 Well Volumes	7gal
PURGE DATE	
PURGE TIME	1545
SAMPLE DAY	25
SAMPLE TIME	1600

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1554	7.95	19.62	2890	1.878	1.51	26.1	134.3
(2)	1556	7.89	19.30	2891	1.879	1.51	29.1	133.6
(3)	1558	7.85	19.55	2892	1.880	1.51	25.6	133.6
(4)	1600	7.83	19.48	2891	1.879	1.51	23.8	133.6

WEATHER CONDITIONS

WATER APPEARANCE

Clear - purple tint @ end of bailing

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EDB

MKTF 25	
GAUGE DATE	9/25
GAUGE TIME	1630
DTB (feet) Depth to Bottom	19.43
DTP	
DTW	11.04
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	839
Capacity per foot	0.163
3 Well Volumes	4gals
PURGE DATE	
PURGE TIME	1640
SAMPLE DAY	
SAMPLE TIME	1658

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)	1656	8.16	14.91	2479	1.611	1.29	24.4	76.0
(4)	1658	8.01	14.90	2478	1.611	1.29	28.6	76.0

WEATHER CONDITIONS

WATER APPEARANCE

Clear - pink tint - odor

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-17	
GAUGE DATE	9/26/17
GAUGE TIME	0825
DTB (feet) Depth to Bottom	24.11
DTP	—
DTW	9.33
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	14.78
Capacity per foot	0.163
3 Well Volumes	7qal
PURGE DATE	9
PURGE TIME	0838
SAMPLE DAY	
SAMPLE TIME	0849

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)	846	823	12.87	1246	0.81	.63	42.6	76.3
(4)	848	8.0	1254	1251	0.813	.63	30.0	-18.9

WEATHER CONDITIONS

Clear, calm

WATER APPEARANCE

Clear - pink

SAMPLE LOG/NOTES:

MKTF-19	
GAUGE DATE	9/26/17
GAUGE TIME	0900
DTB (feet) Depth to Bottom	17.47
DTP	—
DTW	11.0
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	6.47
Capacity per foot	0.163
3 Well Volumes	3
PURGE DATE	
PURGE TIME	0905
SAMPLE DAY	
SAMPLE TIME	0920

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)		7.73	15.56	1583	1.029	0.8	18.0	-120.8
(2)		7.68	15.73	1581	1.028	0.8	14.3	-137
(3)		7.66	15.94	1580	1.027	0.8	12.3	-149.5
(4)		7.66	15.87	1582	1.028	0.8	11.8	-158.1

WEATHER CONDITIONS

WATER APPEARANCE

Clear - pink

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-34	
GAUGE DATE	9/26/17
GAUGE TIME	0930
DTB (feet) Depth to Bottom	27.68
DTP	—
DTW	17.62
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	10.06
Capacity per foot	.0163
3 Well Volumes	5 gals
PURGE DATE	
PURGE TIME	0943
SAMPLE DAY	
SAMPLE TIME	0954

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)	952	8.45	13.44	1715	1.115	0.87	61.1	2.2
(4)	954	8.40	13.37	1715	1.114	0.87	57.8	5.9

WEATHER CONDITIONS

WATER APPEARANCE

Clear, slight pK tint

SAMPLE LOG/NOTES:

MKTF-21	
GAUGE DATE	9/26/17
GAUGE TIME	1015
DTB (feet) Depth to Bottom	9.89
DTP	—
DTW	5.69
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	4.2
Capacity per foot	0.14
3 Well Volumes	9 gals
PURGE DATE	
PURGE TIME	1020
SAMPLE DAY	
SAMPLE TIME	1030

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1026	8.16	21.69	4	.002	0	91.0	-42
(3)	1028	8.19	21.44	3	.002	0	91.1	-35.4
(4)	1030	8.21	21.21	3	.002	0	91.2	-30.3

WEATHER CONDITIONS

WATER APPEARANCE

Clear - gray w/small particles

SAMPLE LOG/NOTES:

not enough WTR to purge 9 gals - Collected grab sample

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF 20	
GAUGE DATE	9/26/17
GAUGE TIME	10.55
DTB (feet) Depth to Bottom	9.89
DTP	—
DTW	6.23
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	3.66
Capacity per foot	.74
3 Well Volumes	8gals
PURGE DATE	
PURGE TIME	10
SAMPLE DAY	
SAMPLE TIME	1105

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1058	7.50	23.57	2510	1.631	1.29	16.2	-146.3
(2)	1100	7.46	22.76	2530	1.644	1.31	13.8	-124.6
(3)	1102	7.48	21.96	2541	1.651	1.31	13.8	-112.6
(4)	1104	7.49	21.46	2544	1.653	1.32	14.6	-102.9

WEATHER CONDITIONS

Clear, breezy

WATER APPEARANCE

~~wt~~ Clear - gray - odor

SAMPLE LOG/NOTES:

not enough wtr for purging - collected grab sample. after bailing 2 gals.

MKTF-16	
GAUGE DATE	9/26/17
GAUGE TIME	1120
DTB (feet) Depth to Bottom	14.10
DTP	
DTW	8.0
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	6.1
Capacity per foot	0.163
3 Well Volumes	3gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1140

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1134	7.6	21.59	3563	2.316	1.88	39.1	-106.1
(2)	1136	7.54	21.24	3571	2.321	1.88	39.0	-104.9
(3)	1138	7.49	20.90	3576	2.324	1.89	24.3	-102.4
(4)	1140	7.61	20.61	3578	2.325	1.89	34.7	-99.1

WEATHER CONDITIONS

Clear, breezy

WATER APPEARANCE

Clear

SAMPLE LOG/NOTES:

Bailed 2.5 gals

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-15	
GAUGE DATE	9/26/17
GAUGE TIME	1200
DTB (feet) Depth to Bottom	19.48
DTP	12.0
DTW	12.1
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

1

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

MKTF-5	
GAUGE DATE	9/26/17
GAUGE TIME	1210
DTB (feet) Depth to Bottom	17.75
DTP	13.01
DTW	13.5
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-8	
GAUGE DATE	9/26/17
GAUGE TIME	1220
DTB (feet) Depth to Bottom	12
DTP	12.15
DTW	12.6
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

MKTF-17	
GAUGE DATE	9/26/17
GAUGE TIME	1225
DTB (feet) Depth to Bottom	9.8
DTP	11.1
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-6	
GAUGE DATE	9/26/17
GAUGE TIME	1229
DTB (feet) Depth to Bottom	
DTP	16.01
DTW	16.72
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			NM					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

1350 + duplicate

MKTF-04	
GAUGE DATE	9/26/17
GAUGE TIME	1234
DTB (feet) Depth to Bottom	22.15
DTP	
DTW	8.8
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	13.35
Capacity per foot	.16
3 Well Volumes	30gal
PURGE DATE	
PURGE TIME	1300
SAMPLE DAY	
SAMPLE TIME	1335

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1329	8.10	16.85	1810	1.176	.92	46.6	-93.0
(2)	1331	7.94	17.08	1812	1.178	.92	24.9	-95.0
(3)	1333	7.90	17.32	1814	1.179	.93	31.9	-94.7
(4)	1335	7.85	17.54	1816	1.180	.93	33.2	-91.9

WEATHER CONDITIONS

WATER APPEARANCE

clear - gray - sheen

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-03	
GAUGE DATE	9/26/17
GAUGE TIME	1415
DTB (feet) Depth to Bottom	18.45
DTP	6.35
DTW	7.15
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			NA	NA				
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

MKTF-11	
GAUGE DATE	9/26/17
GAUGE TIME	1420
DTB (feet) Depth to Bottom	18.14
DTP	
DTW	6.7
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	11.44
Capacity per foot	
3 Well Volumes	25 gal
PURGE DATE	
PURGE TIME	1425
SAMPLE DAY	
SAMPLE TIME	1450

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1444	8.02	17.74	3489	2.268	1.84	45.1	-123.7
(2)	1446	8.02	17.91	3493	2.27	1.84	30.8	-124.0
(3)	1448	7.98	18.07	3500	2.275	1.85	27.3	-120.9
(4)	1450	7.97	18.27	3501	2.276	1.85	25.0	-117.1

WEATHER CONDITIONS

Cldy,

WATER APPEARANCE

Clear, grey - slight odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EDB

MKTF-36	
GAUGE DATE	9/27/17
GAUGE TIME	0806
DTB (feet) Depth to Bottom	1545
DTP	—
DTW	5.8
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	9.65
Capacity per foot	0.163
3 Well Volumes	5gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0820

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	N/A - WTR too dirty							
(3)								
(4)								

WEATHER CONDITIONS

Cldy, Rainshowers

WATER APPEARANCE

gray - sheen - oder

SAMPLE LOG/NOTES:

EDB

MKTF-35	
GAUGE DATE	9/27/17
GAUGE TIME	0840
DTB (feet) Depth to Bottom	16.45
DTP	—
DTW	7.7
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	8.75
Capacity per foot	0.163
3 Well Volumes	4gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	0915

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)	913	8.64	17.05	1398	.908	.70	39.8	-119.5
(4)	915	8.42	16.03	1484	.913	.71	31.3	-128.0

WEATHER CONDITIONS

Cldy Rainshowers

WATER APPEARANCE

gray -

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-37	
GAUGE DATE	9/27/17
GAUGE TIME	0745
DTB (feet) Depth to Bottom	24.60
DTP	7.83
DTW	7.89
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	0.163
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

MKTF-18	
GAUGE DATE	9/27/17
GAUGE TIME	0800
DTB (feet) Depth to Bottom	25.38
DTP	6.35
DTW	6.37
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-10	
GAUGE DATE	9/27/17
GAUGE TIME	0925
DTB (feet) Depth to Bottom	15.99
DTP	—
DTW	6.78
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	9.21
Capacity per foot	.74
3 Well Volumes	20
PURGE DATE	9/28/17
PURGE TIME	1350
SAMPLE DAY	9/28/17
SAMPLE TIME	1409

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)	1408	8.23	17.58	1753	1.139	0.89	26.7	-108.4
(4)	1400	8.03	16.89	1755	1.140	0.89	21.9	-112.3

WEATHER CONDITIONS

Cldy, Rainshowers

WATER APPEARANCE

clear,

SAMPLE LOG/NOTES:
9/27/17 - Stopped - Severe weather warning - lightening - did not sample.

1245 * Duplicate

MKTF-9	
GAUGE DATE	9/28/17
GAUGE TIME	1200
DTB (feet) Depth to Bottom	22.70
DTP	—
DTW	12.69
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	10.01
Capacity per foot	0.74
3 Well Volumes	22
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1230

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1226	8.38	15.28	1649	1.072	.84	46.4	-148.0
(3)	1228	8.21	15.23	1650	1.072	.84	36.8	-145.0
(4)	1230	8.11	15.24	1650	1.073	.84	35.1	-140.4

WEATHER CONDITIONS

Cldy - breezy - Rain

WATER APPEARANCE

clear - slight odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-38	
GAUGE DATE	9/28/17
GAUGE TIME	1045
DTB (feet) Depth to Bottom	20.29
DTP	
DTW	6.32
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	13.97
Capacity per foot	
3 Well Volumes	7gals
PURGE DATE	
PURGE TIME	1047
SAMPLE DAY	
SAMPLE TIME	1105

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1100	8.66	18.53	1678	1.091	0.85	42.5	50.4
(3)	1104	8.46	18.51	1675	1.089	0.85	37.0	63.0
(4)	1106	8.35	18.38	1680	1.092	0.85	34.5	59.5

WEATHER CONDITIONS

ptly cldy - slight breeze

WATER APPEARANCE

clear, cloudy - pink tint

SAMPLE LOG/NOTES:

MKTF-39	
GAUGE DATE	9/28/17
GAUGE TIME	1130
DTB (feet) Depth to Bottom	19.20
DTP	
DTW	7.32
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	11.88
Capacity per foot	0.163
3 Well Volumes	4gals
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1145

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1142	7.94	19.90	9670	6.285	5.45	28.8	-118.8
(2)	1144	7.76	19.81	9708	6.311	5.48	19.5	-125.9
(3)	1146	7.66	19.64	9709	6.311	5.48	18.0	-132.3
(4)								

WEATHER CONDITIONS

ptly cldy, breezy

WATER APPEARANCE

clear - cldy - sheen, slight odor

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.

Water Level - Heron Instrument 100 feet DipperT electric water depth tape.

Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.

Disposable baller - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.

55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EDB

MKTF 24	
GAUGE DATE	10/3/17
GAUGE TIME	0825
DTB (feet) Depth to Bottom	30.47
DTP	—
DTW	21.52
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	8.95
Capacity per foot	0.163
3 Well Volumes	4gals
PURGE DATE	
PURGE TIME	0830
SAMPLE DAY	
SAMPLE TIME	0855

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	852	8.65	12.66	3103	2.017	1.63	30.6	10.8
(2)	854	8.40	12.59	3107	2.02	1.63	25.2	-7.8
(3)	856	8.25	12.70	3103	2.017	1.63	23.6	-15.6
(4)								

WEATHER CONDITIONS

Clear, slight breeze

WATER APPEARANCE

Clear - pink tint @ end of purge

SAMPLE LOG/NOTES:

MKTF 26	
GAUGE DATE	10/3/17
GAUGE TIME	0925
DTB (feet) Depth to Bottom	17.15
DTP	7.77
DTW	8.6
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	X
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)		NO	IPA					
(3)								
(4)								

WEATHER CONDITIONS

Clear, slight breeze

WATER APPEARANCE

no samples collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-29	
GAUGE DATE	10/3/17
GAUGE TIME	0938
DTB (feet) Depth to Bottom	22.84
DTP	
DTW	1.59
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	21.25
Capacity per foot	0.163
3 Well Volumes	10
PURGE DATE	
PURGE TIME	0940
SAMPLE DAY	
SAMPLE TIME	1010

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1004	8.35	16.39	2396	1.557	1.24	29.3	33.4
(2)	1006	8.31	16.18	2400	1.560	1.24	20.8	29.7
(3)	1008	8.26	16.11	2403	1.562	1.24	15.4	28.5
(4)	1010	8.21	16.12	2403	1.562	1.24	14.0	28.2

WEATHER CONDITIONS

Clear, slight breeze

WATER APPEARANCE

Clear - slight pink tint @ end of purging.

SAMPLE LOG/NOTES:

1055 Duplicate

MKTF-28	
GAUGE DATE	10/3/17
GAUGE TIME	1017
DTB (feet) Depth to Bottom	16.16
DTP	
DTW	4.28
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	11.88
Capacity per foot	0.163
3 Well Volumes	6gal
PURGE DATE	
PURGE TIME	1020
SAMPLE DAY	
SAMPLE TIME	1045

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1040	8.78	20.84	2344	1.524	1.21	54.5	39.2
(2)	1042	8.47	20.61	2359	1.533	1.22	35.8	51.1
(3)	1044	8.32	20.56	2374	1.543	1.22	31.9	54.2
(4)	1046	8.23	20.49	2369	1.540	1.22	29.3	56.0

WEATHER CONDITIONS

Clear, Calm

WATER APPEARANCE

Clear - Cloudy

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-27	
GAUGE DATE	10/3/17
GAUGE TIME	1104
DTB (feet) Depth to Bottom	14.72
DTP	—
DTW	5.9
DTP-DTW (Hydrocarbon Layer)	—
DTW-DTB	8.82
Capacity per foot	0.163
3 Well Volumes	4
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1125

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1122	8.28	17.57	8773	5.702	4.92	21.4	67.8
(2)	1124	8.12	17.56	8782	5.708	4.93	24.5	65.5
(3)	1126	8.01	17.55	8842	5.747	4.96	20.1	64.1
(4)								

WEATHER CONDITIONS

Clear, slight breeze

WATER APPEARANCE

clear, slight purple

SAMPLE LOG/NOTES:

MKTF-12	
GAUGE DATE	10/3/17
GAUGE TIME	1305
DTB (feet) Depth to Bottom	25.6
DTP	17.3
DTW	17.43
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)		N/A						
(3)								
(4)								

WEATHER CONDITIONS

Clear, slight breeze

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-22	
GAUGE DATE	10/3/17
GAUGE TIME	1321
DTB (feet) Depth to Bottom	35.25
DTP	
DTW	25.19
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	10.06
Capacity per foot	0.163
3 Well Volumes	5 gal
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1346

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1342	8.05	13.88	1501	.976	.76	38.5	-91.8
(2)	1344	8.06	13.92	14610	.953	.74	29.2	-118.9
(3)	1346	7.99	14.18	1469	.955	.74	27.0	-126.4
(4)								

WEATHER CONDITIONS

Clear; slight breeze

WATER APPEARANCE

Clear - pink end of purge

SAMPLE LOG/NOTES:

MKTF-23	
GAUGE DATE	10/3/17
GAUGE TIME	1404
DTB (feet) Depth to Bottom	20.30
DTP	14.19
DTW	14.25
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			NA	NA				
(3)								
(4)								

WEATHER CONDITIONS

Clear, breezy

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF-13	
GAUGE DATE	10/3/17
GAUGE TIME	1415
DTB (feet) Depth to Bottom	21.25
DTP	1.91
DTW	11.94
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

Clear, breezy

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

MKTF-14	
GAUGE DATE	10/3/17
GAUGE TIME	1418
DTB (feet) Depth to Bottom	17.46
DTP	5.77
DTW	6.11
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

Clear, breezy

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EDB

MKTF-30	
GAUGE DATE	10/3/17
GAUGE TIME	1442
DTB (feet) Depth to Bottom	23.20
DTP	
DTW	15.03
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1505

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)	1504	8.41	17.41	3274	2.128	1.72	59.0	36.2
(3)	1506	8.40	17.48	3273	2.127	1.72	52.1	37.2
(4)	1508	"						

WEATHER CONDITIONS

Clear, slight breeze

WATER APPEARANCE

Clear - slight orange tint

SAMPLE LOG/NOTES:

MKTF-01	
GAUGE DATE	10/3/17
GAUGE TIME	1515
DTB (feet) Depth to Bottom	17.42
DTP	10.92
DTW	6.56
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	X
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)			N/A					
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

No Samples Collected

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

EDB

MKTF-02	
GAUGE DATE	10/3/17
GAUGE TIME	1521
DTB (feet) Depth to Bottom	20.48
DTP	
DTW	6.67
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	13.81
Capacity per foot	0.74
3 Well Volumes	30
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	1600

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)	1549	8.25	15.40	2516	1.635	1.31	34.7	-160.5
(2)	1551	8.13	15.45	2520	1.638	1.31	36.1	-161.6
(3)	1553	8.01	15.56	2520	1.642	1.31	23.5	-156.3
(4)	1555	7.99	15.72	2519	1.638	1.31	23.2	-152.9

WEATHER CONDITIONS

WATER APPEARANCE

Clear

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

WESTERN REFINING - GALLUP REFINERY

2017 Annual/Quarterly Well Log

MKTF.45	
GAUGE DATE	10/3/17
GAUGE TIME	
DTB (feet) Depth to Bottom	3024
DTP	1148
DTW	12.01
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SpH level - No Samples Collected

SAMPLE LOG/NOTES:

GAUGE DATE	
GAUGE TIME	
DTB (feet) Depth to Bottom	
DTP	
DTW	
DTP-DTW (Hydrocarbon Layer)	
DTW-DTB	
Capacity per foot	
3 Well Volumes	
PURGE DATE	
PURGE TIME	
SAMPLE DAY	
SAMPLE TIME	

TEST PARAMATERS

	Time (hrs)	pH	Temperature Deg C	Conductivity (µS), (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
(1)								
(2)								
(3)								
(4)								

WEATHER CONDITIONS

WATER APPEARANCE

SAMPLE LOG/NOTES:

INSTRUMENTS USED & CALIBRATED WHERE APPLICABLE:

YSI 556 MPS Insrument with flow cell. Used to collect water quality parameters.
Water Level - Heron Instrument 100 feet DipperT electric water depth tape.
Submersible bladder pump, Grundfos Redi-flo 2, 2" and an adjustable rate controller.
Disposable bailer - Polyethylene bailer (1.5" x 36" OAL). Individually sealed.
55 gallon drum or 5-gallon buckets to catch purge water

Signature: /s/

EVAPORATION PONDS

SAMPLE LOCATION	SAMPLE DATE/TIME	SAMPLE DATE/TIME for E-COLI/BOD	WEATHER CONDITIONS / NOTES
EP-2	10/24 @ 1510	———	
EP-3	10/24 @ 1400	1650	
EP-4	10/24 @ 1340	1640	
EP-5	10/24 @ 1320	@ 1630	
EP-6	10/24 @ 1305	@ 1620	
EP-7	10/24 @ 1255	@ 1552	
EP-8	10/24 @ 1220	@ 1606	
EP-9	10/24 @ 1250	1611	
EP-11	10/24 @ 1205	@ 1547	
EP-12A	10/24 @ 1140	@ 1540	
EP-12B	10/24 @ 1125	@ 1530	clear, slight breeze
~~BW-EP2~~			
~~STP-1 TO EP-2~~			

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-24		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial	0828	7.92	11.90	2.329	2.035	1.65	62.6	62.3
GAUGE TIME	0815	1	0833	7.49	12.83	2.456	2.082	1.69	31.4	4.3
DHC (FEET)	ND	2	0838	7.38	12.61	2.357	2.004	1.62	28.3	-24.7
DTW (FEET)	21.53	3		BAILED DRY @ 4 GALLONS						
DTB (FEET)	30.82	4								
DTB - DTW	9.29	5								
CAPACITY PER FOOT	0.74 - 4" / 0.163 - 2"	6								
1.51		PURGING DATA								
3 WELL VOLUMES	4.54	WEATHER CONDITIONS: CLEAR, CALM 29°								
PURGE DATE	11.20.17	WATER APPEARANCE / ODOR: CLEAR -> PINKISH BROWN, HC ODOR								
END OF PURGE TIME	0840	COMMENTS:								
PURGE AMOUNT	4.0									
DTW (FEET)	30.60									
SAMPLING DATA										
SAMPLE DATE	11.20.17	WEATHER CONDITIONS: CLEAR, MOD WEST WIND, 62°								
DTW (FEET)	22.15	WATER APPEARANCE / ODOR: CLEAR, HC ODOR								
SAMPLE TIME	1350	COMMENTS:								

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-24	1350	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		~~250~~ 125 ML PLASTIC	1	HNO_3
			1	H_2SO_4
			1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-02		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial	0910	7.51	12.22	1.898	1.632	1.30	22.2	-20.5
GAUGE TIME	0900	1	0917	7.41	13.51	1.959	1.634	1.30	19.9	-75.5
DHC (FEET)	ND	2	0926	7.39	12.89	2.034	1.948	1.57	25.1	-96.2
DTW (FEET)	7.00	3			BAILED DRY @ 20 GALLONS					
DTB (FEET)	20.35	4								
DTB - DTW	13.35	5								
CAPACITY PER FOOT	(0.74 - 4")	6								
	0.163 - 2"									

9.88

PURGING DATA

3 WELL VOLUMES	29.62	WEATHER CONDITIONS: CLEAR, CALM, 46°
PURGE DATE	11.20.17	WATER APPEARANCE / ODOR: CLEAR → BROWN, HC ODOR
END OF PURGE TIME	0926	COMMENTS:
PURGE AMOUNT	20 GALS	
DTW (FEET)	20.00	

SAMPLING DATA

SAMPLE DATE	11.20.17	WEATHER CONDITIONS: CLEAR, MOD WEST WIND, 63°
DTW (FEET)	15.92	WATER APPEARANCE / ODOR: CLEAR, ODOR
SAMPLE TIME	1430	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-02	1430	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
			1	H_2SO_4
			1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-30		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial	1001	7.55	15.25	2.431	1,940	1.56	53.4	-12.7
GAUGE TIME	0957	1	1006	7.44	15.85	2.567	2.024	1.64	34.4	0.5
DHC (FEET)	ND	2	1011	7.43	15.72	2.546	2.012	1.62	53.2	5.2
DTW (FEET)	14.91	3			BAILED DRY @ 4 GALLONS					
DTB (FEET)	23.19	4								
DTB - DTW	8.28	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								
	1.34	PURGING DATA								
3 WELL VOLUMES	4.04	WEATHER CONDITIONS: CLEAR, CALM, 48°								
PURGE DATE	11.20.17	WATER APPEARANCE / ODOR: CLEAR → BROWN, FAINT ODOR								
END OF PURGE TIME	1012	COMMENTS:								
PURGE AMOUNT	4 GALS									
DTW (FEET)	22.90									
		SAMPLING DATA								
SAMPLE DATE	11.20.17	WEATHER CONDITIONS: PARTLY CLOUDY, MOD WEST WIND, 59°								
DTW (FEET)	14.90	WATER APPEARANCE / ODOR: CLEAR, FAINT ODOR								
SAMPLE TIME	1525	COMMENTS:								

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-30	1525	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
			1	H_2SO_4
			1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-29		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial	1031	7.48	12.79	1.736	1.472	1.17	26.2	-3.1
GAUGE TIME	1025	1	1037	7.46	15.15	1.843	1.476	1.17	26.4	-6.3
DHC (FEET)	ND	2	1043	7.41	15.20	1.854	1.483	1.18	19.2	-6.0
DTW (FEET)	1.91	3	1048	7.40	15.21	1.860	1.485	1.18	18.9	-5.9
DTB (FEET)	22.80	4								
DTB - DTW	20.89	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

3.41

PURGING DATA

3 WELL VOLUMES	10.21	WEATHER CONDITIONS: CLEAR, CALM, 52°
PURGE DATE	11.20.17	WATER APPEARANCE / ODOR: CLEAR → LT BROWN, NO ODOR
END OF PURGE TIME	1048	COMMENTS:
PURGE AMOUNT	10.25	
DTW (FEET)	10.10	

SAMPLING DATA

SAMPLE DATE	11.20.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	10.10	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	11:30	COMMENTS: COLLECTED DUP01 & 1 EXTRA AMBER (1L)

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-29	1130	40 ML VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE

SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-27		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial	1158	7.55	14.38	5.709	4.654	3.96	95.7	-53.0
GAUGE TIME	11:50	1	1200	7.45	14.84	6.302	5.082	4.35	63.1	-19.1
DHC (FEET)	ND	2	1203	7.40	15.36	6.904	5.501	4.74	29.6	-11.0
DTW (FEET)	5.98	3	1206	7.38	15.36	7.010	5.680	4.92	33.5	-11.7
DTB (FEET)	14.72	4								
DTB - DTW	8.74	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								
	1.42									

PURGING DATA		
3 WELL VOLUMES	4.29	WEATHER CONDITIONS: CLEAR, MOD WEST WIND, 70°
PURGE DATE	11.20.17	WATER APPEARANCE / ODOR: CLEAR TO GREYISH BROWN, FAINT ODOR
END OF PURGE TIME	1206	COMMENTS:
PURGE AMOUNT	4.5 G	
DTW (FEET)	12.77	

SAMPLING DATA		
SAMPLE DATE	11.20.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	12.77	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1225	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-27	1225	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
			1	H_2SO_4
			1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-28		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial	1247	7.79	18.01	1.907	1.428	1.13	80.1	-84.1
GAUGE TIME	1240	1	1249	7.67	18.46	1.725	1.282	1.01	73.0	-53.2
DHC (FEET)	ND	2	1252	7.65	18.69	1.788	1.322	1.04	64.1	-39.2
DTW (FEET)	7.90	3	1255	7.65	18.70	1.790	1.380	1.14	53.0	-67.1
DTB (FEET)	16.13	4								
DTB - DTW	8.23	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								
	1.34									

PURGING DATA

3 WELL VOLUMES	4.02	WEATHER CONDITIONS: CLEAR, MOD WEST WIND 68°
PURGE DATE	11.20.17	WATER APPEARANCE / ODOR: CLEAR -> SLIGHTLY CLOUDY, NO ODOR
END OF PURGE TIME	1255	COMMENTS:
PURGE AMOUNT	4.25	
DTW (FEET)	12.88	

SAMPLING DATA

SAMPLE DATE	11.20.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	12.88	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1310	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-28	1310	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
			1	H_2SO_4
			1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-01		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial								
GAUGE TIME	1440	1								
DHC (FEET)	4.62	2		DID NOT SAMPLE						
DTW (FEET)	4.95	3		0.32 FEET OF SPH IN WELL						
DTB (FEET)	17.42	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA		
3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA		
SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-26		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.20.17	Initial								
GAUGE TIME	1445	1								
DHC (FEET)	8.09	2		DID	NOT SAMPLE					
DTW (FEET)	8.93	3	0.84	FEET	OF SPH IN WELL					
DTB (FEET)	17.15	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS									
MKTF-25		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.21.17	Initial	0807	7.65	11.54	1.804	1.679	1.26	144.5	14.3
GAUGE TIME	0755	1	0810	7.48	13.15	1.907	1.603	1.28	27.5	-20.2
DHC (FEET)	ND	2	0813	7.42	13.18	1.916	1.609	1.28	25.8	-29.8
DTW (FEET)	11.11	3	0816	7.40	13.16	1.918	1.610	1.29	24.6	-33.8
DTB (FEET)	19.80	4								
DTB - DTW	8.69	5								
CAPACITY PER FOOT	0.74 - 4" (0.163 - 2")	6								
1.42										

PURGING DATA

3 WELL VOLUMES	4.25	WEATHER CONDITIONS: CLEAR, CALM, 34°
PURGE DATE	11.21.17	WATER APPEARANCE / ODOR: CLEAR → PINKISH BROWN, HC ODOR
END OF PURGE TIME	0816	COMMENTS:
PURGE AMOUNT	4.25	
DTW (FEET)	11.80	

SAMPLING DATA

SAMPLE DATE	11.21.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	11.80	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	0850	COMMENTS: COLLECTED DUP02

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-25	0850	40 ML VOA	5	HCL
		40 ML VOA	3	$NA_2S_2O_3$
		1 L AMBER	2	NEAT
		250ML AMBER	1	NEAT
		125 ML PLASTIC	1	NEAT
		125ML PLASTIC	1	HNO_3
		250ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-31		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.21.17	Initial	0932	7.60	14.46	2.068	1.683	1.35	24.6	-37.0
GAUGE TIME	0925	1	0934	7.46	15.26	2.257	1.803	1.45	21.4	-24.7
DHC (FEET)	ND	2	0937	7.43	15.30	2.224	1.766	1.42	22.7	-17.2
DTW (FEET)	8.15	3	0940	7.40	15.40	2.177	1.731	1.39	24.8	-11.1
DTB (FEET)	19.30	4								
DTB - DTW	11.15	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

1.82

PURGING DATA

3 WELL VOLUMES	5.45	WEATHER CONDITIONS: CLEAR, CALM, 48°
PURGE DATE	11.21.17	WATER APPEARANCE / ODOR: CLEAR - NO ODOR
END OF PURGE TIME	0940	COMMENTS:
PURGE AMOUNT	5.5	
DTW (FEET)	10.20	

SAMPLING DATA

SAMPLE DATE	11.21.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	10.20	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1000	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-31	1000	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		~~125~~ 125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-40		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.21.17	Initial	1026	7.51	14.69	4.129	3.341	2.78	96.0	-70.0
GAUGE TIME	1018	1	1028	7.52	15.27	5.340	4.265	3.61	70.5	-42.0
DHC (FEET)	ND	2	1030	7.51	15.25	5.490	4.440	3.80	65.5	-24.7
DTW (FEET)	13.71	3	1032	7.41	15.05	5.580	4.690	4.50	49.4	-13.7
DTB (FEET)	23.62	4								
DTB - DTW	9.91	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

1.62

PURGING DATA

3 WELL VOLUMES	4.85	WEATHER CONDITIONS: CLEAR, MOD NORTH WIND, 56°
PURGE DATE	11.21.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	1032	COMMENTS:
PURGE AMOUNT	5.0	
DTW (FEET)	20.28	

SAMPLING DATA

SAMPLE DATE	11.21.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	20.28	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1055	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-40	1055	40 ML VOA	5	HCL
		1 LITER AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250ML PLASTIC	1	HNO_3
		125ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-43		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial	0840	6.81	11.41	11.24	9.869	8.87	38.5	65.1
GAUGE TIME	0815	1	0842	6.82	11.52	11.40	9.980	8.98	24.7	56.0
DHC (FEET)	ND	2	0845	6.79	~~12.32~~ ~~11.84~~	~~14.85~~ ~~12.72~~	~~12.72~~ ~~11.68~~	11.68	29.6	59.4
DTW (FEET)	5.65	3	0848	6.77	13.00	15.25	13.25	12.50	28.5	55.1
DTB (FEET)	15.38	4								
DTB - DTW	9.73	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

1.59

PURGING DATA

3 WELL VOLUMES	4.75	WEATHER CONDITIONS: CLEAR, CALM, 50°
PURGE DATE	11.27.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	0848	COMMENTS:
PURGE AMOUNT	5.0	
DTW (FEET)	10.62	

SAMPLING DATA

SAMPLE DATE	11.27.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	10.62	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	0920	COMMENTS: COLLECTED DUP03 + 1 EXTRA 1L AMBER

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-43	0920	40 ML VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-44		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial	0957	7.06	13.48	2.529	2.106	1.71	76.4	27.2
GAUGE TIME	0950	1	1004	7.18	12.84	2.216	1.876	1.51	58.8	36.2
DHC (FEET)	ND	2	1011	7.19	12.65	2.254	1.917	1.54	51.9	43.4
DTW (FEET)	33.70	3		BAILED DRY @ 6.75 GALLONS						
DTB (FEET)	51.16	4								
DTB - DTW	17.46	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

2.85

PURGING DATA

3 WELL VOLUMES	8.53	WEATHER CONDITIONS: CLEAR, SW WIND, 67°
PURGE DATE	11.27.17	WATER APPEARANCE / ODOR: CLEAR → LIGHT BROWN, NO ODOR
END OF PURGE TIME	1018	COMMENTS: BAILED DRY @ 6.75 GALLONS
PURGE AMOUNT	6.75	
DTW (FEET)	50.90	

SAMPLING DATA

SAMPLE DATE	11.28.17	WEATHER CONDITIONS: CLEAR, CALM, 36°
DTW (FEET)	48.80	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	0825	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-44	0825	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTK-41		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial	10:56	7.43	14.94	2.115	1.701	1.36	46.7	52.6
GAUGE TIME	1045	1	1102	7.40	13.76	2.055	1.705	1.36	51.1	51.9
DHC (FEET)	ND	2	1108	7.40	13.31	2.025	1.694	1.36	41.7	50.8
DTW (FEET)	19.81	3	1114	7.40	13.09	2.014	1.694	1.36	30.8	47.8
DTB (FEET)	39.71	4								
DTB - DTW	19.90	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

3.24

PURGING DATA

3 WELL VOLUMES	9.73
PURGE DATE	11.27.17
END OF PURGE TIME	1114
PURGE AMOUNT	9.75
DTW (FEET)	33.45

WEATHER CONDITIONS: CLEAR, MOD. SW WIND, 65°

WATER APPEARANCE / ODOR: CLEAR - SLIGHTY BROWN, NO ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	11.27.17
DTW (FEET)	33.45
SAMPLE TIME	1135

WEATHER CONDITIONS: SAME AS ABOVE

WATER APPEARANCE / ODOR: SAME AS ABOVE

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-41	1135	40 ML VOA	5	HCL
		40ML VOA	3	$Na_2S_2O_3$
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-42		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial	1301	7.29	15.65	2.434	1.926	1.55	12.4	23.3
GAUGE TIME	1250	1	1306	7.28	14.62	2.430	1.969	1.59	16.0	20.0
DHC (FEET)	ND	2	1309	7.26	14.21	2.369	1.931	1.56	14.1	21.7
DTW (FEET)	16.81	3	1314	7.24	14.10	2.319	1.920	1.55	15.7	14.4
DTB (FEET)	33.18	4								
DTB - DTW	16.37	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

2.67

PURGING DATA

3 WELL VOLUMES	8.00	WEATHER CONDITIONS: CLEAR, STRONG SW WIND, 70°
PURGE DATE	11.27.17	WATER APPEARANCE / ODOR: CLEAR, AMBER, WEATHERED HC ODOR
END OF PURGE TIME	1314	COMMENTS:
PURGE AMOUNT	8.00	
DTW (FEET)	25.94	

SAMPLING DATA

SAMPLE DATE	11.27.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	25.94	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1335	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-42	1335	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-32		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial	1200	7.24	15.63	1.759	1.392	1.10	22.2	60.7
GAUGE TIME	13:51	1	1204	7.21	15.03	1.811	1.456	1.16	27.7	58.1
DHC (FEET)	ND	2	1208	7.20	14.90	1.831	1.489	1.18	21.1	53.2
DTW (FEET)	13.57	3	1211	7.19	14.49	1.833	1.495	1.19	20.2	52.5
DTB (FEET)	27.75	4								
DTB - DTW	14.18	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

2.31

PURGING DATA

3 WELL VOLUMES	6.93	WEATHER CONDITIONS: CLEAR, MOD SW WIND, 70°
PURGE DATE	11.27.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	1211	COMMENTS:
PURGE AMOUNT	7.0	
DTW (FEET)	20.75	

SAMPLING DATA

SAMPLE DATE	11.27.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	20.75	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1235	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-32	1235	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY · PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-22		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial	1413	6.92	14.44	1.138	0.926	0.72	38.0	-97.4
GAUGE TIME	1405	1	1416	7.01	13.36	1.150	0.960	0.75	43.0	-103.0
DHC (FEET)	ND	2	1420	6.85	13.41	1.163	0.973	0.76	20.8	-100.0
DTW (FEET)	25.18	3	1425	6.84	12.86	1.168	0.988	0.77	21.3	-94.8
DTB (FEET)	35.60	4			BAILED DOWN @ 5.25 GALLONS					
DTB - DTW	10.42	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

1.70

PURGING DATA

3 WELL VOLUMES	5.1	WEATHER CONDITIONS: CLEAR, STRONG SW WIND WITH GUSTS, 70°
PURGE DATE	11.27.17	WATER APPEARANCE / ODOR: CLEAR, => V. TURBID., PINKISH BROWN, HC ODOR
END OF PURGE TIME	1425	COMMENTS:
PURGE AMOUNT	5.25	
DTW (FEET)	33.30	

SAMPLING DATA

SAMPLE DATE	11.28.17	WEATHER CONDITIONS: CLEAR, LIGHT NW WIND, 40°
DTW (FEET)	25.27	WATER APPEARANCE / ODOR: CLEAR, HC ODOR
SAMPLE TIME	0910	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-22	0910	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-33		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial	1451	6.93	13.91	1.056	0.870	0.67	35.3	717.6
GAUGE TIME	1444	1	1454	6.91	13.58	1.053	0.876	0.68	19.4	-6.4
DHC (FEET)	ND	2	1458	6.90	13.32	1.071	0.896	0.70	18.7	-2.1
DTW (FEET)	22.27	3	1502	6.89	13.30	1.071	0.899	0.70	15.4	1.5
DTB (FEET)	33.22	4								
DTB - DTW	10.95	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

1.78

PURGING DATA

3 WELL VOLUMES	5.34	WEATHER CONDITIONS: CLEAR, VERY STRONG SW WIND, 70°
PURGE DATE	11.29.17	WATER APPEARANCE / ODOR: CLEAR → TURBID, PINKISH BROWN
END OF PURGE TIME	1502	COMMENTS:
PURGE AMOUNT	5.5	
DTW (FEET)	25.46	

SAMPLING DATA

SAMPLE DATE	11.28.17	WEATHER CONDITIONS: CLEAR, NW WIND, 53°
DTW (FEET)	22.38	WATER APPEARANCE / ODOR:
SAMPLE TIME	0950	COMMENTS: COLLECTED DUP04 + 1 EXTRA 1 L AMBER

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-33	0950	40 ML VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: TP

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-23		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial								
GAUGE TIME	15:18	1								
DHC (FEET)	13.93	2		DID NOT SAMPLE						
DTW (FEET)	13.94	3		0.01' SPH DETECTED						
DTB (FEET)	20.36	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-14		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial								
GAUGE TIME	1522	1								
DHC (FEET)	6.56	2		DID	NOT	SAMPLE				
DTW (FEET)	6.93	3		0.37' SPH		DETECTED				
DTB (FEET)	17.46	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-13		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial								
GAUGE TIME	1527	1								
DHC (FEET)	13.14	2		DID NOT SAMPLE						
DTW (FEET)	13.15	3		0.01' SPH DETECTED						
DTB (FEET)	21.25	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-12		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.27.17	Initial								
GAUGE TIME	1531	1								
DHC (FEET)	18.43	2		DID NOT SAMPLE						
DTW (FEET)	18.56	3		0.13' SPH DETECTED						
DTB (FEET)	25.60	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-20		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial	1158	6.77	18.51	1.746	1.298	1.02	550	-168.6
GAUGE TIME	1147	1	[illegible]	6.66	19.04	1.810	1.328	1.05	28.2	-152.8
DHC (FEET)	ND	2	1200							
DTW (FEET)	6.53	3		BAILED DRY @ 4.25 GALS						
DTB (FEET)	9.58	4								
DTB - DTW	3.05	5								
CAPACITY PER FOOT	(0.74 - 4") / 0.163 - 2"	6								

2.26

PURGING DATA

3 WELL VOLUMES	6.77	WEATHER CONDITIONS: CLEAR, NW WIND, 54°
PURGE DATE	11.28.17	WATER APPEARANCE / ODOR: DARK GRAY, SEPTIC ODOR, SHEEN
END OF PURGE TIME	1204	COMMENTS:
PURGE AMOUNT	4.25	
DTW (FEET)	9.27	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: CLEAR, SE WIND 49°
DTW (FEET)	6.65	WATER APPEARANCE / ODOR: CLEAR, HC ODOR, EMULSION ON BAILER
SAMPLE TIME	1050	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-20	1050	40 ML VOA	5	HCL
↓	↓	1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-16		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial	1233	6.52	18.65	2.854	2.111	1.71	571.1	-84.2
GAUGE TIME	1222	1	1235	6.63	18.62	2.937	2.163	1.75	48.8	-92.2
DHC (FEET)	ND	2	1238	6.71	19.10	1.833	1.331	1.05	63.5	-89.1
DTW (FEET)	8.22	3	1241	6.73	19.15	1.840	1.480	1.20	25.2	-89.5
DTB (FEET)	14.10	4			BAILED DOWN					
DTB - DTW	5.88	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

0.96

PURGING DATA

3 WELL VOLUMES	2.88	WEATHER CONDITIONS: CLEAR, NW WIND, 55°
PURGE DATE	11.28.17	WATER APPEARANCE / ODOR: CLEAR, HC ODOR
END OF PURGE TIME	1241	COMMENTS: BAILED DOWN
PURGE AMOUNT	3.0	
DTW (FEET)	13.82	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: CLEAR, SE WIND, 55°
DTW (FEET)	11.80	WATER APPEARANCE / ODOR: CLEAR, HC ODOR
SAMPLE TIME	1125	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-16	1125	40 ML VOA	5	HCL
		1 LAMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-21		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	11.28.17	Initial	1312	6.92	17.41	1.464	1.110	0.87	72.8	-115.9
GAUGE TIME	1304	1	1314	6.63	17.36	1.437	1.093	0.85	25.0	-124.3
DHC (FEET)	ND	2			BAILED	DRY @	2.25	GALS		
DTW (FEET)	6.25	3								
DTB (FEET)	8.81	4								
DTB - DTW	2.56	5								
CAPACITY PER FOOT	(0.74 - 4") / 0.163 - 2"	6								

1.89

PURGING DATA

3 WELL VOLUMES	5.67	WEATHER CONDITIONS: CLEAR, NORTH WIND, 60°
PURGE DATE	11.28.17	WATER APPEARANCE / ODOR: GREY → BLACK, SEPTIC ODOR
END OF PURGE TIME	1317	COMMENTS:
PURGE AMOUNT	2.25	
DTW (FEET)	8.68	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: CLEAR, SE WIND, ~~60~~ 62°
DTW (FEET)	6.78 ~~6.55~~	WATER APPEARANCE / ODOR: EMULSION PRESENT
SAMPLE TIME	1225	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-21	1225	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-39		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial	1346	6.53	18.05	4.802	3.598	3.01	173.4	-100.9
GAUGE TIME	1341	1	1348	6.59	17.93	4.807	3.642	3.05	27.3	-117.7
DHC (FEET)	ND	2	1350	6.63	18.02	4.932	3.699	3.10	25.7	-123.1
DTW (FEET)	7.55	3	1352	6.64	18.05	4.920	3.685	3.09	22.4	-127.1
DTB (FEET)	15.18	4								
DTB - DTW	7.63	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	(0.163 - 2")									

1.24

PURGING DATA

3 WELL VOLUMES	3.72
PURGE DATE	11.28.17
END OF PURGE TIME	1352
PURGE AMOUNT	3.75
DTW (FEET)	8.58

WEATHER CONDITIONS: CLEAR, NORTH WIND, 65°

WATER APPEARANCE / ODOR: CLEAR → GRAYISH BROWN, HC ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	11.28.17
DTW (FEET)	8.58
SAMPLE TIME	1410

WEATHER CONDITIONS: SAME AS ABOVE

WATER APPEARANCE / ODOR: SAME AS ABOVE

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-39	1410	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-08		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial								
GAUGE TIME	1452	1		DID NOT SAMPLE						
DHC (FEET)	12.68	2		0.52' OF SPH IN WELL						
DTW (FEET)	13.20	3								
DTB (FEET)	21.98	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-07		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial								
GAUGE TIME	1457	1								
DHC (FEET)	10.40	2		DID NOT SAMPLE						
DTW (FEET)	11.80	3		1.40' OF SPH IN WELL						
DTB (FEET)	17.62	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE ~~PROBE~~ METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-06		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial								
GAUGE TIME	1459	1								
DHC (FEET)	16.55	2			DID NOT SAMPLE					
DTW (FEET)	17.70	3			1.15' OF SPH IN WELL					
DTB (FEET)	23.77	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-05		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial								
GAUGE TIME	1506	1		DID NOT SAMPLE						
DHC (FEET)	13.98	2		0.77' OF SPH IN WELL						
DTW (FEET)	14.75	3								
DTB (FEET)	17.75	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA		
3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA		
SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-03		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.28.17	Initial								
GAUGE TIME	1516	1			DID NOT SAMPLE					
DHC (FEET)	7.00	2			0.95' OF SPH IN WELL					
DTW (FEET)	7.95	3								
DTB (FEET)	18.45	4								
DTB - DTW	NA	5								
CAPACITY PER FOOT	0.74 - 4" 0.163 - 2"	6								

PURGING DATA		
3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA		
SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: TP

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-04		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.29.17	Initial	0749	7.33	13.54	1.371	1.140	0.89	291.6	-75.0
GAUGE TIME	0740	1			SHEEN ON WATER		DISCONTINUED			
DHC (FEET)	ND	2			WATER QUALITY READINGS					
DTW (FEET)	9.30	3								
DTB (FEET)	22.30	4								
DTB - DTW	13.00	5								
CAPACITY PER FOOT	(0.74 - 4") / 0.163 - 2"	6								

9.62

PURGING DATA

3 WELL VOLUMES	28.86	WEATHER CONDITIONS: CLOUDY, SE WIND 37°
PURGE DATE	11.29.17	WATER APPEARANCE / ODOR: CLEAR → GRAY, HC ODOR, SHEEN
END OF PURGE TIME	0805	COMMENTS: BAILED DRY @ 16.75 GALLONS
PURGE AMOUNT	16	
DTW (FEET)	21.90	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: CLOUDY, SW WND, 70°
DTW (FEET)	9.30	WATER APPEARANCE / ODOR: AMBER, HC ODOR, SHEEN
SAMPLE TIME	1500	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-04	1500	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-11		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.29.17	Initial	0828	7.29	14.17	2.488	2.039	1.65	102.4	-120.1
GAUGE TIME	0823	1	0835	7.35	15.11	2.670	2.142	1.74	33.5	-119.7
DHC (FEET)	ND	2	0840	7.33	15.95	2.967	2.332	1.90	18.8	-135.1
DTW (FEET)	8.00	3	0845	7.30	15.60	2.818	2.617	2.05	13.8	-180.8
DTB (FEET)	18.36	4								
DTB - DTW	10.36	5								
CAPACITY PER FOOT	(0.74 - 4")	6								
	0.163 - 2"									

7.66

PURGING DATA

3 WELL VOLUMES	23	WEATHER CONDITIONS: CLOUDY, SE WIND, 40°
PURGE DATE	11.29.17	WATER APPEARANCE / ODOR: CLEAR ⇒ BLACK, HC ODOR
END OF PURGE TIME	0845	COMMENTS:
PURGE AMOUNT	23	
DTW (FEET)	14.70	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: PARTLY CLOUDY, MOD⇒ STRONG SW WIND, 70°
DTW (FEET)	7.20	WATER APPEARANCE / ODOR: CLEAR, HC ODOR
SAMPLE TIME	1420	COMMENTS: COLLECTED DUP05 & 1 EXTRA 1 L AMBER

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-11	1420	40 ML VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-10		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.29.17	Initial	0917	7.33	13.84	1.456	1.203	0.95	19.8	-107.6
GAUGE TIME	0910	1		SHEEN ON WATER						
DHC (FEET)	ND	2		DISCONTINUED COLLECTING DATA						
DTW (FEET)	7.00	3								
DTB (FEET)	16.10	4								
DTB - DTW	9.10	5								
CAPACITY PER FOOT	(0.74 4") 0.163 - 2"	6								

6.73

PURGING DATA

3 WELL VOLUMES	20.20	WEATHER CONDITIONS: CLOUDY, SE WIND 45°
PURGE DATE	11.29.17	WATER APPEARANCE / ODOR: CLEAR → BROWN, HC ODOR, SHEEN
END OF PURGE TIME	0925	COMMENTS: BAILED DRY @ 8.00 GALS
PURGE AMOUNT	8.00	
DTW (FEET)	15.85	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: CLOUDY, SW WIND, 60°
DTW (FEET)	6.63	WATER APPEARANCE / ODOR: CLEAR, HC ODOR, SHEEN
SAMPLE TIME	1530	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MRTF-10	1530	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

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WELL ID		TEST PARAMETERS								
MKTF-09		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.29.17	Initial	0952	7.34	12.79	1.240	1.051	0.82	18.4	-125.0
GAUGE TIME	0940	1	0956	7.37	13.75	1.288	1.067	0.83	13.3	-154.4
DHC (FEET)	ND	2	1000	7.32	13.93	1.285	1.060	0.83	12.9	-163.4
DTW (FEET)	13.15	3	1004	7.30	13.95	1.270	1.047	0.82	40.3	-154.8
DTB (FEET)	22.75	4								
DTB - DTW	9.60	5								
CAPACITY PER FOOT	(0.74 - 4") / 0.163 - 2"	6								

7.104

PURGING DATA

3 WELL VOLUMES	21.30	WEATHER CONDITIONS: PARTLY CLOUDY, SE WIND, 50°
PURGE DATE	11.29.17	WATER APPEARANCE / ODOR: CLEAR → BROWN, HC ODOR, SHEEN
END OF PURGE TIME	1004	COMMENTS:
PURGE AMOUNT	22	
DTW (FEET)	17.85	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: CLOUDY, SW WIND, 60°
DTW (FEET)	13.12	WATER APPEARANCE / ODOR: CLEAR, HC ODOR, SHEEN
SAMPLE TIME	1605	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-09	1605	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

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WELL ID		TEST PARAMETERS								
MKTF-15		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.29.17	Initial		HEAVY SHEEN ON WATER - DID						
GAUGE TIME	1304	1		NOT COLLECT WATER QUALITY READINGS						
DHC (FEET)	ND	2								
DTW (FEET)	12.13	3								
DTB (FEET)	19.50	4								
DTB - DTW	7.37	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

1.20

PURGING DATA

3 WELL VOLUMES	3.6	WEATHER CONDITIONS: CLEAR, ~~CALM~~, 65° SW WIND
PURGE DATE	11.29.17	WATER APPEARANCE / ODOR: CLEAR, HC ODOR, HEAVY SHEEN
END OF PURGE TIME	1320	COMMENTS:
PURGE AMOUNT	3.75	
DTW (FEET)	14.00	

SAMPLING DATA

SAMPLE DATE	11.29.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	14.00	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1330	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-~~15~~15	1330	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML ~~PA~~ PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-38		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.30.17	Initial	0921	7.31	15.04	1.300	1.044	0.82	44.7	69.5
GAUGE TIME	0910	1	0924	7.28	15.91	1.350	1.062	0.83	22.0	62.8
DHC (FEET)	ND	2	0928	7.26	16.07	1.358	1.064	0.83	20.2	57.2
DTW (FEET)	7.83	3	0932	7.26	16.09	1.356	1.062	0.83	22.0	55.4
DTB (FEET)	20.29	4								
DTB - DTW	12.46	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

2.03

PURGING DATA

3 WELL VOLUMES	6.09	WEATHER CONDITIONS: CLOUDY, CALM, 50°
PURGE DATE	11.30.17	WATER APPEARANCE / ODOR: CLEAR -> LT. BROWN, FAINT HC ODOR
END OF PURGE TIME	0932	COMMENTS:
PURGE AMOUNT	6.25	
DTW (FEET)	8.98	

SAMPLING DATA

SAMPLE DATE	11.30.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	8.98	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	0950	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-38	0950	40 ML VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		125 ML ~~AMBER~~ PLASTIC	1	HNO_3
		125 ML ~~AMBER~~	1	H_2SO_4
		125 ML ~~AMBER~~	1	NEAT
		250 ML PLASTIC	1	HNO_3

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-37		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11-30-17	Initial								
GAUGE TIME	1115	1								
DHC (FEET)	8.39	2		DID NOT SAMPLE						
DTW (FEET)	8.41	3		0.02' OF SPH IN WELL						
DTB (FEET)	24.60	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-18		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.30.17	Initial								
GAUGE TIME	1130	1								
DHC (FEET)	6.29	2			DID NOT SAMPLE					
DTW (FEET)	6.30	3			0.01' OF SPH IN WELL					
DTB (FEET)	25.38	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-45		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.30.17	Initial								
GAUGE TIME	1142	1			DID NOT SAMPLE					
DHC (FEET)	12.76	2			0.47' OF SPH IN WELL					
DTW (FEET)	13.23	3								
DTB (FEET)	30.24	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-36		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.30.17	Initial			SHEEN ON WATER					
GAUGE TIME	1200	1			DID NOT COLLECT					
DHC (FEET)	ND	2			WATER QUALITY READINGS					
DTW (FEET)	6.45	3								
DTB (FEET)	15.45	4								
DTB - DTW	9.00	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

1.47

PURGING DATA

3 WELL VOLUMES	4.41
PURGE DATE	11.30.17
END OF PURGE TIME	1208
PURGE AMOUNT	4.5
DTW (FEET)	11.00

WEATHER CONDITIONS: CLOUDY, WEST WIND, 50°

WATER APPEARANCE / ODOR: CLEAR → GRAY, HC ODOR, SHEEN

COMMENTS:

SAMPLING DATA

SAMPLE DATE	11.30.17
DTW (FEET)	11.00
SAMPLE TIME	1230

WEATHER CONDITIONS: SAME AS ABOVE

WATER APPEARANCE / ODOR: SAME AS ABOVE

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-36	1230	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		1 L AMBER	1	NEAT
		250 ML ~~PLAST~~ AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE

SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-35		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	11.30.17	Initial	1303	7.38	17.05	1.163	0.892	0.69	36.7	-79.7
GAUGE TIME	1255	1	1306	7.31	17.10	1.183	0.903	0.70	22.5	-108.5
DHC (FEET)	ND	2	1309	7.30	17.15	1.182	0.897	0.70	20.1	-115.0
DTW (FEET)	8.15	3	1312	7.29	17.18	1.179	0.882	0.69	35.5	-116.8
DTB (FEET)	16.45	4								
DTB - DTW	8.30	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

1.35

PURGING DATA

3 WELL VOLUMES	4.05	WEATHER CONDITIONS: CLOUDY, WEST WIND, 50°
PURGE DATE	11.30.17	WATER APPEARANCE / ODOR: CLEAR -> SL. CLOUDY, FAINT ODOR, SHEEN ON PURGE WATER
END OF PURGE TIME	1312	COMMENTS:
PURGE AMOUNT	4.25	
DTW (FEET)	8.20	

SAMPLING DATA

SAMPLE DATE	11.30.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	8.20	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1345	COMMENTS: COLLECTED DUP06

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-35	1345	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		250 ML AMBER	1	NEAT
		1 L AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-34		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.30.17	Initial	1442	7.54	15.18	1.372	1.097	0.86	86.5	31.2
GAUGE TIME	1430	1	1445	7.49	15.13	1.361	1.090	0.85	72.4	43.3
DHC (FEET)	ND	2	1448	7.45	15.09	1.375	1.094	0.86	63.8	50.0
DTW (FEET)	18.03	3	1451	7.41	15.01	1.359	1.100	0.86	53.1	53.0
DTB (FEET)	27.70	4								
DTB - DTW	9.67	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	(0.163 - 2")									

1.58

PURGING DATA

3 WELL VOLUMES	4.74	WEATHER CONDITIONS: CLOUDY, SOUTH WIND, 60°
PURGE DATE	11.30.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	1451	COMMENTS:
PURGE AMOUNT	4.75	
DTW (FEET)	24.92	

SAMPLING DATA

SAMPLE DATE	12-1-17	WEATHER CONDITIONS: PARTLY CLOUDY, WEST WIND
DTW (FEET)	22.07	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	1215	COMMENTS: COLLECTED DUPOT & 1 XTRA 1L AMBER

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-34	1215	40 mL VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
MKTF-17		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.30.17	Initial	1513	7.32	15.44	1.044	0.830	0.64	42.2	-149.8
GAUGE TIME	1306	1	1517	7.25	15.10	1.071	0.858	0.66	24.1	-173.6
DHC (FEET)	ND	2			BAILED DRY @ 2 GALS					
DTW (FEET)	13.68	3								
DTB (FEET)	24.65	4								
DTB - DTW	10.97	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

1.79

PURGING DATA		
3 WELL VOLUMES	5.37	WEATHER CONDITIONS: CLOUDY, SOUTH WIND, 58°
PURGE DATE	11.30.17	WATER APPEARANCE / ODOR: CLEAR → LT. BROWN, HC ODOR
END OF PURGE TIME	1520 ~~1320~~	COMMENTS:
PURGE AMOUNT	2.0	
DTW (FEET)	24.75	

SAMPLING DATA		
SAMPLE DATE	12.1.17	WEATHER CONDITIONS: CLOUDY, WEST WIND, 50°
DTW (FEET)	12.93	WATER APPEARANCE / ODOR: CLEAR, HC ODOR
SAMPLE TIME	1310	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-17	1310	40 ML VOA	5	HCL
		1L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
MKTF-19		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	11.30.17	Initial	1349	7.22	15.31	1.264	1.009	0.79	23.7	-120.9
GAUGE TIME	15:41	1	1351	7.16	15.93	1.286	1.011	0.79	19.6	-133.1
DHC (FEET)	ND	2			SHEEN ON WATER					
DTW (FEET)	11.70	3			DISCONTINUED READINGS					
DTB (FEET)	18.20	4								
DTB - DTW	6.50	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								
1.06		PURGING DATA								
3 WELL VOLUMES	3.18	WEATHER CONDITIONS: CLOUDY, SOUTH WIND, 60°								
PURGE DATE	11.30.17	WATER APPEARANCE / ODOR: CLEAR → BROWN, MUDDY, HC ODOR, SHEEN								
END OF PURGE TIME	1555	COMMENTS:								
PURGE AMOUNT	3.5									
DTW (FEET)	15.54									
		SAMPLING DATA								
SAMPLE DATE	12.1.17	WEATHER CONDITIONS: CLOUDY, WEST WIND, 56°								
DTW (FEET)	11.60	WATER APPEARANCE / ODOR: CLEAR, HC ODOR								
SAMPLE TIME	13:50	COMMENTS:								

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
MKTF-19	1350	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
STP1-SW		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE		Initial								
GAUGE TIME		1			DID NOT GAUGE.					
DHC (FEET)		2			H_2S AREA					
DTW (FEET)		3								
DTB (FEET)		4								
DTB - DTW		5								
CAPACITY PER FOOT	0.74 - 4" 0.163 2"	6								

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
NAPIS-2		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial	0921	7.25	20.18	1.445	1.035	0.81	360.5	-101.8
GAUGE TIME	0915	1		SHEEN OBSERVED DID NOT						
DHC (FEET)	ND	2		COLLECT ADDITIONAL WATER						
DTW (FEET)	7.98	3		QUALITY DATA						
DTB (FEET)	14.60	4								
DTB - DTW	6.62	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	(0.163 - 2")									

1.08

PURGING DATA

3 WELL VOLUMES	3.24
PURGE DATE	12.4.17
END OF PURGE TIME	0928
PURGE AMOUNT	3.25
DTW (FEET)	11.02

WEATHER CONDITIONS: PARTLY CLOUDY, NORTH WIND 36°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR, SHEEN

COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.4.17
DTW (FEET)	7.95
SAMPLE TIME	1350

WEATHER CONDITIONS: CLEAR, NW WIND, 56°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS: COLLECTED DUP08

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
NAPIS-2	1350	40 ML VOA	5	HCL
		250ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
KA-3		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12-4-17	Initial	0944	7.23	21.08	1.331	0.935	0.72	23.6	-84.6
GAUGE TIME	0935	1	0949	7.41	24.86	1.562	1.018	0.79	18.6	-75.3
DHC (FEET)	ND	2	0953	7.07	24.11	1.507	0.997	0.77	17.6	-83.8
DTW (FEET)	8.00	3	0958	7.05	24.09	1.501	1.002	0.77	17.5	-75.3
DTB (FEET)	24.28	4								
DTB - DTW	16.28	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

2.65

PURGING DATA

3 WELL VOLUMES	7.95
PURGE DATE	12-4-17
END OF PURGE TIME	0958
PURGE AMOUNT	8.00
DTW (FEET)	19.30

WEATHER CONDITIONS: PARTLY CLOUDY, NORTH WIND, 39°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	12-4-17
DTW (FEET)	7.95
SAMPLE TIME	1410

WEATHER CONDITIONS: CLEAR, NW WIND, 52°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
KA-3	1410	40 ML VOA	5	HCL
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
NAPIS-3		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12-4-17	Initial	1016	7.54	21.37	1.612	1.126	0.88	62.5	-24.9
GAUGE TIME	1005	1	1022	7.49	21.00	1.689	1.282	1.01	17.0	-9.7
DHC (FEET)	ND	2			BAILED DOWN @ 5 GALS					
DTW (FEET)	9.00	3								
DTB (FEET)	31.58	4								
DTB - DTW	22.58	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

3.68

PURGING DATA

3 WELL VOLUMES	11.04
PURGE DATE	12-4-17
END OF PURGE TIME	1027
PURGE AMOUNT	5 GALS
DTW (FEET)	31.29

WEATHER CONDITIONS: PARTLY CLOUDY, CALM, 57°
WATER APPEARANCE / ODOR: CLEAR, FAINT ODOR
COMMENTS:

SAMPLING DATA

SAMPLE DATE	12-4-17
DTW (FEET)	24.25
SAMPLE TIME	1425

WEATHER CONDITIONS: CLEAR, NW WIND, 44°
WATER APPEARANCE / ODOR: CLEAR, FAINT ODOR
COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
NAPIS-3	1425	40 ML VOA	5	HCL
		250 mL AMBER	1	NEAT
		250 mL PLASTIC	1	HNO_3
		125 mL PLASTIC	1	HNO_3
		125 mL PLASTIC	1	H_2SO_4
↓	↓	125 mL PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OAPIS-1		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial	1059	7.29	16.66	4.564	3.530	2.95	36.8	-70.8
GAUGE TIME	1054	1	1104	7.23	17.29	4.671	3.563	2.98	18.0	-137.7
DHC (FEET)	ND	2	1108	7.18	17.02	4.591	3.574	2.99	14.2	-114.3
DTW (FEET)	11.88	3	1112	7.15	16.92	4.541	3.578	2.99	16.2	-133.7
DTB (FEET)	27.78	4								
DTB - DTW	15.90	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	(0.163 - 2")									

2.59

PURGING DATA

3 WELL VOLUMES	7.77
PURGE DATE	12.4.17
END OF PURGE TIME	1112
PURGE AMOUNT	8.0
DTW (FEET)	25.45

WEATHER CONDITIONS: PARTLY CLOUDY, CALM, 51°

WATER APPEARANCE / ODOR: AMBER, FAINT ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.4.17
DTW (FEET)	23.30
SAMPLE TIME	1500

WEATHER CONDITIONS: CLEAR, NW WIND, 50°

WATER APPEARANCE / ODOR: AMBER, ODOR → FAINT

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OAPIS-1	1500	40 ML VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT
		500 ML PLASTIC	1	NAOH

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
STP1-NW		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial	1139	7.44	12.85	4.127	3.494	2.92	74.1	-35.7
GAUGE TIME	1132	1	1147	7.39	12.48	4.650	3.981	3.35	40.3	-13.2
DHC (FEET)	ND	2	1156	7.38	12.55	4.558	3.890	3.27	33.6	-8.8
DTW (FEET)	20.55	3	1205	7.37	12.57	4.570	3.899	3.28	36.3	-5.7
DTB (FEET)	49.74	4								
DTB - DTW	29.19	5								
CAPACITY PER FOOT	0.74 - 4" 0.163 - 2"	6								

4.76

PURGING DATA

3 WELL VOLUMES	14.28	WEATHER CONDITIONS: PARTLY CLOUDY, LIGHT, NE WIND, 45°
PURGE DATE	12.4.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	1205	COMMENTS:
PURGE AMOUNT	15.0	
DTW (FEET)	44.20	

SAMPLING DATA

SAMPLE DATE	12.4.17	WEATHER CONDITIONS: CLEAR, NW WIND, 49°
DTW (FEET)	41.10	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	1530	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
STP1-NW	1530	40 ML VOA	5	HCL
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
			1	H_2SO_4
			1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OIL SUMP LDU		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12-4-17	Initial								
GAUGE TIME	1230	1			DID NOT GAUGE -					
DHC (FEET)		2			AREA BARRICADED WITH					
DTW (FEET)		3			RED DANGER TAPE					
DTB (FEET)		4			HIGH H_2S AREA					
DTB - DTW		5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA		
3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA		
SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: _____

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
NAPIS-1		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial								
GAUGE TIME	1240	1								
DHC (FEET)	6.20	2			DID NOT SAMPLE					
DTW (FEET)	6.85	3			0.65' OF SPH IN WELL					
DTB (FEET)	13.75	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4" / 0.163 - 2"	6								

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
EAST LDU		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial								
GAUGE TIME	1245	1								
DHC (FEET)	—	2								
DTW (FEET)	1.18	3								
DTB (FEET)		4								
DTB - DTW		5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE	12.4.17	WEATHER CONDITIONS: CLEAR, NW WIND 43°
DTW (FEET)	1.18	WATER APPEARANCE / ODOR: GREY, ODOR
SAMPLE TIME	1300	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
EAST LDU	1300	40 ML VOA	5	HCL
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
WEST LDU		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial								
GAUGE TIME	1247	1								
DHC (FEET)	ND	2								
DTW (FEET)	12.10	3								
DTB (FEET)		4								
DTB - DTW		5								
CAPACITY PER FOOT	0.74 - 4" 0.163 - 2"	6								

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE	12.4.17	WEATHER CONDITIONS: CLEAR, NW WIND, 43°
DTW (FEET)	12.10	WATER APPEARANCE / ODOR: OLIVE GRAY, ODOR
SAMPLE TIME	1320	COMMENTS: INSUFF WATER VOLUME

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
WEST LDU	1320	40ML VOA	5	HCL
↓	↓	250 ML AMBER	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
GWM-1		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial								
GAUGE TIME	1553	1		DID NOT SAMPLE						
DHC (FEET)	19.70	2		1.0' OF SPH IN WELL						
DTW (FEET)	20.70	3								
DTB (FEET)	26.20	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATERMARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
GWM-2		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial								
GAUGE TIME	1547	1								
DHC (FEET)	ND	2		DID NOT SAMPLE						
DTW (FEET)	ND	3		NO WATER IN WELL						
DTB (FEET)	19.05	4								
DTB - DTW	-	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
GWM-3		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.4.17	Initial								
GAUGE TIME	1542	1								
DHC (FEET)	ND	2		DID NOT SAMPLE						
DTW (FEET)	ND	3		NO WATER IN WELL						
DTB (FEET)	18.04	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-60		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.5.17	Initial	0928	7.30	13.27	4.729	3.962	3.34	80.1	99.9
GAUGE TIME	0915	1	0935	7.29	12.38	4.623	3.971	3.34	22.7	66.8
DHC (FEET)	ND	2		BAILED DRY @ 8.5 GALS						
DTW (FEET)	16.40	3								
DTB (FEET)	45.70	4								
DTB - DTW	29.30	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

4.78

PURGING DATA

3 WELL VOLUMES	14.34	WEATHER CONDITIONS: CLEAR, CALM, 32°
PURGE DATE	12.5.17	WATER APPEARANCE / ODOR: CLEAR, TURBID BROWN, NO ODOR
END OF PURGE TIME	0945	COMMENTS:
PURGE AMOUNT	8.5	
DTW (FEET)	45.60	

SAMPLING DATA

SAMPLE DATE	12.6.17	WEATHER CONDITIONS: CLEAR, CALM, 12°
DTW (FEET)	34.20	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	0800	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-60	0800	40 ML VOA	5	HCL
		1L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
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WELL ID		TEST PARAMETERS								
OW-59		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.5.17	Initial	1018	7.22	12.39	7.038	6.001	5.20	24.3	50.0
GAUGE TIME	1008	1	1022	7.20	12.54	7.185	6.132	5.32	16.9	36.9
DHC (FEET)	ND	2	1027	7.18	12.65	7.269	6.135	5.32	16.5	29.8
DTW (FEET)	24.30	3	1032	7.17	12.70	7.282	6.137	5.32	16.1	19.8
DTB (FEET)	38.50	4								
DTB - DTW	14.20	5								
CAPACITY PER FOOT	0.74 - 4" / (0.163 - 2")	6								

2.31

PURGING DATA

3 WELL VOLUMES	6.93	WEATHER CONDITIONS: CLEAR, CALM, 40°
PURGE DATE	12.5.17	WATER APPEARANCE / ODOR: CLEAR → TURBID - REDDISH BROWN, NO ODOR
END OF PURGE TIME	1032	COMMENTS:
PURGE AMOUNT	7.0	
DTW (FEET)	33.81	

SAMPLING DATA

SAMPLE DATE	12.6.17	WEATHER CONDITIONS: CLEAR, CALM, 20°
DTW (FEET)	25.35	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	0840	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-59	0840	40 ML VOA	5	HCL
		1 L AMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE

SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-53		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12-5-17	Initial								
GAUGE TIME	1105	1			DID NOT SAMPLE					
DHC (FEET)	ND	2			NO WATER IN WELL					
DTW (FEET)	ND	3								
DTB (FEET)	33.90	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4" 0.163 - 2"	6								

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-54		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.5.17	Initial	1124	7.16	12.89	1.398	1.182	0.93	41.0	-0.3
GAUGE TIME	1115	1	1128	7.12	12.66	1.374	1.169	0.92	19.7	-57.6
DHC (FEET)	ND	2	1132	7.09	12.58	1.390	1.188	0.93	16.7	-75.6
DTW (FEET)	18.27	3	1136	7.08	12.50	1.380	1.182	0.93	14.0	-81.6
DTB (FEET)	31.06	4								
DTB - DTW	12.79	5								
CAPACITY PER FOOT	0.74 - 4" / 0.163 - 2"	6								

2.08

PURGING DATA

3 WELL VOLUMES	6.24
PURGE DATE	12.5.17
END OF PURGE TIME	1136
PURGE AMOUNT	6.5
DTW (FEET)	18.48

WEATHER CONDITIONS: CLEAR, CALM, 46°

WATER APPEARANCE / ODOR: CLEAR → BROWN, HC ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.6.17
DTW (FEET)	18.25
SAMPLE TIME	0930

WEATHER CONDITIONS: CLEAR, CALM, 30°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-54	0930	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-55		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.5.17	Initial	1156	7.05	14.12	1.499	1.230	0.97	40.1	+141.0
GAUGE TIME	1151	1	1200	7.03	13.91	1.540	1.271	1.00	15.0	-164.6
DHC (FEET)	ND	2	1204	7.01	13.80	1.576	1.304	1.03	17.8	-164.3
DTW (FEET)	18.05	3	1208	6.98	13.75	1.579	1.318	1.04	14.2	-162.8
DTB (FEET)	30.90	4								
DTB - DTW	12.85	5								
CAPACITY PER FOOT	0.74 - 4" / 0.163 - 2"	6								

2.09

PURGING DATA

3 WELL VOLUMES	6.27
PURGE DATE	12.5.17
END OF PURGE TIME	1208
PURGE AMOUNT	6.5
DTW (FEET)	18.22

WEATHER CONDITIONS: CLEAR, SOUTH WIND, 52°
WATER APPEARANCE / ODOR: CLEAR → GREY, HC ODOR
COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.6.17
DTW (FEET)	18.03
SAMPLE TIME	1010

WEATHER CONDITIONS: CLEAR, CALM, 28°
WATER APPEARANCE / ODOR: CLEAR, HC ODOR
COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-55	1010	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-56		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.5.17	Initial	1232	7.12	12.70	1.549	1.316	1.04	82.9	-24.3
GAUGE TIME	1223	1	1234	7.12	13.32	1.600	1.339	1.06	45.4	-20.3
DHC (FEET)	ND	2	1236	7.09	13.33	1.717	1.437	1.14	35.3	-13.1
DTW (FEET)	13.43	3	1238	7.07	13.29	1.871	1.598	1.27	26.5	-16.8
DTB (FEET)	18.58	4								
DTB - DTW	5.15	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

0.84

PURGING DATA

3 WELL VOLUMES	2.52
PURGE DATE	12.5.17
END OF PURGE TIME	1238
PURGE AMOUNT	2.5
DTW (FEET)	17.98

WEATHER CONDITIONS: PARTLY CLOUDY, SOUTH WIND, 51°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.6.17
DTW (FEET)	16.78
SAMPLE TIME	1045

WEATHER CONDITIONS: CLEAR, CALM, 28°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-56	1045	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE

SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS									
OW-57		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12-5-17	Initial	1402	7.17	14.21	1.195	0.978	0.76	25.5	-134.1
GAUGE TIME	1350	1	1404	7.11	14.15	1.176	0.969	0.75	20.7	-138.2
DHC (FEET)	ND	2			BAILED DRY @ 2 GALS					
DTW (FEET)	20.11	3								
DTB (FEET)	28.35	4								
DTB - DTW	8.24	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									
1.34										

PURGING DATA

3 WELL VOLUMES	4.02	WEATHER CONDITIONS: CLEAR, SOUTH WIND
PURGE DATE	12-5-17	WATER APPEARANCE / ODOR: CLEAR TO BROWN, HC ODOR
END OF PURGE TIME	1405	COMMENTS:
PURGE AMOUNT	2.0	
DTW (FEET)	28.00	

SAMPLING DATA

SAMPLE DATE	12.6.17	WEATHER CONDITIONS: CLEAR, NORTH WIND, 30°
DTW (FEET)	20.10	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	1240	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-57	1240	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		500 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS									
RW-2		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.5.17	Initial	1450	7.11	13.62	0.812	0.675	0.52	23.6	-115.0
GAUGE TIME	1424	1	1500	7.03	12.69	0.795	0.675	0.52	85.8	-124.6
DHC (FEET)	ND	2			SHEEN ON WATER					
DTW (FEET)	20.34	3			DID NOT COLLECT ADDITIONAL					
DTB (FEET)	40.00	4			WATER QUALITY DATA					
DTB - DTW	19.66	5			BAILED DOWN @ 22.5 GALS					
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

14.75

PURGING DATA

3 WELL VOLUMES	44.25	WEATHER CONDITIONS: CLEAR, SOUTH WIND, 50°
PURGE DATE	12-5-17	WATER APPEARANCE / ODOR: CLEAR → GREY, HC ODOR, SHEER
END OF PURGE TIME	15:15	COMMENTS:
PURGE AMOUNT	22.5	
DTW (FEET)	39.45	

SAMPLING DATA

SAMPLE DATE	12.6.17	WEATHER CONDITIONS: CLEAR, NORTH WIND, 35°
DTW (FEET)	12.41	WATER APPEARANCE / ODOR: CLEAR, HC ODOR
SAMPLE TIME	1330	COMMENTS: COLLECTED DUP09

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
ERW-2	1330	40 ML VOA	5	HCL
↓	1330	~~250~~ 250 ML AMBER 1		NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-58		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.6.17	Initial	1400	6.93	14.09	1.093	0.897	0.70	26.1	-88.2
GAUGE TIME	1345	1	1409	6.85	13.45	1.168	0.975	0.76	18.6	-112.8
DHC (FEET)	ND	2	1417	6.81	13.37	1.150	0.961	0.75	17.6	-123.4
DTW (FEET)	24.67	3	1425	6.80	13.24	1.133	0.950	0.74	22.0	-120.0
DTB (FEET)	47.50	4								
DTB - DTW	22.83	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

3.72

PURGING DATA

3 WELL VOLUMES	11.16
PURGE DATE	12.6.17
END OF PURGE TIME	1425
PURGE AMOUNT	12.0
DTW (FEET)	24.75

WEATHER CONDITIONS: CLEAR, NORTH WIND, 40°

WATER APPEARANCE / ODOR: CLEAR ⇒ REDDISH BROWN, HC ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.6.17
DTW (FEET)	24.75
SAMPLE TIME	1500

WEATHER CONDITIONS: CLEAR, NORTH WIND, 40°

WATER APPEARANCE / ODOR: REDDISH BROWN, HC ODOR

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-58	1500	40 ML VOA	5	HCL
		1 L AMBER	1	NEAT
		250ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		500 ML PLASTIC	1	NEAT

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-10		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	12.7.17	Initial	1250	6.78	12.19	1.285	1.106	0.87	19.1	99.6
GAUGE TIME	1240	1	1333	6.76	12.31	2.156	1.850	1.49	20.1	46.9
DHC (FEET)	ND	2	1416	6.80	12.29	2.222	1.909	1.54	17.0	5.6
DTW (FEET)	2.25	3	1500	6.82	12.12	2.006	1.725	1.39	19.8	13.8
DTB (FEET)	60.33	4								
DTB - DTW	58.08	5								
CAPACITY PER FOOT	0.74 - 4" / 0.163 - 2"	6								

43

PURGING DATA

3 WELL VOLUMES	129
PURGE DATE	12.7.17
END OF PURGE TIME	1500
PURGE AMOUNT	130
DTW (FEET)	2.80

WEATHER CONDITIONS: CLEAR, NORTH WIND 30°

WATER APPEARANCE / ODOR: CLEAR NO ODOR

COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.7.17
DTW (FEET)	2.80
SAMPLE TIME	1505

WEATHER CONDITIONS:

WATER APPEARANCE / ODOR:

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-10	1505	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: TESTWELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-1		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.8.17	Initial	0930	7.19	11.67	0.873	0.762	0.59	21.8	90.7
GAUGE TIME	0920	1	1015	7.20	12.40	0.881	0.754	0.58	28.4	89.8
DHC (FEET)	ND	2	1100	7.26	12.83	0.891	0.755	0.58	23.0	79.2
DTW (FEET)	1.71	3	1145	7.28	12.90	0.899	0.757	0.58	20.1	68.8
DTB (FEET)	94.55	4								
DTB - DTW	92.84	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

68.70

PURGING DATA

3 WELL VOLUMES	206	WEATHER CONDITIONS: CLEAR, CALM, 20°
PURGE DATE	12.8.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	1145	COMMENTS:
PURGE AMOUNT	210	
DTW (FEET)	91.00	

SAMPLING DATA

SAMPLE DATE	12.8.17	WEATHER CONDITIONS: CLEAR, CALM, 28°
DTW (FEET)	91.00	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	1155	COMMENTS: COLLECTED DUP11

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-1	1155	40 ML VOA-	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		125 ML PLASTIC	1	NEAT

INSTRUMENTS USED TESTWELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
BW-4A		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.8.17	Initial								
GAUGE TIME	1200	1								
DHC (FEET)	ND	2			WELL NOT SAMPLED					
DTW (FEET)	ND	3			NO WATER					
DTB (FEET)	38.80	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4" 0.163 - 2"	6								

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED TESTWELL WATER LEVEL METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
BW-4B		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.8.17	Initial	1215	7.31	12.72	1.071	0.909	0.71	41.5	-266.0
GAUGE TIME	1210	1	1218	7.27	13.52	1.092	0.909	0.71	16.5	-234.1
DHC (FEET)	ND	2			BAILER PUMPED DOWN					
DTW (FEET)	37.95	3				@ 4.25 GALS				
DTB (FEET)	63.50	4								
DTB - DTW	25.55	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

4.16

PURGING DATA

3 WELL VOLUMES	12.48	WEATHER CONDITIONS: CLEAR, NW WIND,
PURGE DATE	12.8.17	WATER APPEARANCE / ODOR: BROWN, NO ODOR
END OF PURGE TIME	1218	COMMENTS:
PURGE AMOUNT	4.25	
DTW (FEET)	49.50	@ 1515 DTW → 49.10' BTOC WELL NOT SAMPLED

SAMPLING DATA — INSUFFICIENT WATER

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: TESTWELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

PUMP SET @ 54'

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
BW-5B		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.8.17	Initial	1255	7.27	12.30	0.824	0.707	0.54	17.6	705.7
GAUGE TIME	1230	1	1315	7.29	13.05	0.805	0.709	0.50	10.9	-96.5
DHC (FEET)	ND	2			PUMPED DOWN @ 8.75 GALS					
DTW (FEET)	9.00	3								
DTB (FEET)	61.45	4								
DTB - DTW	52.45	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

8.51

PURGING DATA

3 WELL VOLUMES	25.53	WEATHER CONDITIONS: CLEAR, NW WIND
PURGE DATE	12.8.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	1315	COMMENTS:
PURGE AMOUNT	8.75	
DTW (FEET)	53.25	

SAMPLING DATA

SAMPLE DATE	12.8.17	WEATHER CONDITIONS: CLEAR, NW WIND
DTW (FEET)	47.50	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	1445	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
BW-5B	1445	40 ML VOA	5	HCL
		1 LAMBER	2	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
		500 ML PLASTIC	1	NEAT

INSTRUMENTS USED TESTWELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
BW-5C		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.8.17	Initial	1325	7.15	11.99	3.108	2.683	2.20	24.0	-190.3
GAUGE TIME	1322	1	1340	7.16	12.48	3.208	2.741	2.25	34.0	-157.4
DHC (FEET)	ND	2	1355	7.12	12.30	3.252	2.769	2.25	39.0	-129.8
DTW (FEET)	2.80	3	1415	7.10	12.31	3.260	2.770	2.25	41.2	-131.0
DTB (FEET)	76.35	4								
DTB - DTW	73.55	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

12

PURGING DATA

3 WELL VOLUMES	36	WEATHER CONDITIONS: CLEAR, NW WIND
PURGE DATE	12.8.17	WATER APPEARANCE / ODOR: CLOUDY → CLEAR, NO ODOR
END OF PURGE TIME	1410	COMMENTS:
PURGE AMOUNT	36	
DTW (FEET)	7.20	

SAMPLING DATA

SAMPLE DATE	12.8.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	7.20	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
SAMPLE TIME	1420	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
BW-5C	1420	40 ML VOA-5	5	HCL
		1 L AMBER	1	NEAT
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	H_2SO_4
↓	↓	125 ML PLASTIC	1	NEAT

INSTRUMENTS USED: TESTWELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
BW-5A		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12-8-17	Initial								
GAUGE TIME	1425	1			WELL NOT SAMPLED					
DHC (FEET)	ND	2			NO WATER					
DTW (FEET)	ND	3								
DTB (FEET)	23.02	4								
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA		
3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA		
SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: TESTWELL WATER LEVEL METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-13		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.11.17	Initial	0900	7.77	10.77	0.779	0.693	0.53	20.5	-100.0
GAUGE TIME	0850	1	0945	7.67	11.97	0.779	0.674	0.52	20.9	-131.0
DHC (FEET)	ND	2	1030	7.60	12.16	0.780	0.672	0.52	18.9	-67.2
DTW (FEET)	21.00	3	1115	7.59	12.20	0.782	0673	0.52	13.8	-26.9
DTB (FEET)	99.15	4								
DTB - DTW	78.15	5								
CAPACITY PER FOOT	(0.74 - 4") 0.163 - 2"	6								

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PURGING DATA

3 WELL VOLUMES	174
PURGE DATE	12.11.17
END OF PURGE TIME	1115
PURGE AMOUNT	175.0
DTW (FEET)	23.50

WEATHER CONDITIONS: CLEAR, CALM, 23°
WATER APPEARANCE / ODOR: CLEAR, NO ODOR
COMMENTS:

SAMPLING DATA

SAMPLE DATE	12.11.17
DTW (FEET)	23.50
SAMPLE TIME	1120

WEATHER CONDITIONS: CLEAR, CALM, 34°
WATER APPEARANCE / ODOR: CLEAR, NO ODOR
COMMENTS: COLLECTED DUP 10

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-13	1120	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3

INSTRUMENTS USED: TEST WELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-14		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.11.17	Initial	1200	7.42	14.19	1.280	1.049	0.82	30.0	-149.9
GAUGE TIME	1150	1	1220	7.30	13.91	1.281	1.054	0.83	67.7	-142.9
DHC (FEET)	ND	2	1240	7.33	13.81	1.276	1.055	0.82	19.7	-142.1
DTW (FEET)	22.20	3	1300	7.30	13.86	1.279	1.056	0.83	18.7	-139.5
DTB (FEET)	46.52	4								
DTB - DTW	24.32	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

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PURGING DATA

3 WELL VOLUMES	54
PURGE DATE	12.11.17
END OF PURGE TIME	1300
PURGE AMOUNT	60
DTW (FEET)	22.50

WEATHER CONDITIONS: CLEAR, CALM, 40°

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS: NEED TWO POLY DRUMS AT THIS LOCATION

SAMPLING DATA

SAMPLE DATE	12-11-17
DTW (FEET)	22.50
SAMPLE TIME	1310

WEATHER CONDITIONS: CLEAR, CALM,

WATER APPEARANCE / ODOR: CLEAR, HC ODOR

COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-14	1310	40 ML VOA	5	HCL
		40 ML VOA	3	$NA_2S_2O_3$
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3

INSTRUMENTS USED: TEST WELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-29		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.11.17	Initial	1330	7.51	13.64	1.245	1.034	0.81	18.1	-52.3
GAUGE TIME	1325	1	1355	7.32	13.24	1.239	1.038	0.81	20.4	-64.4
DHC (FEET)	ND	2	1420	7.20	13.14	1.242	1.044	0.82	25.7	-59.0
DTW (FEET)	17.50	3	1445	7.18	13.12	1.251	1.045	0.82	31.1	-48.0
DTB (FEET)	51.08	4								
DTB - DTW	33.58	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

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PURGING DATA

3 WELL VOLUMES	75	WEATHER CONDITIONS: CLEAR, SW WIND, 50°
PURGE DATE	12.11.17	WATER APPEARANCE / ODOR: CLEAR, NO ODOR
END OF PURGE TIME	1445	COMMENTS:
PURGE AMOUNT	75	NEED TWO DRUMS AT THIS LOCATION
DTW (FEET)	22.50	

SAMPLING DATA

SAMPLE DATE	12.11.17	WEATHER CONDITIONS: CLEAR, SW WIND,
DTW (FEET)	22.50	WATER APPEARANCE / ODOR: CLEAR, [redacted] ODOR (HC)
SAMPLE TIME	1455	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-29	1455	40 ML VOA	5	HCL
		40 ML VOA	3	$Na_2S_2O_3$
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3

INSTRUMENTS USED TESTWELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
OW-30		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS/cm)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.12.17	Initial	0905	7.23	10.67	1.635	1.462	1.16	47.6	66.4
GAUGE TIME	0900	1	0926	7.18	11.51	1.634	1.429	1.14	146.7	47.3
DHC (FEET)	ND	2	0947	7.10	11.64	1.656	1.451	1.15	15.3	13.0
DTW (FEET)	21.75	3	1008	7.09	11.71	1.672	1.459	1.14	10.1	10.9
DTB (FEET)	49.90	4								
DTB - DTW	28.15	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

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PURGING DATA

3 WELL VOLUMES	63	WEATHER CONDITIONS: CLEAR, NE WIND, 30°
PURGE DATE	12.12.17	WATER APPEARANCE / ODOR: CLEAR,
END OF PURGE TIME	1008	COMMENTS: PURGE WATER NEEDS TO BE EMPTIED
PURGE AMOUNT	65	
DTW (FEET)	25.5	

SAMPLING DATA

SAMPLE DATE	12.12.17	WEATHER CONDITIONS: SAME AS ABOVE
DTW (FEET)	25.5	WATER APPEARANCE / ODOR: SAME AS ABOVE
SAMPLE TIME	1015	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
OW-30	1015	40 ML VOA-	5	HCL
		40 ML VOA	3	$N_2S_2O_3$
		250 ML AMBER	1	NEAT
		250 ML PLASTIC	1	HNO_3
		125 ML PLASTIC	1	HNO_3

INSTRUMENTS USED TEST WELL WATER LEVEL METER
YSI 556 MPS WATER QUALITY METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
RW-5		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12.12.17	Initial								
GAUGE TIME	1108	1								
DHC (FEET)	24.75	2			DID NOT SAMPLE					
DTW (FEET)	34.00	3			9.75' OF SPH IN WELL					
DTB (FEET)	39.59	4			BAILED 18 GALLONS OF SPH					
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE: [signature]

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
RW-6		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mV)
GAUGE DATE	12.12.17	Initial								
GAUGE TIME	1113	1								
DHC (FEET)	24.83	2		DID NOT SAMPLE						
DTW (FEET)	33.85	3		9.02' OF SPH IN WELL						
DTB (FEET)	40.90	4		BAILED 13 GALLONS OF SPH						
DTB - DTW	—	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

WELL ID		TEST PARAMETERS								
RW-1		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
GAUGE DATE	12-12-17	Initial								
GAUGE TIME	1320	1								
DHC (FEET)	26.50	2		DID NOT SAMPLE						
DTW (FEET)	27.50	3		1.0' OF SPH IN WELL						
DTB (FEET)	43.04	4		BAILED 2 GALLONS OF SPH						
DTB - DTW	~~43.04~~	5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA		
3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA		
SAMPLE DATE		WEATHER CONDITIONS:
DTW (FEET)		WATER APPEARANCE / ODOR:
SAMPLE TIME		COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE

INSTRUMENTS USED: WATER MARK OIL WATER INTERFACE METER

COMPLETED BY: TRACY PAYNE SIGNATURE:

ANDEAVOR - GALLUP REFINERY
FOURTH QUARTER 2017

OUTFALL

~~WELL~~ ID		TEST PARAMETERS								
STP-1 TO EP-2		Volumes	TIME	pH	Temperature Degrees C	Conductivity (mS)	TDS (g/L)	Salinity (ppt)	Dissolved Oxygen (%)	ORP (mv)
~~GAUGE~~ DATE		Initial								
~~GAUGE~~ TIME		1								
DHC (FEET)	NA	2								
DTW (FEET)		3								
DTB (FEET)		4								
DTB - DTW		5								
CAPACITY PER FOOT	0.74 - 4"	6								
	0.163 - 2"									

PURGING DATA — NA

3 WELL VOLUMES		WEATHER CONDITIONS:
PURGE DATE		WATER APPEARANCE / ODOR:
END OF PURGE TIME		COMMENTS:
PURGE AMOUNT		
DTW (FEET)		

SAMPLING DATA

SAMPLE DATE	12.12.17	WEATHER CONDITIONS: CLEAR, CALM, 52°
~~DTW (FEET)~~	NA	WATER APPEARANCE / ODOR: CLOUDY, ODOR
SAMPLE TIME	1500	COMMENTS:

SAMPLE LOG

SAMPLE ID	TIME	CONTAINER TYPE	NUMBER OF CONTAINERS	PRESERVATIVE
STP-1 TO EP-2	1500	40 ML VOA	5	HCL
		250ML AMBER	1	NEAT
		~~1~~ L PLASTIC	1	NEAT
		~~500~~ 500 ML PLASTIC	1	NEAT
		500 ML PLASTIC	1	H_2SO_4

INSTRUMENTS USED —

COMPLETED BY: TRACY PAYNE SIGNATURE:

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
NAPIS-2	02/21/17	1209	7.14	22.16	1657	1.077	0.84	73.9	-135.8
KA-3	02/21/17	1228	7.10	22.36	1354	0.880	0.68	26.3	-106.7
NAPIS-3	02/21/17	1537	8.13	19.66	1977	1.285	1.01	55.2	-114.6
NAPIS-1	02/21/17	1334	7.19	13.74	2021	1.314	1.04	17.5	-135.9
STP1-NW	02/21/17	1432	7.82	13.50	5947	3.865	3.25	34.5	-121.0
WLDU	02/21/17	No readings recorded							
ELDU	02/21/17	No readings recorded							
GWM-1	03/16/17	No readings recorded - SPH present							
GWM-2	03/16/17	No readings recorded - Dry							
GWM-3	03/16/17	No readings recorded - Dry							
RW-1	03/16/17	No readings recorded - SPH present							
OAPIS-1	02/21/17	No readings recorded							
RW-2	03/16/17	No readings recorded							
RW-5	03/16/17	No readings recorded							
RW-6	03/16/17	No readings recorded							
OW-14	02/27/17	916	7.11	10.16	1.230-mS/cm	1.119	0.88	18.2	-114.8
OW-29	02/27/17	1006	7.25	9.62	1.130-mS/cm	1.040	0.81	18.9	-112.9
OW-30	02/27/17	1106	7.13	10.40	1.187-mS/cm	1.078	0.84	16.2	-128.2
OW-13	02/27/17	1229	8.19	10.58	1.051-mS/cm	0.683	0.52	11.2	-166.8
OW-1	02/27/17	1416	8.94	9.60	1142	0.742	0.57	36.7	-149.6
OW-10	02/27/17	1545	7.49	9.66	2185	1.421	1.13	8.4	-158.4
MKTF-13	03/15/17	1345	7.00	13.57	1531	0.995	0.78	15.0	-262.8
MKTF-12	03/15/17	No readings recorded - SPH present							
MKTF-39	03/14/17	1030	7.08	14.15	3916	2.545	2.08	14.5	-214.0
MKTF-20	03/14/17	1106	6.90	13.49	3466	2.253	1.83	9.2	-167.5
MKTF-16	03/14/17	1117	7.18	15.76	2877	1.870	1.50	18.7	-145.9
MKTF-21	03/14/17	1337	6.92	13.25	2244	1.459	1.16	21.1	-155.6
MKTF-2	03/16/17	1246	7.67	12.70	2483	1.614	1.29	54.2	-175.3
MKTF-38	03/14/17	1210	7.34	13.51	1433	0.931	0.72	29.4	-151.1
MKTF-2	03/14/17	No readings recorded							
MKTF-1	03/14/17	No readings recorded - SPH present							
MKTF-9	03/15/17	1111	7.11	12.33	1555	1.011	0.79	21.0	-269.1
MKTF-8	03/15/17	No readings recorded - SPH present							
MKTF-7	03/15/17	No readings recorded - SPH present							
MKTF-6	03/15/17	No readings recorded - SPH present							
MKTF-17	03/08/17	1206	7.63	11.86	1155	0.751	0.58	30.5	-214.8
MKTF-19	03/08/17	No readings recorded							
MKTF-43	03/08/17	No readings recorded							
MKTF-44	03/08/17	1016	7.00	13.13	10189	6.623	5.78	65.5	-147.1
MKTF-33	03/08/17	1317	7.38	14.02	1552	1.009	0.79	46.1	-150.5

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-22	03/08/17	1344	7.06	13.59	1439	0.935	0.73	25.2	-126.5
MKTF-23	03/08/17	No readings recorded - SPH present							
MKTF-14	03/08/17	No readings recorded - SPH present							
MKTF-31	03/07/17	1216	7.16	10.15	3572	2.322	1.89	27.5	-99.5
MKTF-40	03/07/17	1313	7.03	13.26	11797	7.668	6.77	39.8	-122.1
MKTF-42	03/07/17	1400	8.03	14.63	2978	1.936	1.560	4.9	-141.10
MKTF-32	03/07/17	1416	7.85	12.41	2297	1.493	1.19	50.5	-118.5
MKTF-41	03/07/17	1523	8.41	17.30	1106	1.709	0.55	81.0	-116.4
MKTF-30	03/06/17	1005	7.54	10.64	3537	2.299	1.87	44.7	-98.2
MKTF-29	03/06/17	1117	7.48	10.25	2080	1.352	1.07	17.2	-107.8
MKTF-27	03/06/17	1156	6.90	8.04	17661	11.480	10.39	23.5	-90.2
MKTF-26	03/06/17	No readings recorded - SPH present							
MKTF-24	03/06/17	1016	7.02	10.98	3267	2.123	1.72	16.3	-233.6
MKTF-25	03/06/17	1408	7.07	8.46	2688	1.747	1.40	20.9	-93.6
MKTF-28	03/06/17	1514	8.43	17.11	47	0.031	0.02	78.4	-95.0
MKTF-37	03/01/17	No readings recorded							
MKTF-18	03/01/17	1420	7.22	11.78	1372	0.892	0.69	29.9	-160.3
MKTF-04	03/02/17	1132	7.01	12.12	1819	1.182	0.93	29.8	-83.6
MKTF-05	03/02/17	No readings recorded - SPH present							
MKTF-03	03/02/17	No readings recorded - SPH present							
MKTF-11	03/02/17	1147	7.26	11.48	3194	2.076	1.68	15.1	-110.8
MKTF-10	03/02/17	1212	7.09	11.32	1864	1.212	0.95	17.6	-103.0
MKTF-15	03/02/17	1311	6.71	13.09	10311	6.702	5.85	15.2	-134.3
MKTF-36	03/01/17	1138	6.98	9.29	1466	0.953	0.74	20.4	-195.2
MKTF-35	03/01/17	1220	7.33	8.01	1246	0.810	0.62	15.7	-217.1
MKTF-34	03/01/17	1330	7.67	13.01	1690	1.099	0.86	485.0	-177.1
MKTF-45	03/01/17	No readings recorded - SPH present							
MKTF-27	03/29/17	820	7.23	7.41	14589	9.483	8.44	39.4	-191.1
MKTF-28	03/29/17	852	7.72	13.11	2407	1.564	1.25	41.1	-168.8
MKTF-30	03/29/17	921	7.50	9.46	3595	2.337	1.90	33.6	-188.2
MKTF-29	03/29/17	944	7.51	9.57	2117	1.376	1.09	15.3	-224.1
MKTF-24	03/29/17	1016	7.02	10.98	3267	2.123	1.72	16.3	-233.6
MKTF-25	03/29/17	Not recorded	7.15	8.79	2436	1.583	1.26	16.0	-212.6
OW-56	03/29/17	1148	7.45	12.22	23.87	1.552	1.24	28.5	-199.2
OW-55	03/29/17	1216	6.95	12.95	2185	1.420	1.13	10.6	-213.2
OW-54	03/29/17	1248	7.22	12.32	1878	1.221	0.96	14.0	-209.0
OW-53	03/29/17	No readings recorded - Dry							
OW-58	03/29/17	1450	6.96	13.34	1551	1.008	0.79	15.5	-205.2
OW-57	03/29/17	No readings recorded - meter malfunction							
STP1 to EP-2	03/30/17	No readings recorded							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
EP-2	03/30/17	No readings recorded							
EP-3	03/30/17	No readings recorded							
EP-4	03/30/17	No readings recorded							
EP-5	03/30/17	No readings recorded							
EP-6	03/30/17	No readings recorded							
EP-7	03/30/17	No readings recorded							
EP-11	03/30/17	No readings recorded							
EP-12A	03/30/17	No readings recorded							
EP-12B	03/30/17	No readings recorded							
EP-8	03/30/17	No readings recorded							
EP-9	03/30/17	No readings recorded							
PW-4	03/30/17	No readings recorded							
OW-29	05/30/17	1140	7.48	14.33	1635	1.063	0.83	8.9	-87.5
OW-14	05/30/17	1416	7.28	16.74	1711	1.112	0.87	40.1	-129.6
OW-13	05/31/17	1200	8.24	15.20	1055	0.684	0.52	150.0	-191.2
OW-30	05/31/17	822	7.29	12.99	1631	1.060	0.83	11.6	-159.5
OW-1	05/31/17	1355	9.07	15.71	1176	0.764	0.59	8.4	-188.3
OW-10	05/31/17	1506	7.68	15.07	3162	2.005	1.66	12.2	-127.7
OAPIS-1	06/01/17	856	7.18	15.19	5634	3.662	3.07	16.7	-118.1
NAPIS-2	06/01/17	1244	7.37	21.29	1719	1.117	0.87	11.6	-142.7
KA-3	06/01/17	1302	7.26	21.74	1636	1.064	0.83	20.3	-74.2
NAPIS-3	06/01/17	749	7.98	17.51	1818	1.182	0.93	28.6	-67.2
NAPIS-1	06/02/17	854	7.37	15.84	1739	1.131	0.89	37.7	-95.6
GWM-3	06/02/17	No readings recorded - Dry							
GWM-2	06/02/17	No readings recorded - Dry							
GWM-1	06/02/17	No readings recorded - SPH present							
STP-1-NW	06/02/17	941	7.95	13.98	6023	3.915	3.29	33.3	-118.2
EV 3/4 S	06/02/17	No readings recorded							
STP-1 to EP2	06/02/17	No readings recorded							
LDU-E	06/02/17	No readings recorded							
LDU-W	06/02/17	No readings recorded							
MKTF-16	06/07/17	1258	7.25	20.35	3087	2.007	1.62	14.6	-91.9
MKTF-20	06/07/17	No readings recorded							
MKTF-33	06/07/17	802	7.64	13.09	1480	0.962	0.75	21.1	-157.7
MKTF-22	06/07/17	1236	7.23	15.74	1532	0.996	0.78	22.0	-85.3
MKTF-23	06/07/17	No readings recorded - SPH present							
MKTF-14	06/07/17	No readings recorded - SPH present							
MKTF-13	06/07/17	No readings recorded - SPH present							
MKTF-12	06/07/17	No readings recorded - SPH present							
MKTF-1	06/07/17	No readings recorded - SPH present							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-2	06/07/17	No readings recorded - SPH present							
MKTF-5	06/07/17	No readings recorded - SPH present							
MKTF-4	06/07/17	828	7.25	15.40	1817	1.181	0.93	28.5	-68.7
MKTF-03	06/07/17	No readings recorded - SPH present							
MKTF-11	06/07/17	854	7.47	15.54	3036	1.974	1.59	17.3	-138.9
MKTF-10	06/07/17	936	7.21	15.49	1831	1.190	0.93	16.6	-88.6
MKTF-15	06/07/17	958	6.67	15.97	10159	6.603	5.76	10.5	-117.2
MKTF-39	06/08/17	1336	7.15	19.63	3133	2.037	1.64	13.2	-135.4
MKTF-21	06/21/17	No readings recorded							
MKTF-38	06/21/17	No readings recorded							
MKTF-37	06/14/17	No readings recorded - SPH present							
MKTF-18	06/14/17	1042	7.42	15.62	1388	0.902	0.70	35.3	-105.4
MKTF-36	06/14/17	932	7.04	17.17	1363	0.886	0.69	11.7	-118.6
MKTF-35	06/14/17	1010	7.31	15.73	1239	0.805	0.62	17.0	-136.5
MKTF-19	06/14/17	1326	7.08	15.33	1607	1.045	0.82	13.0	-128.7
MKTF-17	06/14/17	1406	7.39	17.61	547	0.356	0.27	19.1	-249.6
MKTF-34	06/14/17	1451	7.82	16.86	1693	1.101	0.86	58.1	-234.0
MKTF-45	06/14/17	No readings recorded - SPH present							
MKTF-06	06/12/17	No readings recorded - SPH present							
MKTF-07	06/12/17	No readings recorded - SPH present							
MKTF-08	06/12/17	No readings recorded - SPH present							
MKTF-09	06/12/17	1318	7.28	15.21	1617	1.051	0.82	21.9	-165.0
MKTF-20	06/12/17	1356	6.98	21.08	2536	1.648	1.31	10.0	-175.0
MKTF-28	06/05/17	842	7.70	17.53	2322	1.509	1.20	30.9	-52.3
MKTF-27	06/05/17	924	7.16	14.04	10530	6.845	5.99	16.6	-59.1
MKTF-30	06/05/17	1006	7.62	15.75	3163	2.056	1.66	27.3	-98.6
MKTF-29	06/05/17	1044	7.65	14.97	2161	1.405	1.11	15.5	-115.6
MKTF-26	06/05/17	No readings recorded - SPH present							
MKTF-24	06/05/17	1615	7.30	14.41	2587	1.681	1.35	27.0	-13.9
MKTF-25	06/05/17	1206	7.25	14.47	2379	1.546	1.23	14.2	-58.8
MKTF-40	06/05/17	1338	7.24	15.28	10383	6.749	5.90	50.6	14.4
MKTF-31	06/05/17	1446	7.30	15.07	3441	2.237	1.82	27.3	19.3
MKTF-44	06/05/17	No readings recorded							
MKTF-43	06/06/17	1434	6.96	15.20	30577	19.875	19.03	24.7	-10.1
MKTF-42	06/06/17	1506	8.32	16.55	3257	2.117	1.71	30.3	-31.7
MKTF-32	06/06/17	No readings recorded							
MKTF-41	06/06/17	No readings recorded							
RW-5	06/20/17	No readings recorded							
RW-6	06/20/17	No readings recorded							
RW-2	06/20/17	No readings recorded							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
OW-57	06/20/17	No readings recorded							
RW-1	06/20/17	No readings recorded - SPH present							
OW-53	06/21/17	No readings recorded - Dry							
OW-54	06/21/17	No readings recorded							
OW-55	06/21/17	No readings recorded							
OW-56	06/21/17	No readings recorded							
OW-58	06/21/17	No readings recorded							
NAPIS-1	09/05/17	No readings recorded - SPH present							
NAPIS-2	09/05/17	1036	7.94	22.95	1704	1.107	0.86	24.7	-111.5
NAPIS-3	09/05/17	1144	8.75	20.16	2221	1.443	1.14	254.0	-69.3
KA-3	09/05/17	1106	7.79	24.55	1597	1.038	0.80	29.3	-39.4
Oil Sump LDU	09/05/17	No readings recorded - Dry							
East LDU	09/05/17	No readings recorded							
West LDU	09/05/17	No readings recorded							
STP1-NW	09/05/17	1434	8.34	21.79	40	0.026	0.02	113.8	5.6
STP1-SW	09/05/17	No readings recorded - no entry allowed - High H_2S area							
GWM-2	09/05/17	No readings recorded - Dry							
GWM-3	09/05/17	No readings recorded - Dry							
GWM-1	09/08/17	No readings recorded - SPH present							
OAPIS-1	09/05/17	1548	8.23	16.80	5660	3.679	3.08	13.6	-209.5
OW-29	09/06/17	959	8.14	14.51	1637	1.064	0.83	18.4	-36.6
OW-30	09/06/17	846	7.95	13.48	1632	1.061	0.83	13.9	-9.5
OW-13	09/06/17	1218	8.87	14.59	1044	0.679	0.52	17.4	-43.0
OW-14	09/06/17	1056	7.96	14.37	1647	1.071	0.84	19.0	-195.1
OW-1	09/06/17	946	9.50	13.62	1176	0.764	0.59	24.2	45.3
OW-10	09/07/17	1138	8.16	15.20	2848	1.851	1.49	14.1	25.6
STP1 to EP-2	09/07/17	No readings recorded							
E/V - 3/4 - N	09/07/17	No readings recorded							
OW-56	09/11/17	806	7.42	12.89	2482	1.613	1.29	29.5	22.1
OW-55	09/11/17	856	7.27	14.24	2052	1.334	1.05	13.4	-232.7
OW-54	09/11/17	940	7.55	14.83	1808	1.176	0.92	23.1	-101.5
OW-53	09/11/17	No readings recorded - Dry							
OW-50	09/11/17	1222	8.37	20.18	990	0.643	0.49	10.7	-48.7
OW-52	09/11/17	1130	8.48	15.23	841	0.547	0.42	14.8	-69.7
SMW-2	09/11/17	1442	7.84	21.09	9528	6.193	5.36	56.0	-17.8
SMW-4	09/11/17	1530	9.06	17.59	1079	0.701	0.54	30.3	30.7
MW-5	09/11/17	1745	9.41	14.37	954	0.620	0.47	21.8	29.1
BW-1A	09/13/17	No readings recorded - Dry							
BW-1B	09/13/17	No readings recorded - Dry							
BW-1C	09/13/17	856	8.90	16.15	1107	0.720	0.55	13.3	8.1

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
BW-2A	09/13/17	1420	8.31	15.58	1141	0.742	0.57	19.5	-50.2
BW-2B	09/13/17	1455	8.12	15.46	1884	1.224	0.96	10.4	-84.5
BW-2C	09/13/17	1305	9.17	19.33	1124	0.730	0.56	36.3	16.5
BW-3A	09/13/17	No readings recorded - Dry							
BW-3B	09/13/17	1150	8.78	17.80	1280	0.832	0.64	22.6	-164.1
BW-3C	09/13/17	1118	8.39	15.65	1280	0.832	0.64	17.1	-165.2
PW-3	09/18/17	No readings recorded							
PW-4	09/18/17	No readings recorded							
PW-2	09/18/17	No readings recorded							
OW-11	09/18/17	No readings recorded							
OW-12	09/19/17	952	9.58	13.86	928	0.603	0.46	51.6	78.9
OW-57	09/19/17	1050	7.70	14.94	1512	0.983	0.77	23.4	-132.7
OW-58	09/19/17	1216	7.44	15.24	1512	0.983	0.77	21.5	-145.2
RW-1	09/19/17	No readings recorded - SPH present							
RW-2	09/19/17	No readings recorded							
RW-5	09/19/17	No readings recorded - SPH present							
RW-6	09/19/17	No readings recorded - SPH present							
MW-1	09/20/17	1200	9.29	18.08	960	0.624	0.48	53.3	13.5
MW-2	09/20/17	1630	9.22	16.90	952	0.619	0.47	17.1	47.6
MW-4	09/21/17	No readings recorded							
BW-5C	09/21/17	1330	8.19	15.95	4306	2.799	2.30	12.5	-159.0
OW-59	09/21/17	1450	8.11	14.96	9424	6.126	5.32	42.5	-12.9
OW-60	09/21/17	1606	8.06	15.97	6076	3.949	3.32	20.8	25.0
BW-4A	09/21/17	No readings recorded - Dry							
BW-4B	09/21/17	1430	9.21	10.81	1304	0.848	0.66	50.8	58.9
BW-5A	09/21/17	No readings recorded - Dry							
BW-5B	09/21/17	1406	9.20	15.54	1036	0.673	0.52	25.2	-25.1
MKTF-42	09/25/17	908	8.86	12.15	3053	1.984	1.60	16.0	196.0
MKTF-32	09/25/17	958	8.58	14.95	2296	1.492	1.19	37.5	165.0
MKTF-41	09/25/17	1030	9.10	13.13	2615	1.700	1.36	49.2	146.6
MKTF-43	09/25/17	1115	7.74	16.38	26402	17.161	16.21	20.3	110.8
MKTF-33	09/25/17	1348	8.40	13.19	1553	1.009	0.79	81.6	143.9
MKTF-44	09/25/17	1450	8.51	13.00	4703	3.057	2.53	42.5	130.2
MKTF-40	09/25/17	No readings recorded							
MKTF-31	09/25/17	1400	7.83	19.78	2891	1.879	1.51	23.8	133.6
MKTF-25	09/25/17	1658	8.01	14.90	2478	1.611	1.29	18.6	76.0
MKTF-17	09/26/17	848	8.00	12.54	1251	0.813	0.63	30.0	-18.9
MKTF-19	09/26/17	Not recorded	7.66	15.82	1582	1.028	0.80	11.8	-158.1
MKTF-34	09/26/17	954	8.40	13.37	1715	1.114	0.87	57.8	5.9
MKTF-21	09/26/17	1030	8.21	21.21	3	0.002	0.00	91.2	-30.3

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-20	09/26/17	1104	7.49	21.46	2544	1.653	1.32	14.6	-102.9
MKTF-16	09/26/17	1140	7.64	20.61	3578	2.325	1.89	24.7	-99.1
MKTF-15	09/26/17	No readings recorded - SPH present							
MKTF-5	09/26/17	No readings recorded - SPH present							
MKTF-8	09/26/17	No readings recorded - SPH present							
MKTF-7	09/26/17	No readings recorded - SPH present							
MKTF-6	09/26/17	No readings recorded - SPH present							
MKTF-4	09/26/17	1335	7.85	17.54	1816	1.180	0.93	33.2	-91.9
MKTF-3	09/26/17	No readings recorded - SPH present							
MKTF-11	09/26/17	1450	7.97	18.27	3501	2.276	1.85	25.0	-117.1
MKTF-36	09/27/17	No readings recorded - Sheen							
MKTF-35	09/27/17	915	8.42	16.03	1404	0.913	0.71	31.3	-128.0
MKTF-37	09/27/17	No readings recorded - SPH present							
MKTF-18	09/27/17	No readings recorded - SPH present							
MKTF-10	09/27/17	1410	8.03	16.89	1755	1.140	0.89	21.9	-112.3
MKTF-9	09/28/17	1230	8.11	15.24	1650	1.073	0.84	35.1	-140.4
MKTF-38	09/28/17	1106	8.35	18.38	1680	1.092	0.85	34.5	59.5
MKTF-39	09/28/17	1146	7.66	19.64	9709	6.311	5.48	18.0	-132.3
MKTF-24	10/03/17	856	8.25	12.70	3103	2.017	1.63	23.6	-15.6
MKTF-26	10/03/17	No readings recorded - SPH present							
MKTF-29	10/03/17	1010	8.21	16.12	2403	1.562	1.24	14.0	28.2
MKTF-28	10/03/17	1046	8.23	20.49	2369	1.540	1.22	29.3	56.0
MKTF-27	10/03/17	1126	8.01	17.55	8842	5.747	4.96	2.0	64.1
MKTF-12	10/03/17	No readings recorded - SPH present							
MKTF-22	10/03/17	1346	7.99	14.18	1469	0.955	0.74	27.0	-126.4
MKTF-23	10/03/17	No readings recorded - SPH present							
MKTF-13	10/03/17	No readings recorded - SPH present							
MKTF-14	10/03/17	No readings recorded - SPH present							
MKTF-30	10/03/17	1506	8.40	17.48	3273	2.127	1.72	52.1	37.2
MKTF-01	10/03/17	No readings recorded - SPH present							
MKTF-02	10/03/17	1555	7.99	15.72	2519	1.638	1.31	23.2	-152.9
MKTF-45	10/03/17	No readings recorded - SPH present							
EP-2	10/24/17	No readings recorded							
EP-3	10/24/17	No readings recorded							
EP-4	10/24/17	No readings recorded							
EP-5	10/24/17	No readings recorded							
EP-6	10/24/17	No readings recorded							
EP-7	10/24/17	No readings recorded							
EP-8	10/24/17	No readings recorded							
EP-9	10/24/17	No readings recorded							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
EP-11	10/24/17	No readings recorded							
EP-12A	10/24/17	No readings recorded							
EP-12B	10/24/17	No readings recorded							
MKTF-24	11/20/17	838	7.38	12.61	2.357	2.004	1.62	28.3	-24.7
MKTF-20	11/20/17	926	7.39	12.89	2.034	1.948	1.57	25.1	-96.2
MKTF-30	11/20/17	1011	7.43	15.72	2.546	2.012	1.62	53.2	5.2
MKTF-29	11/20/17	1048	7.40	15.21	1.860	1.485	1.18	18.9	-5.9
MKTF-27	11/20/17	1206	7.38	15.36	7.010	5.680	4.92	33.5	-11.7
MKTF-28	11/20/17	1255	7.65	18.70	1.790	1.380	1.14	53.0	-67.1
MKTF-01	11/20/17	No readings recorded - 0.32 ft of SPH in well							
MKTF-26	11/20/17	No readings recorded - 0.84 ft of SPH in well							
MKTF-25	11/21/17	816	7.40	13.16	1.918	1.610	1.29	24.6	-33.8
MKTF-31	11/21/17	940	7.40	15.40	2.177	1.731	1.39	24.8	-11.1
MKTF-40	11/21/17	1032	7.41	15.05	5.580	4.690	4.50	49.4	-13.7
MKTF-43	11/27/17	848	6.77	13.00	15.25	13.250	12.50	28.5	55.1
MKTF-44	11/27/17	1011	7.19	12.65	2.254	1.917	1.54	51.9	43.4
MKTF-41	11/27/17	1114	7.40	13.09	2.014	1.694	1.36	30.8	47.8
MKTF-42	11/27/17	1314	7.24	14.10	2.319	1.920	1.55	15.7	-14.4
MKTF-32	11/27/17	1211	7.19	14.49	1.833	1.495	1.19	20.2	52.5
MKTF-22	11/27/17	1425	6.84	12.86	1.168	0.988	0.77	21.3	-94.8
MKTF-33	11/27/17	1502	6.89	13.30	1.071	0.899	0.70	15.4	1.5
MKTF-23	11/27/17	No readings recorded - 0.01 ft of SPH in well							
MKTF-14	11/27/17	No readings recorded - 0.37 ft of SPH in well							
MKTF-13	11/27/17	No readings recorded - 0.01 ft of SPH in well							
MKTF-12	11/27/17	No readings recorded - 0.13 ft of SPH in well							
MKTF-20	11/28/17	1200	6.66	19.04	1.810	1.328	1.05	28.2	-152.8
MKTF-16	11/28/17	1241	6.73	19.15	1.840	1.480	1.20	25.2	-89.5
MKTF-21	11/28/17	1314	6.63	17.36	1.437	1.093	0.85	25.0	-124.3
MKTF-39	11/28/17	1352	6.64	18.05	4.920	3.685	3.09	22.4	-127.1
MKTF-08	11/28/17	No readings recorded - 0.52 ft of SPH in well							
MKTF-07	11/28/17	No readings recorded - 1.40 ft of SPH in well							
MKTF-06	11/28/17	No readings recorded - 1.15 ft of SPH in well							
MKTF-05	11/28/17	No readings recorded - 0.77 ft of SPH in well							
MKTF-03	11/28/17	No readings recorded - 0.95 ft of SPH in well							
MKTF-04	11/28/17	No final reading recorded - Sheen							
MKTF-11	11/29/17	845	7.30	15.00	2.618	2.617	2.05	13.8	-180.8
MKTF-10	11/29/17	No final reading recorded - Sheen							
MKTF-09	11/29/17	1004	7.30	13.95	1.270	1.047	0.82	40.3	-154.8
MKTF-15	11/29/17	No readings recorded - Sheen							
MKTF-38	11/30/17	932	7.26	16.09	1.356	1.062	0.83	22.0	55.4

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-37	11/30/17	No readings recorded - 0.02 ft of SPH in well							
MKTF-18	11/30/17	No readings recorded - 0.01 ft of SPH in well							
MKTF-45	11/30/17	No readings recorded - 0.47 ft of SPH in well							
MKTF-36	11/30/17	No readings recorded - Sheen							
MKTF-35	11/30/17	1312	7.29	17.18	1.179	0.882	0.69	35.5	-116.8
MKTF-34	11/30/17	1451	7.41	15.01	1.359	1.100	0.86	53.1	53.0
MKTF-17	11/30/17	1517	7.25	15.10	1.071	0.858	0.66	24.1	-173.6
MKTF-19	11/30/17	No final reading recorded - Sheen							
STP1 - SW	12/04/17	Did not gauge, High H_2S area							
NAPIS-2	12/04/17	No final reading recorded - Sheen							
KA-3	12/04/17	958	7.05	24.09	1.501	1.002	0.77	17.5	-75.3
NAPIS-3	12/04/17	1022	7.49	21.00	1.689	1.282	1.01	17.0	-9.7
OAPIS-1	12/04/17	1112	7.15	16.92	4.541	3.576	2.99	16.2	-133.7
STP1-NW	12/04/17	1205	7.37	12.57	4.57	3.899	3.28	36.3	-5.7
Oil Sump LDU	12/04/17	Did not gauge - Area barricaded with red danger tape - High H_2S area							
NAPIS-1	12/04/17	No readings recorded - 0.65 ft of SPH in well							
EAST LDU	12/04/17	No readings recorded							
WEST LDU	12/04/17	No readings recorded							
GWM-1	12/04/17	No readings recorded - 1.00 ft of SPH in well							
GWM-2	12/04/17	No readings recorded - Dry							
GWM-3	12/04/17	No readings recorded - Dry							
OW-60	12/05/17	935	7.29	12.38	4.623	3.971	3.34	22.7	66.8
OW-59	12/05/17	1032	7.17	12.70	7.282	6.137	5.32	16.1	19.8
OW-53	12/05/17	No readings recorded - Dry							
OW-54	12/05/17	1136	7.08	12.50	1.380	1.182	0.93	14.0	-81.6
OW-55	12/05/17	1208	6.98	13.75	1.579	1.318	1.04	14.2	-162.8
OW-56	12/05/17	1238	7.07	13.29	1.871	1.598	1.27	26.5	-16.8
OW-57	12/05/17	1404	7.11	14.15	1.176	0.969	0.75	20.7	-138.2
RW-2	12/05/17	No final reading recorded - Sheen							
OW-58	12/06/17	1425	6.80	13.24	1.133	0.950	0.74	22.0	-120.0
OW-10	12/07/17	1500	6.82	12.12	2.006	1.729	1.39	19.8	13.8
OW-1	12/08/17	1145	7.28	12.90	0.899	0.757	0.58	20.1	68.8
BW-4A	12/08/17	No readings recorded - Dry							
BW-4B	12/08/17	1218	7.27	13.52	1.092	0.909	0.71	16.5	-234.1
BW-5B	12/08/17	1315	7.29	13.05	0.805	0.704	0.50	10.9	-96.5
BW-5C	12/08/17	1410	7.10	12.31	3.26	2.770	2.25	41.2	-131.0
BW-5A	12/08/17	No readings recorded - Dry							
OW-13	12/11/17	1115	7.59	12.20	0.782	0.673	0.52	13.8	-26.9
OW-14	12/11/17	1300	7.30	13.86	1.279	1.056	0.83	18.7	-139.5
OW-29	12/11/17	1445	7.18	13.12	1.251	1.045	0.82	31.1	-48.0

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
OW-30	12/12/17	1008	7.09	11.71	1.672	1.459	1.14	10.1	10.9
RW-5	12/12/17	No readings recorded - 9.25 ft of SPH in well							
RW-6	12/12/17	No readings recorded - 9.02 ft of SPH in well							
RW-1	12/12/17	No readings recorded - 1.00 ft of SPH in well							
STP-1 TO EP-2	12/12/17	No readings recorded							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
NAPIS-2	02/21/17	1209	7.14	22.16	1657	1.077	0.84	73.9	-135.8
KA-3	02/21/17	1228	7.10	22.36	1354	0.880	0.68	26.3	-106.7
NAPIS-3	02/21/17	1537	8.13	19.66	1977	1.285	1.01	55.2	-114.6
NAPIS-1	02/21/17	1334	7.19	13.74	2021	1.314	1.04	17.5	-135.9
STP1-NW	02/21/17	1432	7.82	13.50	5947	3.865	3.25	34.5	-121.0
WLDU	02/21/17	No readings recorded							
ELDU	02/21/17	No readings recorded							
GWM-1	03/16/17	No readings recorded - SPH present							
GWM-2	03/16/17	No readings recorded - Dry							
GWM-3	03/16/17	No readings recorded - Dry							
RW-1	03/16/17	No readings recorded - SPH present							
OAPIS-1	02/21/17	No readings recorded							
RW-2	03/16/17	No readings recorded							
RW-5	03/16/17	No readings recorded							
RW-6	03/16/17	No readings recorded							
OW-14	02/27/17	916	7.11	10.16	1.230-mS/cm	1.119	0.88	18.2	-114.8
OW-29	02/27/17	1006	7.25	9.62	1.130-mS/cm	1.040	0.81	18.9	-112.9
OW-30	02/27/17	1106	7.13	10.40	1.187-mS/cm	1.078	0.84	16.2	-128.2
OW-13	02/27/17	1229	8.19	10.58	1.051-mS/cm	0.683	0.52	11.2	-166.8
OW-1	02/27/17	1416	8.94	9.60	1142	0.742	0.57	36.7	-149.6
OW-10	02/27/17	1545	7.49	9.66	2185	1.421	1.13	8.4	-158.4
MKTF-13	03/15/17	1345	7.00	13.57	1531	0.995	0.78	15.0	-262.8
MKTF-12	03/15/17	No readings recorded - SPH present							
MKTF-39	03/14/17	1030	7.08	14.15	3916	2.545	2.08	14.5	-214.0
MKTF-20	03/14/17	1106	6.90	13.49	3466	2.253	1.83	9.2	-167.5
MKTF-16	03/14/17	1117	7.18	15.76	2877	1.870	1.50	18.7	-145.9
MKTF-21	03/14/17	1337	6.92	13.25	2244	1.459	1.16	21.1	-155.6
MKTF-2	03/16/17	1246	7.67	12.70	2483	1.614	1.29	54.2	-175.3
MKTF-38	03/14/17	1210	7.34	13.51	1433	0.931	0.72	29.4	-151.1
MKTF-2	03/14/17	No readings recorded							
MKTF-1	03/14/17	No readings recorded - SPH present							
MKTF-9	03/15/17	1111	7.11	12.33	1555	1.011	0.79	21.0	-269.1
MKTF-8	03/15/17	No readings recorded - SPH present							
MKTF-7	03/15/17	No readings recorded - SPH present							
MKTF-6	03/15/17	No readings recorded - SPH present							
MKTF-17	03/08/17	1206	7.63	11.86	1155	0.751	0.58	30.5	-214.8
MKTF-19	03/08/17	No readings recorded							
MKTF-43	03/08/17	No readings recorded							
MKTF-44	03/08/17	1016	7.00	13.13	10189	6.623	5.78	65.5	-147.1
MKTF-33	03/08/17	1317	7.38	14.02	1552	1.009	0.79	46.1	-150.5

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-22	03/08/17	1344	7.06	13.59	1439	0.935	0.73	25.2	-126.5
MKTF-23	03/08/17	No readings recorded - SPH present							
MKTF-14	03/08/17	No readings recorded - SPH present							
MKTF-31	03/07/17	1216	7.16	10.15	3572	2.322	1.89	27.5	-99.5
MKTF-40	03/07/17	1313	7.03	13.26	11797	7.668	6.77	39.8	-122.1
MKTF-42	03/07/17	1400	8.03	14.63	2978	1.936	1.560	4.9	-141.10
MKTF-32	03/07/17	1416	7.85	12.41	2297	1.493	1.19	50.5	-118.5
MKTF-41	03/07/17	1523	8.41	17.30	1106	1.709	0.55	81.0	-116.4
MKTF-30	03/06/17	1005	7.54	10.64	3537	2.299	1.87	44.7	-98.2
MKTF-29	03/06/17	1117	7.48	10.25	2080	1.352	1.07	17.2	-107.8
MKTF-27	03/06/17	1156	6.90	8.04	17661	11.480	10.39	23.5	-90.2
MKTF-26	03/06/17	No readings recorded - SPH present							
MKTF-24	03/06/17	1016	7.02	10.98	3267	2.123	1.72	16.3	-233.6
MKTF-25	03/06/17	1408	7.07	8.46	2688	1.747	1.40	20.9	-93.6
MKTF-28	03/06/17	1514	8.43	17.11	47	0.031	0.02	78.4	-95.0
MKTF-37	03/01/17	No readings recorded							
MKTF-18	03/01/17	1420	7.22	11.78	1372	0.892	0.69	29.9	-160.3
MKTF-04	03/02/17	1132	7.01	12.12	1819	1.182	0.93	29.8	-83.6
MKTF-05	03/02/17	No readings recorded - SPH present							
MKTF-03	03/02/17	No readings recorded - SPH present							
MKTF-11	03/02/17	1147	7.26	11.48	3194	2.076	1.68	15.1	-110.8
MKTF-10	03/02/17	1212	7.09	11.32	1864	1.212	0.95	17.6	-103.0
MKTF-15	03/02/17	1311	6.71	13.09	10311	6.702	5.85	15.2	-134.3
MKTF-36	03/01/17	1138	6.98	9.29	1466	0.953	0.74	20.4	-195.2
MKTF-35	03/01/17	1220	7.33	8.01	1246	0.810	0.62	15.7	-217.1
MKTF-34	03/01/17	1330	7.67	13.01	1690	1.099	0.86	485.0	-177.1
MKTF-45	03/01/17	No readings recorded - SPH present							
MKTF-27	03/29/17	820	7.23	7.41	14589	9.483	8.44	39.4	-191.1
MKTF-28	03/29/17	852	7.72	13.11	2407	1.564	1.25	41.1	-168.8
MKTF-30	03/29/17	921	7.50	9.46	3595	2.337	1.90	33.6	-188.2
MKTF-29	03/29/17	944	7.51	9.57	2117	1.376	1.09	15.3	-224.1
MKTF-24	03/29/17	1016	7.02	10.98	3267	2.123	1.72	16.3	-233.6
MKTF-25	03/29/17	Not recorded	7.15	8.79	2436	1.583	1.26	16.0	-212.6
OW-56	03/29/17	1148	7.45	12.22	23.87	1.552	1.24	28.5	-199.2
OW-55	03/29/17	1216	6.95	12.95	2185	1.420	1.13	10.6	-213.2
OW-54	03/29/17	1248	7.22	12.32	1878	1.221	0.96	14.0	-209.0
OW-53	03/29/17	No readings recorded - Dry							
OW-58	03/29/17	1450	6.96	13.34	1551	1.008	0.79	15.5	-205.2
OW-57	03/29/17	No readings recorded - meter malfunction							
STP1 to EP-2	03/30/17	No readings recorded							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
EP-2	03/30/17	No readings recorded							
EP-3	03/30/17	No readings recorded							
EP-4	03/30/17	No readings recorded							
EP-5	03/30/17	No readings recorded							
EP-6	03/30/17	No readings recorded							
EP-7	03/30/17	No readings recorded							
EP-11	03/30/17	No readings recorded							
EP-12A	03/30/17	No readings recorded							
EP-12B	03/30/17	No readings recorded							
EP-8	03/30/17	No readings recorded							
EP-9	03/30/17	No readings recorded							
PW-4	03/30/17	No readings recorded							
OW-29	05/30/17	1140	7.48	14.33	1635	1.063	0.83	8.9	-87.5
OW-14	05/30/17	1416	7.28	16.74	1711	1.112	0.87	40.1	-129.6
OW-13	05/31/17	1200	8.24	15.20	1055	0.684	0.52	150.0	-191.2
OW-30	05/31/17	822	7.29	12.99	1631	1.060	0.83	11.6	-159.5
OW-1	05/31/17	1355	9.07	15.71	1176	0.764	0.59	8.4	-188.3
OW-10	05/31/17	1506	7.68	15.07	3162	2.005	1.66	12.2	-127.7
OAPIS-1	06/01/17	856	7.18	15.19	5634	3.662	3.07	16.7	-118.1
NAPIS-2	06/01/17	1244	7.37	21.29	1719	1.117	0.87	11.6	-142.7
KA-3	06/01/17	1302	7.26	21.74	1636	1.064	0.83	20.3	-74.2
NAPIS-3	06/01/17	749	7.98	17.51	1818	1.182	0.93	28.6	-67.2
NAPIS-1	06/02/17	854	7.37	15.84	1739	1.131	0.89	37.7	-95.6
GWM-3	06/02/17	No readings recorded - Dry							
GWM-2	06/02/17	No readings recorded - Dry							
GWM-1	06/02/17	No readings recorded - SPH present							
STP-1-NW	06/02/17	941	7.95	13.98	6023	3.915	3.29	33.3	-118.2
EV 3/4 S	06/02/17	No readings recorded							
STP-1 to EP2	06/02/17	No readings recorded							
LDU-E	06/02/17	No readings recorded							
LDU-W	06/02/17	No readings recorded							
MKTF-16	06/07/17	1258	7.25	20.35	3087	2.007	1.62	14.6	-91.9
MKTF-20	06/07/17	No readings recorded							
MKTF-33	06/07/17	802	7.64	13.09	1480	0.962	0.75	21.1	-157.7
MKTF-22	06/07/17	1236	7.23	15.74	1532	0.996	0.78	22.0	-85.3
MKTF-23	06/07/17	No readings recorded - SPH present							
MKTF-14	06/07/17	No readings recorded - SPH present							
MKTF-13	06/07/17	No readings recorded - SPH present							
MKTF-12	06/07/17	No readings recorded - SPH present							
MKTF-1	06/07/17	No readings recorded - SPH present							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-2	06/07/17	No readings recorded - SPH present							
MKTF-5	06/07/17	No readings recorded - SPH present							
MKTF-4	06/07/17	828	7.25	15.40	1817	1.181	0.93	28.5	-68.7
MKTF-03	06/07/17	No readings recorded - SPH present							
MKTF-11	06/07/17	854	7.47	15.54	3036	1.974	1.59	17.3	-138.9
MKTF-10	06/07/17	936	7.21	15.49	1831	1.190	0.93	16.6	-88.6
MKTF-15	06/07/17	958	6.67	15.97	10159	6.603	5.76	10.5	-117.2
MKTF-39	06/08/17	1336	7.15	19.63	3133	2.037	1.64	13.2	-135.4
MKTF-21	06/21/17	No readings recorded							
MKTF-38	06/21/17	No readings recorded							
MKTF-37	06/14/17	No readings recorded - SPH present							
MKTF-18	06/14/17	1042	7.42	15.62	1388	0.902	0.70	35.3	-105.4
MKTF-36	06/14/17	932	7.04	17.17	1363	0.886	0.69	11.7	-118.6
MKTF-35	06/14/17	1010	7.31	15.73	1239	0.805	0.62	17.0	-136.5
MKTF-19	06/14/17	1326	7.08	15.33	1607	1.045	0.82	13.0	-128.7
MKTF-17	06/14/17	1406	7.39	17.61	547	0.356	0.27	19.1	-249.6
MKTF-34	06/14/17	1451	7.82	16.86	1693	1.101	0.86	58.1	-234.0
MKTF-45	06/14/17	No readings recorded - SPH present							
MKTF-06	06/12/17	No readings recorded - SPH present							
MKTF-07	06/12/17	No readings recorded - SPH present							
MKTF-08	06/12/17	No readings recorded - SPH present							
MKTF-09	06/12/17	1318	7.28	15.21	1617	1.051	0.82	21.9	-165.0
MKTF-20	06/12/17	1356	6.98	21.08	2536	1.648	1.31	10.0	-175.0
MKTF-28	06/05/17	842	7.70	17.53	2322	1.509	1.20	30.9	-52.3
MKTF-27	06/05/17	924	7.16	14.04	10530	6.845	5.99	16.6	-59.1
MKTF-30	06/05/17	1006	7.62	15.75	3163	2.056	1.66	27.3	-98.6
MKTF-29	06/05/17	1044	7.65	14.97	2161	1.405	1.11	15.5	-115.6
MKTF-26	06/05/17	No readings recorded - SPH present							
MKTF-24	06/05/17	1615	7.30	14.41	2587	1.681	1.35	27.0	-13.9
MKTF-25	06/05/17	1206	7.25	14.47	2379	1.546	1.23	14.2	-58.8
MKTF-40	06/05/17	1338	7.24	15.28	10383	6.749	5.90	50.6	14.4
MKTF-31	06/05/17	1446	7.30	15.07	3441	2.237	1.82	27.3	19.3
MKTF-44	06/05/17	No readings recorded							
MKTF-43	06/06/17	1434	6.96	15.20	30577	19.875	19.03	24.7	-10.1
MKTF-42	06/06/17	1506	8.32	16.55	3257	2.117	1.71	30.3	-31.7
MKTF-32	06/06/17	No readings recorded							
MKTF-41	06/06/17	No readings recorded							
RW-5	06/20/17	No readings recorded							
RW-6	06/20/17	No readings recorded							
RW-2	06/20/17	No readings recorded							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
OW-57	06/20/17	No readings recorded							
RW-1	06/20/17	No readings recorded - SPH present							
OW-53	06/21/17	No readings recorded - Dry							
OW-54	06/21/17	No readings recorded							
OW-55	06/21/17	No readings recorded							
OW-56	06/21/17	No readings recorded							
OW-58	06/21/17	No readings recorded							
NAPIS-1	09/05/17	No readings recorded - SPH present							
NAPIS-2	09/05/17	1036	7.94	22.95	1704	1.107	0.86	24.7	-111.5
NAPIS-3	09/05/17	1144	8.75	20.16	2221	1.443	1.14	254.0	-69.3
KA-3	09/05/17	1106	7.79	24.55	1597	1.038	0.80	29.3	-39.4
Oil Sump LDU	09/05/17	No readings recorded - Dry							
East LDU	09/05/17	No readings recorded							
West LDU	09/05/17	No readings recorded							
STP1-NW	09/05/17	1434	8.34	21.79	40	0.026	0.02	113.8	5.6
STP1-SW	09/05/17	No readings recorded - no entry allowed - High H_2S area							
GWM-2	09/05/17	No readings recorded - Dry							
GWM-3	09/05/17	No readings recorded - Dry							
GWM-1	09/08/17	No readings recorded - SPH present							
OAPIS-1	09/05/17	1548	8.23	16.80	5660	3.679	3.08	13.6	-209.5
OW-29	09/06/17	959	8.14	14.51	1637	1.064	0.83	18.4	-36.6
OW-30	09/06/17	846	7.95	13.48	1632	1.061	0.83	13.9	-9.5
OW-13	09/06/17	1218	8.87	14.59	1044	0.679	0.52	17.4	-43.0
OW-14	09/06/17	1056	7.96	14.37	1647	1.071	0.84	19.0	-195.1
OW-1	09/06/17	946	9.50	13.62	1176	0.764	0.59	24.2	45.3
OW-10	09/07/17	1138	8.16	15.20	2848	1.851	1.49	14.1	25.6
STP1 to EP-2	09/07/17	No readings recorded							
E/V - 3/4 - N	09/07/17	No readings recorded							
OW-56	09/11/17	806	7.42	12.89	2482	1.613	1.29	29.5	22.1
OW-55	09/11/17	856	7.27	14.24	2052	1.334	1.05	13.4	-232.7
OW-54	09/11/17	940	7.55	14.83	1808	1.176	0.92	23.1	-101.5
OW-53	09/11/17	No readings recorded - Dry							
OW-50	09/11/17	1222	8.37	20.18	990	0.643	0.49	10.7	-48.7
OW-52	09/11/17	1130	8.48	15.23	841	0.547	0.42	14.8	-69.7
SMW-2	09/11/17	1442	7.84	21.09	9528	6.193	5.36	56.0	-17.8
SMW-4	09/11/17	1530	9.06	17.59	1079	0.701	0.54	30.3	30.7
MW-5	09/11/17	1745	9.41	14.37	954	0.620	0.47	21.8	29.1
BW-1A	09/13/17	No readings recorded - Dry							
BW-1B	09/13/17	No readings recorded - Dry							
BW-1C	09/13/17	856	8.90	16.15	1107	0.720	0.55	13.3	8.1

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
BW-2A	09/13/17	1420	8.31	15.58	1141	0.742	0.57	19.5	-50.2
BW-2B	09/13/17	1455	8.12	15.46	1884	1.224	0.96	10.4	-84.5
BW-2C	09/13/17	1305	9.17	19.33	1124	0.730	0.56	36.3	16.5
BW-3A	09/13/17	No readings recorded - Dry							
BW-3B	09/13/17	1150	8.78	17.80	1280	0.832	0.64	22.6	-164.1
BW-3C	09/13/17	1118	8.39	15.65	1280	0.832	0.64	17.1	-165.2
PW-3	09/18/17	No readings recorded							
PW-4	09/18/17	No readings recorded							
PW-2	09/18/17	No readings recorded							
OW-11	09/18/17	No readings recorded							
OW-12	09/19/17	952	9.58	13.86	928	0.603	0.46	51.6	78.9
OW-57	09/19/17	1050	7.70	14.94	1512	0.983	0.77	23.4	-132.7
OW-58	09/19/17	1216	7.44	15.24	1512	0.983	0.77	21.5	-145.2
RW-1	09/19/17	No readings recorded - SPH present							
RW-2	09/19/17	No readings recorded							
RW-5	09/19/17	No readings recorded - SPH present							
RW-6	09/19/17	No readings recorded - SPH present							
MW-1	09/20/17	1200	9.29	18.08	960	0.624	0.48	53.3	13.5
MW-2	09/20/17	1630	9.22	16.90	952	0.619	0.47	17.1	47.6
MW-4	09/21/17	No readings recorded							
BW-5C	09/21/17	1330	8.19	15.95	4306	2.799	2.30	12.5	-159.0
OW-59	09/21/17	1450	8.11	14.96	9424	6.126	5.32	42.5	-12.9
OW-60	09/21/17	1606	8.06	15.97	6076	3.949	3.32	20.8	25.0
BW-4A	09/21/17	No readings recorded - Dry							
BW-4B	09/21/17	1430	9.21	10.81	1304	0.848	0.66	50.8	58.9
BW-5A	09/21/17	No readings recorded - Dry							
BW-5B	09/21/17	1406	9.20	15.54	1036	0.673	0.52	25.2	-25.1
MKTF-42	09/25/17	908	8.86	12.15	3053	1.984	1.60	16.0	196.0
MKTF-32	09/25/17	958	8.58	14.95	2296	1.492	1.19	37.5	165.0
MKTF-41	09/25/17	1030	9.10	13.13	2615	1.700	1.36	49.2	146.6
MKTF-43	09/25/17	1115	7.74	16.38	26402	17.161	16.21	20.3	110.8
MKTF-33	09/25/17	1348	8.40	13.19	1553	1.009	0.79	81.6	143.9
MKTF-44	09/25/17	1450	8.51	13.00	4703	3.057	2.53	42.5	130.2
MKTF-40	09/25/17	No readings recorded							
MKTF-31	09/25/17	1400	7.83	19.78	2891	1.879	1.51	23.8	133.6
MKTF-25	09/25/17	1658	8.01	14.90	2478	1.611	1.29	18.6	76.0
MKTF-17	09/26/17	848	8.00	12.54	1251	0.813	0.63	30.0	-18.9
MKTF-19	09/26/17	Not recorded	7.66	15.82	1582	1.028	0.80	11.8	-158.1
MKTF-34	09/26/17	954	8.40	13.37	1715	1.114	0.87	57.8	5.9
MKTF-21	09/26/17	1030	8.21	21.21	3	0.002	0.00	91.2	-30.3

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-20	09/26/17	1104	7.49	21.46	2544	1.653	1.32	14.6	-102.9
MKTF-16	09/26/17	1140	7.64	20.61	3578	2.325	1.89	24.7	-99.1
MKTF-15	09/26/17	No readings recorded - SPH present							
MKTF-5	09/26/17	No readings recorded - SPH present							
MKTF-8	09/26/17	No readings recorded - SPH present							
MKTF-7	09/26/17	No readings recorded - SPH present							
MKTF-6	09/26/17	No readings recorded - SPH present							
MKTF-4	09/26/17	1335	7.85	17.54	1816	1.180	0.93	33.2	-91.9
MKTF-3	09/26/17	No readings recorded - SPH present							
MKTF-11	09/26/17	1450	7.97	18.27	3501	2.276	1.85	25.0	-117.1
MKTF-36	09/27/17	No readings recorded - Sheen							
MKTF-35	09/27/17	915	8.42	16.03	1404	0.913	0.71	31.3	-128.0
MKTF-37	09/27/17	No readings recorded - SPH present							
MKTF-18	09/27/17	No readings recorded - SPH present							
MKTF-10	09/27/17	1410	8.03	16.89	1755	1.140	0.89	21.9	-112.3
MKTF-9	09/28/17	1230	8.11	15.24	1650	1.073	0.84	35.1	-140.4
MKTF-38	09/28/17	1106	8.35	18.38	1680	1.092	0.85	34.5	59.5
MKTF-39	09/28/17	1146	7.66	19.64	9709	6.311	5.48	18.0	-132.3
MKTF-24	10/03/17	856	8.25	12.70	3103	2.017	1.63	23.6	-15.6
MKTF-26	10/03/17	No readings recorded - SPH present							
MKTF-29	10/03/17	1010	8.21	16.12	2403	1.562	1.24	14.0	28.2
MKTF-28	10/03/17	1046	8.23	20.49	2369	1.540	1.22	29.3	56.0
MKTF-27	10/03/17	1126	8.01	17.55	8842	5.747	4.96	2.0	64.1
MKTF-12	10/03/17	No readings recorded - SPH present							
MKTF-22	10/03/17	1346	7.99	14.18	1469	0.955	0.74	27.0	-126.4
MKTF-23	10/03/17	No readings recorded - SPH present							
MKTF-13	10/03/17	No readings recorded - SPH present							
MKTF-14	10/03/17	No readings recorded - SPH present							
MKTF-30	10/03/17	1506	8.40	17.48	3273	2.127	1.72	52.1	37.2
MKTF-01	10/03/17	No readings recorded - SPH present							
MKTF-02	10/03/17	1555	7.99	15.72	2519	1.638	1.31	23.2	-152.9
MKTF-45	10/03/17	No readings recorded - SPH present							
EP-2	10/24/17	No readings recorded							
EP-3	10/24/17	No readings recorded							
EP-4	10/24/17	No readings recorded							
EP-5	10/24/17	No readings recorded							
EP-6	10/24/17	No readings recorded							
EP-7	10/24/17	No readings recorded							
EP-8	10/24/17	No readings recorded							
EP-9	10/24/17	No readings recorded							

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
EP-11	10/24/17	No readings recorded							
EP-12A	10/24/17	No readings recorded							
EP-12B	10/24/17	No readings recorded							
MKTF-24	11/20/17	838	7.38	12.61	2.357	2.004	1.62	28.3	-24.7
MKTF-20	11/20/17	926	7.39	12.89	2.034	1.948	1.57	25.1	-96.2
MKTF-30	11/20/17	1011	7.43	15.72	2.546	2.012	1.62	53.2	5.2
MKTF-29	11/20/17	1048	7.40	15.21	1.860	1.485	1.18	18.9	-5.9
MKTF-27	11/20/17	1206	7.38	15.36	7.010	5.680	4.92	33.5	-11.7
MKTF-28	11/20/17	1255	7.65	18.70	1.790	1.380	1.14	53.0	-67.1
MKTF-01	11/20/17	No readings recorded - 0.32 ft of SPH in well							
MKTF-26	11/20/17	No readings recorded - 0.84 ft of SPH in well							
MKTF-25	11/21/17	816	7.40	13.16	1.918	1.610	1.29	24.6	-33.8
MKTF-31	11/21/17	940	7.40	15.40	2.177	1.731	1.39	24.8	-11.1
MKTF-40	11/21/17	1032	7.41	15.05	5.580	4.690	4.50	49.4	-13.7
MKTF-43	11/27/17	848	6.77	13.00	15.25	13.250	12.50	28.5	55.1
MKTF-44	11/27/17	1011	7.19	12.65	2.254	1.917	1.54	51.9	43.4
MKTF-41	11/27/17	1114	7.40	13.09	2.014	1.694	1.36	30.8	47.8
MKTF-42	11/27/17	1314	7.24	14.10	2.319	1.920	1.55	15.7	-14.4
MKTF-32	11/27/17	1211	7.19	14.49	1.833	1.495	1.19	20.2	52.5
MKTF-22	11/27/17	1425	6.84	12.86	1.168	0.988	0.77	21.3	-94.8
MKTF-33	11/27/17	1502	6.89	13.30	1.071	0.899	0.70	15.4	1.5
MKTF-23	11/27/17	No readings recorded - 0.01 ft of SPH in well							
MKTF-14	11/27/17	No readings recorded - 0.37 ft of SPH in well							
MKTF-13	11/27/17	No readings recorded - 0.01 ft of SPH in well							
MKTF-12	11/27/17	No readings recorded - 0.13 ft of SPH in well							
MKTF-20	11/28/17	1200	6.66	19.04	1.810	1.328	1.05	28.2	-152.8
MKTF-16	11/28/17	1241	6.73	19.15	1.840	1.480	1.20	25.2	-89.5
MKTF-21	11/28/17	1314	6.63	17.36	1.437	1.093	0.85	25.0	-124.3
MKTF-39	11/28/17	1352	6.64	18.05	4.920	3.685	3.09	22.4	-127.1
MKTF-08	11/28/17	No readings recorded - 0.52 ft of SPH in well							
MKTF-07	11/28/17	No readings recorded - 1.40 ft of SPH in well							
MKTF-06	11/28/17	No readings recorded - 1.15 ft of SPH in well							
MKTF-05	11/28/17	No readings recorded - 0.77 ft of SPH in well							
MKTF-03	11/28/17	No readings recorded - 0.95 ft of SPH in well							
MKTF-04	11/28/17	No final reading recorded - Sheen							
MKTF-11	11/29/17	845	7.30	15.00	2.618	2.617	2.05	13.8	-180.8
MKTF-10	11/29/17	No final reading recorded - Sheen							
MKTF-09	11/29/17	1004	7.30	13.95	1.270	1.047	0.82	40.3	-154.8
MKTF-15	11/29/17	No readings recorded - Sheen							
MKTF-38	11/30/17	932	7.26	16.09	1.356	1.062	0.83	22.0	55.4

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
MKTF-37	11/30/17	No readings recorded - 0.02 ft of SPH in well							
MKTF-18	11/30/17	No readings recorded - 0.01 ft of SPH in well							
MKTF-45	11/30/17	No readings recorded - 0.47 ft of SPH in well							
MKTF-36	11/30/17	No readings recorded - Sheen							
MKTF-35	11/30/17	1312	7.29	17.18	1.179	0.882	0.69	35.5	-116.8
MKTF-34	11/30/17	1451	7.41	15.01	1.359	1.100	0.86	53.1	53.0
MKTF-17	11/30/17	1517	7.25	15.10	1.071	0.858	0.66	24.1	-173.6
MKTF-19	11/30/17	No final reading recorded - Sheen							
STP1 - SW	12/04/17	Did not gauge, High H_2S area							
NAPIS-2	12/04/17	No final reading recorded - Sheen							
KA-3	12/04/17	958	7.05	24.09	1.501	1.002	0.77	17.5	-75.3
NAPIS-3	12/04/17	1022	7.49	21.00	1.689	1.282	1.01	17.0	-9.7
OAPIS-1	12/04/17	1112	7.15	16.92	4.541	3.576	2.99	16.2	-133.7
STP1-NW	12/04/17	1205	7.37	12.57	4.57	3.899	3.28	36.3	-5.7
Oil Sump LDU	12/04/17	Did not gauge - Area barricaded with red danger tape - High H_2S area							
NAPIS-1	12/04/17	No readings recorded - 0.65 ft of SPH in well							
EAST LDU	12/04/17	No readings recorded							
WEST LDU	12/04/17	No readings recorded							
GWM-1	12/04/17	No readings recorded - 1.00 ft of SPH in well							
GWM-2	12/04/17	No readings recorded - Dry							
GWM-3	12/04/17	No readings recorded - Dry							
OW-60	12/05/17	935	7.29	12.38	4.623	3.971	3.34	22.7	66.8
OW-59	12/05/17	1032	7.17	12.70	7.282	6.137	5.32	16.1	19.8
OW-53	12/05/17	No readings recorded - Dry							
OW-54	12/05/17	1136	7.08	12.50	1.380	1.182	0.93	14.0	-81.6
OW-55	12/05/17	1208	6.98	13.75	1.579	1.318	1.04	14.2	-162.8
OW-56	12/05/17	1238	7.07	13.29	1.871	1.598	1.27	26.5	-16.8
OW-57	12/05/17	1404	7.11	14.15	1.176	0.969	0.75	20.7	-138.2
RW-2	12/05/17	No final reading recorded - Sheen							
OW-58	12/06/17	1425	6.80	13.24	1.133	0.950	0.74	22.0	-120.0
OW-10	12/07/17	1500	6.82	12.12	2.006	1.729	1.39	19.8	13.8
OW-1	12/08/17	1145	7.28	12.90	0.899	0.757	0.58	20.1	68.8
BW-4A	12/08/17	No readings recorded - Dry							
BW-4B	12/08/17	1218	7.27	13.52	1.092	0.909	0.71	16.5	-234.1
BW-5B	12/08/17	1315	7.29	13.05	0.805	0.704	0.50	10.9	-96.5
BW-5C	12/08/17	1410	7.10	12.31	3.26	2.770	2.25	41.2	-131.0
BW-5A	12/08/17	No readings recorded - Dry							
OW-13	12/11/17	1115	7.59	12.20	0.782	0.673	0.52	13.8	-26.9
OW-14	12/11/17	1300	7.30	13.86	1.279	1.056	0.83	18.7	-139.5
OW-29	12/11/17	1445	7.18	13.12	1.251	1.045	0.82	31.1	-48.0

TABLE 2.1
SUMMARY OF 2017 FINAL WATER QUALITY READINGS
MARATHON PETROLEUM COMPANY - GALLUP REFINERY - GALLUP, NEW MEXICO

Sample ID	Date	Time	pH	Temp. °C	Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	DO (%)	ORP (mV)
OW-30	12/12/17	1008	7.09	11.71	1.672	1.459	1.14	10.1	10.9
RW-5	12/12/17	No readings recorded - 9.25 ft of SPH in well							
RW-6	12/12/17	No readings recorded - 9.02 ft of SPH in well							
RW-1	12/12/17	No readings recorded - 1.00 ft of SPH in well							
STP-1 TO EP-2	12/12/17	No readings recorded							

APPENDIX C
APPLICABLE STANDARDS

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 6 WATER QUALITY
PART 2 GROUND AND SURFACE WATER PROTECTION

20.6.2.1 ISSUING AGENCY: Water Quality Control Commission
[12-1-95; 20.6.2.1 NMAC - Rn, 20 NMAC 6.2.I.1000, 1-15-01]

20.6.2.2 SCOPE: All persons subject to the Water Quality Act, NMSA 1978, Sections 74-6-1 et seq.
[12-1-95; 20.6.2.2 NMAC - Rn, 20 NMAC 6.2.I.1001, 1-15-01]

20.6.2.3 STATUTORY AUTHORITY: Standards and Regulations are adopted by the commission under the authority of the Water Quality Act, NMSA 1978, Sections 74-6-1 through 74-6-17.
[2-18-77, 9-20-82, 12-1-95; 20.6.2.3 NMAC - Rn, 20 NMAC 6.2.I.1002, 1-15-01]

20.6.2.4 DURATION: Permanent.
[12-1-95; 20.6.2.4 NMAC - Rn, 20 NMAC 6.2.I.1003, 1-15-01]

20.6.2.5 EFFECTIVE DATE: December 1, 1995 unless a later date is cited at the end of a section.
[12-1-95, 11-15-96; 20.6.2.5 NMAC - Rn, 20 NMAC 6.2.I.1004, 1-15-01; A, 1-15-01]

20.6.2.6 OBJECTIVE: The objective of this Part is to implement the Water Quality Act, NMSA 1978, Sections 74-6-1 et seq.
[12-1-95; 20.6.2.6 NMAC - Rn, 20 NMAC 6.2.I.1005, 1-15-01]

20.6.2.7 DEFINITIONS: Terms defined in the Water Quality Act, but not defined in this part, will have the meaning given in the act. As used in this part:

A. "abandoned well" means a well whose use has been permanently discontinued or which is in a state of disrepair such that it cannot be rehabilitated for its intended purpose or other purposes including monitoring and observation;

B. "abate" or "abatement" means the investigation, containment, removal or other mitigation of **water pollution;**

C. "abatement plan" means a description of any operational, monitoring, contingency and closure requirements and conditions for the prevention, investigation and abatement of water pollution, and includes Stage 1, Stage 2, or Stage 1 and 2 of the abatement plan, as approved by the secretary;

D. "adjacent properties" means properties that are contiguous to the discharge site or property that would be contiguous to the discharge site but for being separated by a public or private right of way, including roads and highways.

E. "background" means, for purposes of ground-water abatement plans only and for no other purposes in this part or any other regulations including but not limited to surface-water standards, the amount of ground-water contaminants naturally occurring from undisturbed geologic sources or water contaminants which the responsible person establishes are occurring from a source other than the responsible person's facility; this definition shall not prevent the secretary from requiring abatement of commingled plumes of pollution, shall not prevent responsible persons from seeking contribution or other legal or equitable relief from other persons, and shall not preclude the secretary from exercising enforcement authority under any applicable statute, regulation or common law;

F. "casing" means pipe or tubing of appropriate material, diameter and weight used to support the sides of a well hole and thus prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent fluid from entering or leaving the well other than to or from the injection zone;

G. "cementing" means the operation whereby a cementing slurry is pumped into a drilled hole and/or forced behind the casing;

H. "cesspool" means a **"drywell"** that receives untreated domestic liquid waste containing human excreta, and which sometimes has an open bottom and/or perforated sides. A large capacity cesspool means a cesspool that receives greater than 2,000 gallons per day of untreated domestic liquid waste;

I. "collapse" means the structural failure of overlying materials caused by removal of underlying materials;

J. **"commission"** means:

(1) the New Mexico water quality control commission or

(2) the department, when used in connection with any administrative and enforcement activity;

K. **"confining zone"** means a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement from an injection zone;

L. **"conventional mining"** means the production of minerals from an open pit or underground excavation; underground excavations include mine shafts, workings and air vents, but does not include excavations primarily caused by in situ extraction activities;

M. **"daily composite sample"** means a sample collected over any twenty-four hour period at intervals not to exceed one hour and obtained by combining equal volumes of the effluent collected, or means a sample collected in accordance with federal permit conditions where a permit has been issued under the national pollutant discharge elimination system or for those facilities which include a waste stabilization pond in the treatment process where the retention time is greater than twenty (20) days, means a sample obtained by compositing equal volumes of at least two grab samples collected within a period of not more than twenty-four (24) hours;

N. **"department", "agency",** or **"division"** means the New Mexico environment department or a constituent agency designated by the commission;

O. **"discharge permit modification"** means a change in requirements of a discharge permit as requested by the discharger as a result of past, present or anticipated changes in the quality or quantity of effluent or the location of the discharge; or as required by the secretary;

P. **"discharge plan"** means a description of any operational, monitoring , contingency, and closure requirements and conditions for any discharge of effluent or leachate which may move directly or indirectly into ground water;

Q. **“discharge permit”** means a discharge plan approved by the department;

R. **“discharge site”** means the entire site where the discharge and associated activities will take place;

S. **"disposal"** means to abandon, deposit, inter or otherwise discard a fluid as a final action after its use has been achieved;

T. **"domestic liquid waste"** means human excreta and water-carried waste from typical residential plumbing fixtures and activities, including but not limited to waste from toilets, sinks, bath fixtures, clothes or dishwashing machines and floor drains;

U. **"domestic liquid waste treatment unit"** means a watertight unit designed, constructed and installed to stabilize only domestic liquid waste and to retain solids contained in such domestic liquid waste, including but not limited to aerobic treatment units and septic tanks;

V. **“drywell”** means a well, other than an improved sinkhole or subsurface fluid distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids;

W. **"experimental technology"** means a technology which has not been proven feasible under the conditions in which it is being tested;

X. **"fluid"** means material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state;

Y. **"ground water"** means interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply;

Z. **"hazard to public health"** exists when water which is used or is reasonably expected to be used in the future as a human drinking water supply exceeds at the time and place of such use, one or more of the numerical standards of Subsection A of 20.6.2.3103 NMAC, or the naturally occurring concentrations, whichever is higher, or if any toxic pollutant affecting human health is present in the water; in determining whether a discharge would cause a hazard to public health to exist, the secretary shall investigate and consider the purification and dilution reasonably expected to occur from the time and place of discharge to the time and place of withdrawal for use as human drinking water;

AA. **“improved sinkhole”** means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface;

BB. **"injection"** means the subsurface emplacement of fluids through a well;

CC. **"injection zone"** means a geological formation, group of formations, or part of a formation receiving fluids through a well;

DD. "motor vehicle waste disposal well" means a well which receives or has received fluids from vehicular repair or maintenance activities;

EE. "non-aqueous phase liquid" means an interstitial body of liquid oil, petroleum product, petrochemical, or organic solvent, including an emulsion containing such material;

FF. "operational area" means a geographic area defined in a project discharge permit where a group of wells or well fields in close proximity comprise a single class III well operation;

GG. "owner of record" means an owner of property according to the property records of the tax assessor in the county in which the discharge site is located;

HH. "packer" means a device lowered into a well to produce a fluid-tight seal within the casing;

II. "person" means an individual or any other entity including partnerships, corporation, associations, responsible business or association agents or officers, the state or a political subdivision of the state or any agency, department or instrumentality of the United States and any of its officers, agents or employees;

JJ. "petitioner" means a person seeking a variance from a regulation of the commission pursuant to Section 74-6-4(G) NMSA 1978;

KK. "plugging" means the act or process of stopping the flow of water, oil or gas into or out of a geological formation, group of formations or part of a formation through a borehole or well penetrating these geologic units;

LL. "project discharge permit" means a discharge permit which describes the operation of similar class III wells or well fields within one or more individual operational areas;

MM. "refuse" includes food, swill, carrion, slops and all substances from the preparation, cooking and consumption of food and from the handling, storage and sale of food products, the carcasses of animals, junked parts of automobiles and other machinery, paper, paper cartons, tree branches, yard trimmings, discarded furniture, cans, oil, ashes, bottles, and all unwholesome material;

NN. "responsible person" means a person who is required to submit an abatement plan or who submits an abatement plan pursuant to this part;

OO. "secretary" or **"director"** means the secretary of the New Mexico department of environment or the director of a constituent agency designated by the commission;

PP. "sewer system" means pipelines, conduits, pumping stations, force mains, or other structures, devices, appurtenances or facilities used for collecting or conducting wastes to an ultimate point for treatment or disposal;

QQ. "sewerage system" means a system for disposing of wastes, either by surface or underground methods, and includes sewer systems, treatment works, disposal wells and other systems;

RR. "significant modification of Stage 2 of the abatement plan" means a change in the abatement technology used excluding design and operational parameters, or re-location of 25 percent or more of the compliance sampling stations, for any single medium, as designated pursuant to Paragraph (4) of Subsection E of 20.6.2.4106 NMAC;

SS. "subsurface fluid distribution system" means an assemblage of perforated pipes, drain tiles, or other mechanisms intended to distribute fluids below the surface of the ground;

TT. "subsurface water" means ground water and water in the vadose zone that may become ground water or surface water in the reasonably foreseeable future or may be utilized by vegetation;

UU. "TDS" means total dissolved solids as determined by the "calculation method" (sum of constituents), by the "residue on evaporation method at 180 degrees" of the "*U.S. geological survey techniques of water resource investigations*," or by conductivity, as the secretary may determine;

VV. "toxic pollutant" means a water contaminant or combination of water contaminants in concentration(s) which, upon exposure, ingestion, or assimilation either directly from the environment or indirectly by ingestion through food chains, will unreasonably threaten to injure human health, or the health of animals or plants which are commonly hatched, bred, cultivated or protected for use by man for food or economic benefit; as used in this definition injuries to health include death, histopathologic change, clinical symptoms of disease, behavioral abnormalities, genetic mutation, physiological malfunctions or physical deformations in such organisms or their offspring; in order to be considered a toxic pollutant a contaminant must be one or a combination of the potential toxic pollutants listed below and be at a concentration shown by scientific information currently available to the public to have potential for causing one or more of the effects listed above; any water contaminant or combination of the water contaminants in the list below creating a lifetime risk of more than one cancer per 100,000 exposed persons is a toxic pollutant:

(1) acrolein

(2) acrylonitrile

(3) aldrin
(4) benzene
(5) benzidine
(6) carbon tetrachloride
(7) chlordane
(8) chlorinated benzenes
    (a) monochlorobenzene
    (b) hexachlorobenzene
    (c) pentachlorobenzene
(9) 1,2,4,5-tetrachlorobenzene
(10) chlorinated ethanes
    (a) 1,2-dichloroethane
    (b) hexachloroethane
    (c) 1,1,2,2-tetrachloroethane
    (d) 1,1,1-trichloroethane
    (e) 1,1,2-trichloroethane
(11) chlorinated phenols
    (a) 2,4-dichlorophenol
    (b) 2,4,5-trichlorophenol
    (c) 2,4,6-trichlorophenol
(12) chloroalkyl ethers
    (a) bis (2-chloroethyl) ether
    (b) bis (2-chloroisopropyl) ether
    (c) bis (chloromethyl) ether
(13) chloroform
(14) DDT
(15) dichlorobenzene
(16) dichlorobenzidine
(17) 1,1-dichloroethylene
(18) dichloropropenes
(19) dieldrin
(20) diphenylhydrazine
(21) endosulfan
(22) endrin
(23) ethylbenzene
(24) halomethanes
    (a) bromodichloromethane
    (b) bromomethane
    (c) chloromethane
    (d) dichlorodifluoromethane
    (e) dichloromethane
    (f) tribromomethane
    (g) trichlorofluoromethane
(25) heptachlor
(26) hexachlorobutadiene
(27) hexachlorocyclohexane (HCH)
    (a) alpha-HCH
    (b) beta-HCH
    (c) gamma-HCH
    (d) technical HCH
(28) hexachlorocyclopentadiene
(29) high explosives (HE)
    (a) 2,4-dinitrotoluene (2,4,DNT)
    (b) 2,6-dinitrotoluene (2,6,DNT)
    (c) octrahydro-1,3,5,7-tetranitro-1,3,5,7 tetrazocine (HMX)
    (d) hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)

(e) 2,4,6-trinitrotoluene (TNT)
(30) isophorone
(31) methyl tertiary butyl ether
(32) nitrobenzene
(33) nitrophenols
(a) 2,4-dinitro-o-cresol
(b) dinitrophenols
(34) nitrosamines
(a) N-nitrosodiethylamine
(b) N-nitrosodimethylamine
(c) N-nitrosodibutylamine
(d) N-nitrosodiphenylamine
(e) N-nitrosopyrrolidine
(35) pentachlorophenol
(36) perchlorate
(37) phenol
(38) phthalate esters
(a) dibutyl phthalate
(b) di-2-ethylhexyl phthalate
(c) diethyl phthalate
(d) dimethyl phthalate
(39) polychlorinated biphenyls (PCB's)
(40) polynuclear aromatic hydrocarbons (PAH)
(a) anthracene
(b) 3,4-benzofluoranthene
(c) benzo (k) fluoranthene
(d) fluoranthene
(e) fluorene
(f) phenanthrene
(g) pyrene
(41) tetrachloroethylene
(42) toluene
(43) toxaphene
(44) trichloroethylene
(45) vinyl chloride
(46) xylenes
(a) o-xylene
(b) m-xylene
(c) p-xylene
(47) 1,1-dichloroethane
(48) ethylene dibromide (EDB)
(49) cis-1,2-dichloroethylene
(50) trans-1,2-dichloroethylene
(51) naphthalene
(52) 1-methylnaphthalene
(53) 2-methylnaphthalene
(54) benzo-a-pyrene

WW. "vadose zone" means earth material below the land surface and above ground water, or in between bodies of ground water;

XX. "wastes" means sewage, industrial wastes, or any other liquid, gaseous or solid substance which will pollute any waters of the state;

YY. "water" means all water including water situated wholly or partly within or bordering upon the state, whether surface or subsurface, public or private, except private waters that do not combine with other surface or subsurface water;

ZZ. "water contaminant" means any substance that could alter if discharged or spilled the physical, chemical, biological or radiological qualities of water; "water contaminant" does not mean source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954;

AAA. "watercourse" means any river, creek, arroyo, canyon, draw, or wash, or any other channel having definite banks and beds with visible evidence of the occasional flow of water;

BBB. "water pollution" means introducing or permitting the introduction into water, either directly or indirectly, of one or more water contaminants in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or to unreasonably interfere with the public welfare or the use of property;

CCC. "well" means: (1) A bored, drilled, or driven shaft; (2) A dug hole whose depth is greater than the largest surface dimension; (3) An improved sinkhole; or (4) A subsurface fluid distribution system;

DDD. "well stimulation" means a process used to clean the well, enlarge channels, and increase pore space in the interval to be injected, thus making it possible for fluids to move more readily into the injection zone; well stimulation includes, but is not limited to, (1) surging, (2) jetting, (3) blasting, (4) acidizing, (5) hydraulic fracturing.

[1-4-68, 4-20-68, 11-27-70, 9-3-72, 4-11-74, 8-13-76, 2-18-77, 6-26-80, 7-2-81, 1-29-82, 9-20-82, 11-17-84, 3-3-86, 8-17-91, 8-19-93, 12-1-95; 20.6.2.7 NMAC - Rn, 20 NMAC 6.2.I.1101, 1-15-01; A, 1-15-01; A, 12-1-01; A, 9-15-02; A, 9-26-04]

20.6.2.8 SEVERABILITY: If any Section, Subsection, individual standard or application of these standards or regulations is held invalid, the remainder shall not be affected.

[2-18-77, 12-1-95; 20.6.2.8 NMAC - Rn, 20 NMAC 6.2.I.1007, 1-15-01]

20.6.2.9 DOCUMENTS: Documents referenced in the Part may be viewed at the New Mexico Environment Department, Ground Water Quality Bureau, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, New Mexico 87503.

[12-1-95; 20.6.2.9 NMAC - Rn, 20 NMAC 6.2.I.1006, 1-15-01; A, 12-1-01]

20.6.2.10 - 20.6.2.1199: [RESERVED]

[12-1-95; 20.6.2.10 - 20.6.2.1199 NMAC - Rn, 20 NMAC 6.2.I.1008-1100, 1102-1199, 1-15-01]

20.6.2.1200 PROCEDURES:

[12-1-95; 20.6.2.1200 NMAC - Rn, 20 NMAC 6.2.I.1200, 1-15-01]

20.6.2.1201 NOTICE OF INTENT TO DISCHARGE:

A. Any person intending to make a new water contaminant discharge or to alter the character or location of an existing water contaminant discharge, unless the discharge is being made or will be made into a community sewer system or subject to the Liquid Waste Disposal Regulations adopted by the New Mexico Environmental Improvement Board, shall file a notice with the Ground Water Quality Bureau of the department for discharges that may affect ground water, and/ or the Surface Water Quality Bureau of the department for discharges that may affect surface water. However, notice regarding discharges from facilities for the production, refinement, pipeline transmission of oil and gas or products thereof, the oil field service industry, oil field brine production wells, geothermal installations and carbon dioxide facilities shall be filed instead with the Oil Conservation Division.

B. Any person intending to inject fluids into a well, including a subsurface distribution system, unless the injection is being made subject to the Liquid Waste Disposal Regulations adopted by the New Mexico Environmental Improvement Board, shall file a notice with the Ground Water Quality Bureau of the department. However notice regarding injection to wells associated with oil and gas facilities as described in Subsection A of Section 20.6.2.1201 NMAC shall be filed instead with the Oil Conservation Division.

C. Notices shall state:

(1) the name of the person making the discharge;
(2) the address of the person making the discharge;
(3) the location of the discharge;
(4) an estimate of the concentration of water contaminants in the discharge; and
(5) the quantity of the discharge.

D. Based on information provided in the notice of intent, the department will notify the person proposing the discharge as to which of the following apply:

(1) a discharge permit is required;

(2) a discharge permit is not required;

(3) the proposed injection well will be added to the department's underground injection well inventory;

(4) the proposed injection activity or injection well is prohibited pursuant to 20.6.2.5004 NMAC.

[1-4-68, 9-5-69, 9-3-72, 2-17-74, 2-20-81, 12-1-95; 20.6.2.1201 NMAC - Rn, 20 NMAC 6.2.I.1201, 1-15-01; A, 12-1-01]

20.6.2.1202 FILING OF PLANS AND SPECIFICATIONS--SEWERAGE SYSTEMS:

A. Any person proposing to construct a sewerage system or proposing to modify any sewerage system in a manner that will change substantially the quantity or quality of the discharge from the system shall file plans and specifications of the construction or modification with Ground Water Quality Bureau of the department for discharges that may affect ground water, and/or the Surface Water Quality Bureau of the department for discharges that may affect surface water. Modifications having a minor effect on the character of the discharge from sewerage systems shall be reported as of January 1 and June 30 of each year to the Ground Water Quality Bureau of the department for discharges that may affect ground water, or the Surface Water Quality Bureau of the department for discharges that may affect surface water.

B. Plans, specifications and reports required by this Section, if related to facilities for the production, refinement and pipeline transmission of oil and gas, or products thereof, shall be filed instead with the Oil Conservation Division.

C. Plans and specifications required to be filed under this Section must be filed prior to the commencement of construction.

[1-4-68, 9-3-72, 2-20-81, 12-1-95; 20.6.2.1202 NMAC - Rn, 20 NMAC 6.2.I.1202, 1-15-01; A, 12-1-01]

20.6.2.1203 NOTIFICATION OF DISCHARGE-REMOVAL:

A. With respect to any discharge from any facility of oil or other water contaminant, in such quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of property, the following notifications and corrective actions are required:

(1) As soon as possible after learning of such a discharge, but in no event more than twenty-four (24) hours thereafter, any person in charge of the facility shall orally notify the Chief of the Ground Water Quality Bureau of the department, or his counterpart in any constituent agency delegated responsibility for enforcement of these rules as to any facility subject to such delegation. To the best of that person's knowledge, the following items of information shall be provided:

(a) the name, address, and telephone number of the person or persons in charge of the facility, as well as of the owner and/or operator of the facility;

(b) the name and address of the facility;

(c) the date, time, location, and duration of the discharge

(d) the source and cause of discharge;

(e) a description of the discharge, including its chemical composition;

(f) the estimated volume of the discharge; and

(g) any actions taken to mitigate immediate damage from the discharge.

(2) When in doubt as to which agency to notify, the person in charge of the facility shall notify the Chief of the Ground Water Quality Bureau of the department. If that department does not have authority pursuant to commission delegation, the department shall notify the appropriate constituent agency.

(3) Within one week after the discharger has learned of the discharge, the facility owner and/or operator shall send written notification to the same department official, verifying the prior oral notification as to each of the foregoing items and providing any appropriate additions or corrections to the information contained in the prior oral notification.

(4) The oral and written notification and reporting requirements contained in this Subsection A are not intended to be duplicative of discharge notification and reporting requirements promulgated by the Oil Conservation Commission (OCC) or by the Oil Conservation Division (OCD); therefore, any facility which is subject to OCC or OCD discharge notification and reporting requirements need not additionally comply with the notification and reporting requirements herein.

(5) As soon as possible after learning of such a discharge, the owner/operator of the facility shall take such corrective actions as are necessary or appropriate to contain and remove or mitigate the damage caused by the discharge.

(6) If it is possible to do so without unduly delaying needed corrective actions, the facility owner/operator shall endeavor to contact and consult with the Chief of the Ground Water Quality Bureau of the department or appropriate counterpart in a delegated agency, in an effort to determine the department's views as to what further corrective actions may be necessary or appropriate to the discharge in question. In any event, no later than fifteen (15) days after the discharger learns of the discharge, the facility owner/operator shall send to said Bureau Chief a written report describing any corrective actions taken and/or to be taken relative to the discharge. Upon a written request and for good cause shown, the Bureau Chief may extend the time limit beyond fifteen (15) days.

(7) The Bureau Chief shall approve or disapprove in writing the foregoing corrective action report within thirty (30) days of its receipt by the department. In the event that the report is not satisfactory to the department, the Bureau Chief shall specify in writing to the facility owner/operator any shortcomings in the report or in the corrective actions already taken or proposed to be taken relative to the discharge, and shall give the facility owner/operator a reasonable and clearly specified time within which to submit a modified corrective action report. The Bureau Chief shall approve or disapprove in writing the modified corrective action report within fifteen (15) days of its receipt by the department.

(8) In the event that the modified corrective action report also is unsatisfactory to the department, the facility owner/operator has five (5) days from the notification by the Bureau Chief that it is unsatisfactory to appeal to the department secretary. The department secretary shall approve or disapprove the modified corrective action report within five (5) days of receipt of the appeal from the Bureau Chief's decision. In the absence of either corrective action consistent with the approved corrective action report or with the decision of the secretary concerning the shortcomings of the modified corrective action report, the department may take whatever enforcement or legal action it deems necessary or appropriate.

(9) If the secretary determines that the discharge causes or may with reasonable probability cause water pollution in excess of the standards and requirements of Section 20.6.2.4103 NMAC, and the water pollution will not be abated within one hundred and eighty (180) days after notice is required to be given pursuant to Paragraph (1) of Subsection A of Section 20.6.2.1203 NMAC, the secretary may notify the facility owner/operator that he is a responsible person and that an abatement plan may be required pursuant to Section 20.6.2.4104 and Subsection A of Section 20.6.2.4106 NMAC.

B. Exempt from the requirements of this Section are continuous or periodic discharges which are made:

(1) in conformance with regulations of the commission and rules, regulations or orders of other state or federal agencies; or

(2) in violation of regulations of the commission, but pursuant to an assurance of discontinuance or schedule of compliance approved by the commission or one of its duly authorized constituent agencies.

C. As used in this Section and in Sections 20.6.2.4100 through 20.6.2.4115 NMAC, but not in other Sections of this Part:

(1) "discharge" means spilling, leaking, pumping, pouring, emitting, emptying, or dumping into water or in a location and manner where there is a reasonable probability that the discharged substance will reach surface or subsurface water;

(2) "facility" means any structure, installation, operation, storage tank, transmission line, motor vehicle, rolling stock, or activity of any kind, whether stationary or mobile;

(3) "oil" means oil of any kind or in any form including petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes;

(4) "operator" means the person or persons responsible for the overall operations of a facility; and

(5) "owner" means the person or persons who own a facility, or part of a facility.

D. Notification of discharge received pursuant to this Part or information obtained by the exploitation of such notification shall not be used against any such person in any criminal case, except for perjury or for giving a false statement.

E. Any person who has any information relating to any discharge from any facility of oil or other water contaminant, in such quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of property, is urged to notify the Chief of the Ground Water Quality Bureau of the department. Upon such notification, the secretary may

require an owner/operator or a responsible person to perform corrective actions pursuant to Paragraphs (5) and (9) of Subsection A of Section 20.6.2.1203 NMAC.
[2-17-74, 2-20-81, 12-24-87, 12-1-95; 20.6.2.1203 NMAC - Rn, 20 NMAC 6.2.I.1203, 1-15-01; A, 12-1-01]

20.6.2.1204 - 20.6.2.1209 [RESERVED]
[12-1-95; 20.6.2.1204 - 20.6.2.1209 NMAC - Rn, 20 NMAC 6.2.I.1204-1209, 1-15-01]

20.6.2.1210 VARIANCE PETITIONS:

A. Any person seeking a variance pursuant to Section 74-6-4 (G) NMSA 1978, shall do so by filing a written petition with the commission. The petitioner may submit with his petition any relevant documents or material which the petitioner believes would support his petition. Petitions shall:

(1) state the petitioner's name and address;
(2) state the date of the petition;
(3) describe the facility or activity for which the variance is sought;
(4) state the address or description of the property upon which the facility is located;
(5) describe the water body or watercourse affected by the discharge;
(6) identify the regulation of the commission from which the variance is sought;
(7) state in detail the extent to which the petitioner wishes to vary from the regulation;
(8) state why the petitioner believes that compliance with the regulation will impose an unreasonable burden upon his activity; and
(9) state the period of time for which the variance is desired.

B. The variance petition shall be reviewed in accordance with the adjudicatory procedures of 20 NMAC 1.3.

C. The commission may grant the requested variance, in whole or in part, may grant the variance subject to conditions, or may deny the variance. The commission shall not grant a variance for a period of time in excess of five years.

D. An order of the commission is final and bars the petitioner from petitioning for the same variance without special permission from the commission. The commission may consider, among other things, the development of new information and techniques to be sufficient justification for a second petition. If the petitioner, or his authorized representative, fails to appear at the public hearing on the variance petition, the commission shall proceed with the hearing on the basis of the petition. A variance may not be extended or renewed unless a new petition is filed and processed in accordance with the procedures established by this Section.
[7-19-68, 11-27-70, 9-3-72, 2-20-81, 11-15-96; 20.6.2.1210 NMAC - Rn, 20 NMAC 6.2.I.1210, 1-15-01]

20.6.2.1211 - 20.6.2.1219: [RESERVED]
[12-1-95; 20.6.2.1211 - 20.6.2.1219 NMAC - Rn, 20 NMAC 6.2.I.1211-1219, 1-15-01]

20.6.2.1220 PENALTIES ENFORCEMENT, COMPLIANCE ORDERS, PENALTIES, ASSURANCE OF DISCONTINUANCE.: Failure to comply with the Water Quality Act, or any regulation or standard promulgated pursuant to the Water Quality Act is a prohibited act. If the secretary determines that a person has violated or is violating a requirement of the Water Quality Act or any regulation promulgated thereunder or is exceeding any water quality standard or ground water standard contained in Commission regulations, or is not complying with a condition or provision of an approved or modified abatement plan, discharge plan, or permit issued pursuant to the Water Quality Act, the secretary may issue a compliance order, assess a penalty, commence a civil action in district court, or accept an assurance of discontinuance in accordance with NMSA 1978, Section 74-6-10 of the Water Quality Act.
[12-1-95; 20.6.2.1220 NMAC - Rn, 20 NMAC 6.2.I.1220, 1-15-01]

20.6.2.1221 - 20.6.2.1999: [RESERVED]
[12-1-95; 20.6.2.1221 - 20.6.2.1999 NMAC - Rn, 20 NMAC 6.2.I.1221-2099, 1-15-01]

20.6.2.2000 SURFACE WATER PROTECTION:
[12-1-95; 20.6.2.2000 NMAC - Rn, 20 NMAC 6.2.II, 1-15-01]

20.6.2.2001 - 20.6.2.2099: [RESERVED]
[12-1-95; 20.6.2.2001 - 20.6.2.2099 NMAC - Rn, 20 NMAC 6.2.I.1221-2099, 1-15-01]

20.6.2.2100 APPLICABILITY: The requirements of Section 20.6.2.2101 and 20.6.2.2102 NMAC shall not apply to any discharge which is subject to a permit under the National Pollutant Discharge Elimination System of P. L. 92-500; provided that any discharger who is given written notice of National Pollutant Discharge Elimination System permit violation from the Administrator of the Environmental Protection Agency and who has not corrected the violation within thirty days of receipt of said notice shall be subject to Section 20.6.2.2101 and 20.6.2.2102 NMAC until in compliance with the National Pollution Discharge Elimination System permit conditions; provided further that nothing in this Part shall be construed as a deterrent to action under Section 74-6-11 NMSA, 1978.
[8-13-76; 20.6.2.2100 NMAC - Rn, 20 NMAC 6.2.II.2100, 1-15-01]

20.6.2.2101 GENERAL REQUIREMENTS:

A. Except as otherwise provided in Sections 20.6.2.2000 through 20.6.2.2201 NMAC, no person shall cause or allow effluent to discharge to a watercourse if the effluent as indicated by:

(1) any two consecutive daily composite samples;

(2) more than one daily composite sample in any thirty-day period (in which less than ten (10) daily composite samples are examined);

(3) more than ten percent (10%) of the daily composite samples in any thirty-day period (in which ten (10) or more daily composite samples are examined); or

(4) a grab sample collected during flow from an intermittent or infrequent discharge

does not conform to the following:

(a)	Bio-chemical Oxygen Demand (BOD)	Less than 30 mg/l
(b)	Chemical Oxygen Demand (COD)	Less than 125 mg/l
(c)	Settleable Solids	Less than 0.5 mg/l
(d)	Fecal Coliform Bacteria	Less than 500 organisms per 100 ml
(e)	pH	Between 6.6 and 8.6

B. Upon application, the secretary may eliminate the pH requirement for any effluent source that the secretary determines does not unreasonably degrade the water into which the effluent is discharged.

C. Subsection A of this Section does not apply to the weight of constituents in the water diverted.

D. Samples shall be examined in accordance with the most current edition of Standard Methods for the Examination of Water and Wastewater published by the American Public Health Association or the most current edition of Methods for Chemical Analysis of Water and Wastes published by the Environmental Protection Agency, where applicable.
[4-20-68, 3-14-71, 10-8-71, 8-13-76, 2-20-81, 12-1-95; 20.6.2.2101 NMAC - Rn, 20 NMAC 6.2.II.2101, 1-15-01]

20.6.2.2102 RIO GRANDE BASIN--COMMUNITY SEWERAGE SYSTEMS:

A. No person shall cause or allow effluent from a community sewerage system to discharge to a watercourse in the Rio Grande Basin between the headwaters of Elephant Butte Reservoir and Angostura Diversion Dam as described in Subsection E of this Section if the effluent, as indicated by:

(1) any two consecutive daily composite samples;

(2) more than one daily composite sample in any thirty-day period (in which less than ten (10) daily composite samples are examined);

(3) more than ten percent (10%) of the daily composite samples in any thirty-day period (in which ten (10) or more daily composite samples are examined); or

(4) a grab sample collected during flow from an intermittent or infrequent discharge

does not conform to the following:

(a)	Bio-chemical Oxygen Demand (BOD)	Less than 30 mg/l
(b)	Chemical Oxygen Demand (COD)	Less than 80 mg/l
(c)	Settleable Solids	Less than 0.1 mg/l
(d)	Fecal Coliform Bacteria	Less than 500 organisms per 100 ml
(e)	pH	Between 6.6 and 8.6

B. Upon application, the secretary may eliminate the pH requirement for any effluent source that the secretary determines does not unreasonably degrade the water into which the effluent is discharged.

C. Subsection A of this Section does not apply to the weight of constituents in the water diverted.

D. Samples shall be examined in accordance with the most current edition of Standard Methods for the Analysis of Water and Wastewater published by the American Public Health Association or the most current

edition of Methods for Chemical Analysis of Water and Wastes published by the Environmental Protection Agency, where applicable.

E. The following is a description of the Rio Grande Basin from the headwaters of Elephant Butte Reservoir to Angostura Diversion Dam as used in this Section. Begin at San Marcial USGS gauging station, which is the headwaters of Elephant Butte Reservoir Irrigation Project, thence northwest to U.S. Highway 60, nine miles + west of Magdalena; thence west along the northeast edge of the San Agustin Plains closed basin; thence north along the east side of the north plains closed basin to the Continental Divide; thence northly along the Continental Divide to the community of Regina on State Highway 96; thence southeasterly along the crest of the San Pedro Mountains to Cerro Toledo Peak; thence southwesterly along the Sierra de Los Valles ridge and the Borrego Mesa to Bodega Butte; thence southerly to Angostura Diversion Dam which is the upper reach of the Rio Grande in this basin; thence southeast to the crest and the crest of the Manzano Mountains and the Los Pinos Mountains; thence southerly along the divide that contributes to the Rio Grande to San Marcial gauging station to the point and place of beginning; excluding all waters upstream of Jemez Pueblo which flow into the Jemez River drainage and the Bluewater Lake. Counties included in the basin are:

(1) north portion of Socorro County;
(2) northeast corner of Catron County;
(3) east portion of Valencia County;
(4) west portion of Bernalillo County;
(5) east portion of McKinley County; and
(6) most of Sandoval County.

[3-14-71, 9-3-72, 8-13-76, 2-20-81, 12-1-95; 20.6.2.2102 NMAC - Rn, 20 NMAC 6.2.II.2102, 1-15-01]

20.6.2.2103 - 20.6.2.2199: [RESERVED]
[12-1-95; 20.6.2.2103 - 20.6.2.2199 NMAC - Rn, 20 NMAC 6.2.II.2103-2199, 1-15-01]

20.6.2.2200 WATERCOURSE PROTECTION:
[12-1-95; 20.6.2.2200 NMAC - Rn, 20 NMAC 6.2.II.2200, 1-15-01]

20.6.2.2201 DISPOSAL OF REFUSE: No person shall dispose of any refuse in a natural watercourse or in a location and manner where there is a reasonable probability that the refuse will be moved into a natural watercourse by leaching or otherwise. Solids diverted from the stream and returned thereto are not subject to abatement under this Section.
[4-20-68, 9-3-72; 20.6.2.2201 NMAC - Rn, 20 NMAC 6.2.II.2201, 1-15-01]

20.6.2.2202 - 20.6.2.2999: [RESERVED]
[12-1-95; 20.6.2.2202 - 20.6.2.2999 NMAC - Rn, 20 NMAC 6.2.II.2202-3100, 1-15-01]

20.6.2.3000 PERMITTING AND GROUND WATER STANDARDS:
[12-1-95; 20.6.2.3000 NMAC - Rn, 20 NMAC 6.2.III, 1-15-01]

20.6.2.3001 - 20.6.2.3100: [RESERVED]
[12-1-95; 20.6.2.3001 - 20.6.2.3100 NMAC - Rn, 20 NMAC 6.2.II.2202-3100, 1-15-01]

20.6.2.3101 PURPOSE:

A. The purpose of Sections 20.6.2.3000 through 20.6.2.3114 NMAC controlling discharges onto or below the surface of the ground is to protect all ground water of the state of New Mexico which has an existing concentration of 10,000 mg/l or less TDS, for present and potential future use as domestic and agricultural water supply, and to protect those segments of surface waters which are gaining because of ground water inflow, for uses designated in the New Mexico Water Quality Standards. Sections 20.6.2.3000 through 20.6.2.3114 NMAC are written so that in general:

(1) if the existing concentration of any water contaminant in ground water is in conformance with the standard of 20.6.2.3103 NMAC, degradation of the ground water up to the limit of the standard will be allowed; and

(2) if the existing concentration of any water contaminant in ground water exceeds the standard of Section 20.6.2.3103 NMAC, no degradation of the ground water beyond the existing concentration will be allowed.

B. Ground water standards are numbers that represent the pH range and maximum concentrations of water contaminants in the ground water which still allow for the present and future use of ground water resources.

C. The standards are not intended as maximum ranges and concentrations for use, and nothing herein contained shall be construed as limiting the use of waters containing higher ranges and concentrations.
[2-18-77; 20.6.2.3101 NMAC - Rn, 20 NMAC 6.2.III.3101, 1-15-01]

20.6.2.3102: [RESERVED]
[12-1-95; 20.6.2.3102 NMAC - Rn, 20 NMAC 6.2.III.3102, 1-15-01]

20.6.2.3103 STANDARDS FOR GROUND WATER OF 10,000 mg/l TDS CONCENTRATION OR LESS: The following standards are the allowable pH range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection D of Section 20.6.2.3109 NMAC. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C of this section, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section. These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "*methods for chemical analysis of water and waste of the U.S. environmental protection agency*," with the exception that standards for mercury, organic compounds and non-aqueous phase liquids shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Subsection A and B of this section unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 20.6.2.1101 NMAC for the combination of contaminants, or the Human Health Standard of Subsection A of Section 20.6.2.3103 NMAC for each contaminant shall apply, whichever is more stringent. Non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured.

(1) Arsenic (As)……..……0.1 mg/l
(2) Barium (Ba)……...……...1.0 mg/l
(3) Cadmium (Cd)…….……...0.01 mg/l
(4) Chromium (Cr)……..…….0.05 mg/l
(5) Cyanide (CN)……..……..0.2 mg/l
(6) Fluoride (F)……..…….1.6 mg/l
(7) Lead (Pb)…….0.05 mg/l
(8) Total Mercury (Hg)……...0.002 mg/l
(9) Nitrate (NO_3 as N)……...10.0 mg/l
(10) Selenium (Se)……0.05 mg/l
(11) Silver (Ag)…….0.05 mg/l
(12) Uranium (U)……....0.03 mg/l
(13) Radioactivity: Combined Radium-226 & Radium-228……30 pCi/l
(14) Benzene…..……...0.01 mg/l
(15) Polychlorinated biphenyls (PCB's)……..0.001 mg/l
(16) Toluene……...0.75 mg/l
(17) Carbon Tetrachloride……..0.01 mg/l
(18) 1,2-dichloroethane (EDC) ……..…0.01 mg/l
(19) 1,1-dichloroethylene (1,1-DCE) ……...0.005 mg/l
(20) 1,1,2,2-tetrachloroethylene (PCE) ……..0.02 mg/l
(21) 1,1,2-trichloroethylene (TCE) ……...0.1 mg/l
(22) ethylbenzene…….……0.75 mg/l
(23) total xylenes…….…….....0.62 mg/l
(24) methylene chloride…….……0.1 mg/l
(25) chloroform…….…….0.1 mg/l
(26) 1,1-dichloroethane…….……0.025 mg/l
(27) ethylene dibromide (EDB) ……..…0.0001 mg/l
(28) 1,1,1-trichloroethane…….……...…0.06 mg/l
(29) 1,1,2-trichloroethane…….……...0.01 mg/l
(30) 1,1,2,2-tetrachloroethane…….…….0.01 mg/l
(31) vinyl chloride…….…….0.001 mg/l

(32) PAHs: total naphthalene plus monomethylnaphthalenes…….0.03 mg/l
(33) benzo-a-pyrene……0.0007 mg/l

B. Other Standards for Domestic Water Supply

(1) Chloride (Cl) ……...250.0 mg/l
(2) Copper (Cu) ……....1.0 mg/l
(3) Iron (Fe) ……..…1.0 mg/l
(4) Manganese (Mn) ……..…0.2 mg/l
(6) Phenols……..…0.005 mg/l
(7) Sulfate (SO_4) ……..600.0 mg/l
(8) Total Dissolved Solids (TDS) ……..……1000.0 mg/l
(9) Zinc (Zn) ……..……10.0 mg/l
(10) pH……..…….between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of Subsection A, B, and C of this section unless otherwise provided.

(1) Aluminum (Al)…….. ……..…5.0 mg/l
(2) Boron (B) ……...0.75 mg/l
(3) Cobalt (Co) ……..0.05 mg/l
(4) Molybdenum (Mo) ……...1.0 mg/l
(5) Nickel (Ni) ……....0.2 mg/l

[2-18-77, 1-29-82, 11-17-83, 3-3-86, 12-1-95; 20.6.2.3103 NMAC - Rn, 20 NMAC 6.2.III.3103, 1-15-01; A, 9-26-04]

[Note: For purposes of application of the amended numeric uranium standard to past and current water discharges (as of 9-26-04), the new standard will not become effective until June 1, 2007. For any new water discharges, the uranium standard is effective 9-26-04.]

20.6.2.3104 DISCHARGE PERMIT REQUIRED: Unless otherwise provided by this Part, no person shall cause or allow effluent or leachate to discharge so that it may move directly of indirectly into ground water unless he is discharging pursuant to a discharge permit issued by the secretary. When a permit has been issued, discharges must be consistent with the terms and conditions of the permit. In the event of a transfer of the ownership, control, or possession of a facility for which a discharge permit is in effect, the transferee shall have authority to discharge under such permit, provided that the transferee has complied with Section 20.6.2.3111 NMAC, regarding transfers. [2-18-77, 12-24-87, 12-1-95; Rn & A, 20.6.2.3104 NMAC - 20 NMAC 6.2.III.3104, 1-15-01; A, 12-1-01]

20.6.2.3105 EXEMPTIONS FROM DISCHARGE PERMIT REQUIREMENT: Sections 20.6.2.3104 and 20.6.2.3106 NMAC do not apply to the following:

A. Effluent or leachate which conforms to all the listed numerical standards of Section 20.6.2.3103 NMAC and has a total nitrogen concentration of 10 mg/l or less, and does not contain any toxic pollutant. To determine conformance, samples may be taken by the agency before the effluent or leachate is discharged so that it may move directly or indirectly into ground water; provided that if the discharge is by seepage through non-natural or altered natural materials, the agency may take samples of the solution before or after seepage. If for any reason the agency does not have access to obtain the appropriate samples, this exemption shall not apply;

B. Effluent which is discharged from a sewerage system used only for disposal of household and other domestic waste which is designed to receive and which receives 2,000 gallons or less of liquid waste per day;

C. Water used for irrigated agriculture, for watering of lawns, trees, gardens or shrubs, or for irrigation for a period not to exceed five years for the revegetation of any disturbed land area, unless that water is received directly from any sewerage system;

D. Discharges resulting from the transport or storage of water diverted, provided that the water diverted has not had added to it after the point of diversion any effluent received from a sewerage system, that the source of the water diverted was not mine workings, and that the secretary has not determined that a hazard to public health may result;

E. Effluent which is discharged to a watercourse which is naturally perennial; discharges to dry arroyos and ephemeral streams are not exempt from the discharge permit requirement, except as otherwise provided in this section;

F. Those constituents which are subject to effective and enforceable effluent limitations in a National Pollutant Discharge Elimination System (NPDES) permit, where discharge onto or below the surface of the ground so that water contaminants may move directly or indirectly into ground water occurs downstream from the outfall

where NPDES effluent limitations are imposed, unless the secretary determines that a hazard to public health may result. For purposes of this subsection, monitoring requirements alone do not constitute effluent limitations;

G. Discharges resulting from flood control systems;

H. Leachate which results from the direct natural infiltration of precipitation through disturbed materials, unless the secretary determines that a hazard to public health may result;

I. Leachate which results entirely from the direct natural infiltration of precipitation through undisturbed materials;

J. Leachate from materials disposed of in accordance with the Solid Waste Management Regulations (20 NMAC 9.1) adopted by the New Mexico Environmental Improvement Board;

K. Natural ground water seeping or flowing into conventional mine workings which re-enters the ground by natural gravity flow prior to pumping or transporting out of the mine and without being used in any mining process; this exemption does not apply to solution mining;

L. Effluent or leachate discharges resulting from activities regulated by a mining plan approved and permit issued by the New Mexico Coal Surface Mining Commission, provided that this exemption shall not be construed as limiting the application of appropriate ground water protection requirements by the New Mexico Coal Surface Mining Commission;

M. Effluent or leachate discharges which are regulated by the Oil Conservation Commission and the regulation of which by the Water Quality Control Commission would interfere with the exclusive authority granted under Section 70-2-12 NMSA 1978, or under other laws, to the Oil Conservation Commission.

[2-18-77, 6-26-80, 7-2-81, 12-24-87, 12-1-95; 20.6.2.3105 NMAC - Rn, 20 NMAC 6.2.III.3105, 1-15-01; A, 12-1-01]

20.6.2.3106 APPLICATION FOR DISCHARGE PERMITS AND RENEWALS:

A. Any person who, before or on June 18, 1977, is discharging any of the water contaminants listed in Section 20.6.2.3103 NMAC or any toxic pollutant so that they may move directly or indirectly into ground water shall, within 120 days of receipt of written notice from the secretary that a discharge permit is required, or such longer time as the secretary shall for good cause allow, submit a discharge plan to the secretary for approval; such person may discharge without a discharge permit until 240 days after written notification by the secretary that a discharge permit is required or such longer time as the secretary shall for good cause allow.

B. Any person who intends to begin, after June 18, 1977, discharging any of the water contaminants listed in Section 20.6.2.3103 NMAC or any toxic pollutant so that they may move directly or indirectly into ground water shall notify the secretary giving the information enumerated in Subsection B of Section 20.6.2.1201NMAC; the secretary shall, within 60 days, notify such person if a discharge permit is required; upon submission, the secretary shall review the discharge plan pursuant to Sections 20.6.2.3108 and 20.6.2.3109 NMAC. For good cause shown the secretary may allow such person to discharge without a discharge permit for a period not to exceed 120 days.

C. A proposed discharge plan shall set forth in detail the methods or techniques the discharger proposes to use or processes expected to naturally occur which will ensure compliance with this Part. At least the following information shall be included in the plan:

(1) Quantity, quality and flow characteristics of the discharge;

(2) Location of the discharge and of any bodies of water, watercourses and ground water discharge sites within one mile of the outside perimeter of the discharge site, and existing or proposed wells to be used for monitoring;

(3) Depth to and TDS concentration of the ground water most likely to be affected by the discharge;

(4) Flooding potential of the site;

(5) Location and design of site(s) and method(s) to be available for sampling, and for measurement or calculation of flow;

(6) Depth to and lithological description of rock at base of alluvium below the discharge site if such information is available;

(7) Any additional information that may be necessary to demonstrate that the discharge permit will not result in concentrations in excess of the standards of Section 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use. Detailed information on site geologic and hydrologic conditions may be required for a technical evaluation of the applicant's proposed discharge plan; and

(8) Additional detailed information required for a technical evaluation of underground injection control wells as provided in Sections 20.6.2.5000 through 20.6.2. 5299 NMAC,

D. An applicant for a discharge permit shall pay fees as specified in Section 20.6.2.3114 NMAC.

E. An applicant for a permit to dispose of or use septage or sludge, or within a source category designated by the commission, may be required by the secretary to file a disclosure statement as specified in 74-6-5.1 of the Water Quality Act.

F. If the holder of a discharge permit submits an application for discharge permit renewal at least 120 days before the discharge permit expires, and the discharger is not in violation of the discharge permit on the date of its expiration, then the existing discharge permit for the same activity shall not expire until the application for renewal has been approved or disapproved. A discharge permit continued under this provision remains fully effective and enforceable. An application for discharge permit renewal must include and adequately address all of the information necessary for evaluation of a new discharge permit. Previously submitted materials may be included by reference provided they are current, readily available to the secretary and sufficiently identified to be retrieved. [2-18-77, 6-26-80, 7-2-81, 9-20-82, 8-17-91, 12-1-95; 20.6.2.3106 NMAC - Rn, 20 NMAC 6.2.III.3106, 1-15-01; A, 12-1-01; A, 9-15-02]

20.6.2.3107 MONITORING, REPORTING, AND OTHER REQUIREMENTS:

A. Each discharge plan shall provide for the following as the secretary may require:

(1) The installation, use, and maintenance of effluent monitoring devices;

(2) The installation, use, and maintenance of monitoring devices for the ground water most likely to be affected by the discharge;

(3) Monitoring in the vadose zone;

(4) Continuation of monitoring after cessation of operations;

(5) Periodic submission to the secretary of results obtained pursuant to any monitoring requirements in the discharge permit and the methods used to obtain these results;

(6) Periodic reporting to the secretary of any other information that may be required as set forth in the discharge permit;

(7) The discharger to retain for a period of at least five years any monitoring data required in the discharge permit;

(8) A system of monitoring and reporting to verify that the permit is achieving the expected results;

(9) Procedures for detecting failure of the discharge system;

(10) Contingency plans to cope with failure of the discharge permit or system;

(11) A closure plan to prevent the exceedance of standards of Section 20.6.2.3103 NMAC or the presence of a toxic pollutant in ground water after the cessation of operation which includes: a description of closure measures, maintenance and monitoring plans, post-closure maintenance and monitoring plans, financial assurance, and other measures necessary to prevent and/or abate such contamination. The obligation to implement the closure plan as well as the requirements of the closure plan, if any is required, survives the termination or expiration of the permit. A closure plan for any underground injection control well must also incorporate the applicable requirements of Sections 20.6.2.5005 and 20.6.2.5209 NMAC.

B. Sampling and analytical techniques shall conform with the following references unless otherwise specified by the secretary:

(1) Standard Methods for the Examination of Water and Wastewater, latest edition, American Public Health Association; or

(2) Methods for Chemical Analysis of Water and Waste, and other publications of the Analytical Quality Laboratory, EPA; or

(3) Techniques of Water Resource Investigations of the U.S. Geological Survey; or

(4) Annual Book of ASTM Standards. Part 31. Water, latest edition, American Society For Testing and Materials; or

(5) Federal Register, latest methods published for monitoring pursuant to Resource Conservation and Recovery Act regulations; or

(6) National Handbook of Recommended Methods for Water-Data Acquisition, latest edition, prepared cooperatively by agencies of the United States Government under the sponsorship of the U.S. Geological Survey.

C. The discharger shall notify the secretary of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants.

D. Any discharger of effluent or leachate shall allow any authorized representative of the secretary to:

(1) inspect and copy records required by a discharge permit;

(2) inspect any treatment works, monitoring and analytical equipment;

(3) sample any effluent before or after discharge;

(4) use monitoring systems and wells installed pursuant to a discharge permit requirement in order to collect samples from ground water or the vadose zone.

E. Each discharge permit for an underground injection control well shall incorporate the applicable requirements of Sections 20.6.2.5000 through 20.6.2.5299 NMAC.

[2-18-77, 9-20-82, 11-17-83, 12-1-95; 20.6.2.3107 NMAC - Rn, 20 NMAC 6.2.III.3107, 1-15-01; A, 12-1-01]

20.6.2.3108 PUBLIC NOTICE AND PARTICIPATION:

A. Within 30 days of submission of an application for discharge permit, modification or renewal:

(1) The applicant shall provide notice, in accordance with the requirements of Section E of this Section, to the general public in the locale of the proposed discharge in a form provided by the department by each of the three methods listed below:

(a) prominently posting a synopsis of the public notice, in English and in Spanish, at a conspicuous public location, approved by the department, at or near the existing or proposed facility for 30 days; and

(b) providing written notice of the discharge by certified mail, return receipt requested, to owners of record of all adjacent properties; and

(c) providing notice by certified mail, return receipt requested, to the owner of the discharge site if the applicant is not the owner;

(2) In lieu of the public notice requirements of Subparagraph (b) of Paragraph (1) of Subsection A above, the applicant may publish a synopsis of the notice in a display ad at least two inches by three inches in a newspaper of general circulation in the location of the proposed discharge.

(3) In lieu of the public notice requirements of Subparagraph (a) and (b) of Paragraph (1) of Subsection A above, the applicant may provide notice of the discharge by certified mail, return receipt requested, to property owners of record within 1/2 mile of the discharge site on a form provided by the department.

(4) If there are no adjacent properties other than properties owned by the discharger, the applicant shall, in lieu of the requirements in Subparagraph (b) of Paragraph (1) of Subsection A above, publish a synopsis of the notice in a display ad at least two inches by three inches in a newspaper of general circulation in the location of the facility.

B. Within fifteen days of completion of the public notice requirements in Subsection A of this Section, the applicant shall submit to the department proof of notice, including certified mail receipts and an affidavit of posting, as appropriate. If the department determines that the notice provided pursuant to Subsection A of this Section is inadequate, the department may require additional notice in accordance with Subsection A of this Section.

C. Within 30 days of receipt of an application for a discharge permit, modification or renewal, the department shall review the application for administrative completeness. To be deemed administratively complete, an application must provide all of the information required by Paragraphs (1) through (5) of Subsection E of this Section. The department shall notify the applicant in writing when the application is deemed administratively complete. If the department determines that the application is not administratively complete, the department shall notify the applicant of the deficiencies in writing within 30 days of receipt of the application and state what additional information is necessary.

D. Within 30 days of determining an application for a discharge permit, modification or renewal is administratively complete, the department shall post a notice on its web site and shall mail notice to any affected local, state, federal, tribal or pueblo governmental agency, political subdivisions, ditch associations and Land Grants, as identified by the department. The department shall also mail or e-mail notice to those persons on a list maintained by the department who have requested notice of discharge permit applications. The notice shall include the information listed in Subsection E of this Section.

E. The notice provided under Subsection A and D of this Section shall include:

(1) The name and address of the proposed discharger;

(2) The location of the discharge, including a street address, if available, and sufficient information to locate the facility with respect to surrounding landmarks;

(3) A brief description of the activities that produce the discharge described in the application;

(4) A brief description of the expected quality and volume of the discharge;

(5) The depth to and total dissolved solids concentration of the ground water beneath the discharge site;

(6) The address and phone number within the department by which interested persons may obtain information, submit comments, and request to be placed on a facility-specific mailing list for future notices; and

(7) A statement that the department will accept comments and statements of interest regarding the application and will create a facility-specific mailing list for persons who wish to receive future notices.

F. All persons who submit comments or statements of interest to the department and who provide a mail or e-mail address shall be placed on a facility-specific mailing list and the department shall send those persons the public notice issued pursuant to Subsection G of this Section, and notice of any public meeting or hearing scheduled on the application.

G. Within 60 days after the department makes its administrative completeness determination and all required technical information is available, the department shall make available a proposed approval or disapproval of the application for a discharge permit, modification or renewal, including conditions for approval proposed by the department or the reasons for disapproval. The department shall mail or deliver a copy of the proposed approval or disapproval to the applicant, and shall provide notice of the proposed approval or disapproval of the application for a discharge permit, modification or renewal by:

(1) Posting on the department's website;

(2) Publishing notice in a newspaper of general circulation in this state and a newspaper of general circulation in the location of the facility;

(3) Mailing or e-mailing to those persons on a facility-specific mailing list;

(4) Mailing to any affected local, state, or federal governmental agency, as identified by the department; and

(5) Mailing to the Governor, Chairperson, or President of each Indian Tribe, Pueblo or Nation within the state of New Mexico, as identified by the department.

H. The public notice issued under Subsection G shall include the information in Subsection E of this Section and the following information:

(1) A brief description of the procedures to be followed by the secretary in making a final determination;

(2) A statement of the comment period and description of the procedures for a person to request a hearing on the application; and

(3) The address and telephone number at which interested persons may obtain a copy of the proposed approval or disapproval of an application for a discharge permit, modification or renewal.

I. In the event that the proposed approval or disapproval of an application for a discharge permit, modification or renewal is available for review within 30 days of deeming the application administratively complete, the department may combine the public notice procedures of Subsections D and G of this Section.

J. Following the public notice of the application and proposed approval or disapproval of an application for a discharge permit, modification or renewal, and prior to a final decision by the secretary, there shall be a period of at least 30 days during which written comments may be submitted to the department and/or a public hearing may be requested in writing. All comments will be considered by the department. Requests for a hearing shall be in writing and shall set forth the reasons why a hearing should be held. A public hearing shall be held if the secretary determines there is significant public interest. The department shall notify the applicant and any person requesting a hearing of the decision whether to hold a hearing and the reasons therefore in writing.

K. If a hearing is held, pursuant to Subsection J of this Section, notice of the hearing shall be given by the department at least 30 days prior to the hearing in accordance with Subsection G of this section. The notice shall include the information identified in Subsection H of this section in addition to the time and place of the hearing and a brief description of the hearing procedures. The hearing shall be held pursuant to Section 20.6.2.3110 NMAC. [2-18-77, 12-24-87, 12-1-95, 11-15-96; 20.6.2.3108 NMAC - Rn, 20 NMAC 6.2.III.3108, 1-15-01; A, 12-1-01; A, 9-15-02]

20.6.2.3109 SECRETARY APPROVAL, DISAPPROVAL, MODIFICATION OR TERMINATION OF DISCHARGE PERMITS, AND REQUIREMENT FOR ABATEMENT PLANS:

A. The department shall evaluate the application for a discharge permit, modification or renewal based on information contained in the department's administrative record. The department may request from the discharger, either before or after the issuance of any public notice, additional information necessary for the evaluation of the application. The administrative record shall consist of the application, any additional information required by the department, any information submitted by the discharger or the general public, other information considered by the department, the proposed approval or disapproval of an application for a discharge permit, modification or renewal prepared pursuant to Subsection G of Section 20.6.2.3108 NMAC, and, if a public hearing

is held, all of the documents filed with the hearing clerk, all exhibits offered into evidence at the hearing, the written transcript or tape recording of the hearing, any hearing officer report, and any post hearing submissions.

B. The secretary shall, within 30 days after the administrative record is complete and all required information is available, approve, approve with conditions or disapprove the proposed discharge permit, modification or renewal based on the administrative record. The secretary shall give written notice of the action taken to the applicant or permittee and any other person who participated in the permitting action who requests a copy in writing.

C. Provided that the other requirements of this Part are met and the proposed discharge plan, modification or renewal demonstrates that neither a hazard to public health nor undue risk to property will result, the secretary shall approve the proposed discharge plan, modification or renewal if the following requirements are met:

(1) ground water that has a TDS concentration of 10,000 mg/l or less will not be affected by the discharge, or

(2) the person proposing to discharge demonstrates that approval of the proposed discharge plan, modification or renewal will not result in either concentrations in excess of the standards of Section 20.6.2.3103 NMAC or the presence of any toxic pollutant at any place of withdrawal of water for present or reasonably foreseeable future use, except for contaminants in the water diverted as provided in Subsection D of Section 3109 NMAC, or

(3) the proposed discharge plan conforms to either Subsection a or b below and Subsection c below.

(a) Municipal, Other Domestic Discharges, and Discharges from Sewerage Systems Handling Only Animal Wastes. The effluent is entirely domestic, is entirely from a sewerage system handling only animal wastes or is from a municipality and conforms to the following:

(i) the discharge is from an impoundment or a leach field existing on February 18, 1977 which receives less than 10,000 gallons per day and the secretary has not found that the discharge may cause a hazard to public health; or

(ii) the discharger has demonstrated that the total nitrogen in effluent that enters the subsurface from a leach field or surface impoundment will not exceed 200 pounds per acre per year and that the effluent will meet the standards of Section 20.6.2.3103 NMAC except for nitrates and except for contaminants in the water diverted as provided in Subsection D of Section 20.6.2.3109 NMAC.; or

(iii) the total nitrogen in effluent that is applied to a crop which is harvested shall not exceed by more than 25 percent the maximum amount of nitrogen reasonably expected to be taken up by the crop and the effluent shall meet the standards of Section 20.6.2.3103 NMAC except for nitrates and except for contaminants in the water diverted as provided in Subsection D of Section 20.6.2.3109 NMAC.

(b) Discharges from industrial, mining or manufacturing operations.

(i) the discharger has demonstrated that the amount of effluent that enters the subsurface from a surface impoundment will not exceed 0.5 acre-feet per acre per year; or

(ii) the discharger has demonstrated that the total nitrogen in effluent that enters the subsurface from a leach field or surface impoundment shall not exceed 200 pounds per acre per year and the effluent shall meet the standards of Section 20.6.2.3103 NMAC except for nitrate and contaminants in the water diverted as provided in Subsection D of Section 20.6.2.3109 NMAC; or

(iii) the total nitrogen in effluent that is applied to a crop that is harvested shall not exceed by more than 25 percent the maximum amount of nitrogen reasonably expected to be taken up by the crop and the effluent shall meet the standards of Section 20.6.2.3103 NMAC except for nitrate and contaminants in the water diverted as provided in Subsection D of Section 20.6.2.3109 NMAC.

(c) All Discharges.

(i) the monitoring system proposed in the discharge plan includes adequate provision for sampling of effluent and adequate flow monitoring so that the amount being discharged onto or below the surface of the ground can be determined.

(ii) the monitoring data is reported to the secretary at a frequency determined by the secretary.

D. The secretary shall allow the following unless he determines that a hazard to public health may result:

(1) the weight of water contaminants in water diverted from any source may be discharged provided that the discharge is to the aquifer from which the water was diverted or to an aquifer containing a greater concentration of the contaminants than contained in the water diverted; and provided further that contaminants added as a result of the means of diversion shall not be considered to be part of the weight of water contaminants in the water diverted;

(2) the water contaminants leached from undisturbed natural materials may be discharged provided that:

(a) the contaminants were not leached as a product or incidentally pursuant to a solution mining operation; and

(b) the contaminants were not leached as a result of direct discharge into the vadose zone from municipal or industrial facilities used for the storage, disposal, or treatment of effluent;

(3) the water contaminants leached from undisturbed natural materials as a result of discharge into ground water from lakes used as a source of cooling water.

E. If data submitted pursuant to any monitoring requirements specified in the discharge permit or other information available to the secretary indicates that this Part is being or may be violated or that the standards of Section 20.6.2.3103 NMAC are being or will be exceeded, or a toxic pollutant as defined in Section 20.6.2.7 NMAC is present, in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate Streams in New Mexico are being or may be violated in surface water, due to the discharge, except as provided in Subsection D of Section 20.6.2.3109 NMAC:

(1) the secretary may require a discharge permit modification within the shortest reasonable time so as to achieve compliance with this Part and to provide that any exceeding of standards in ground water at any place of withdrawal for present or reasonably foreseeable future use, or in surface water, due to the discharge except as provided in Subsection D of Section 20.6.2.3109 NMAC. will be abated or prevented. If the secretary requires a discharge permit modification to abate water pollution:

(a) the abatement shall be consistent with the requirements and provisions of Sections 20.6.2.4101, 20.6.2.4103, Subsection C and E of Section 20.6.2.4106, Section 20.6.2.4107 and Section 20.6.2.4112 NMAC; and

(b) the discharger may request of the secretary approval to carry out the abatement under Sections 20.6.2.4000 through 20.6.2.4115 NMAC, in lieu of modifying the discharge permit. The discharger shall make the request in writing and shall include the reasons for the request.

(2) the secretary may terminate a discharge permit when a discharger fails to modify the permit in accordance with Paragraph 1 of Subsection E of this section.

(3) the secretary may require modification, or may terminate a discharge permit for a Class I non-hazardous waste injection well, a Class III well or other type of well specified in Subsection A of Section 20.6.2.5101 NMAC, pursuant to the requirements of Subsection I of Section 20.6.2.5101 NMAC.

F. If a discharge permit expires or is terminated for any reason and the standards of Section 20.6.2.3103 NMAC are being or will be exceeded, or a toxic pollutant as defined in Section 20.6.2.7 NMAC is present in ground water, or that the Water Quality Standards for Interstate and Intrastate Streams in New Mexico are being or may be violated, the secretary may require the discharger to submit an abatement plan pursuant to Sections 20.6.2.4104 and Subsection A of Section 20.6.2.4106 NMAC.

G. At the request of the discharger, a discharge permit may be modified in accordance with Sections 20.6.2.3000 through 20.6.2.3114 NMAC.

H. The secretary shall not approve a proposed discharge plan, modification, or renewal for:

(1) any discharge for which the discharger has not provided a site and method for flow measurement and sampling;

(2) any discharge that will cause any stream standard to be violated;

(3) the discharge of any water contaminant which may result in a hazard to public health; or

(4) a period longer than five years, except that for new discharges, the term of the discharge permit approval shall commence on the date the discharge begins, but in no event shall the term of the approval exceed seven years from the date the permit was issued. For those permits expiring more than five years from the date of issuance, the discharger shall give prior written notification to the department of the date the discharge is to commence. The term of the permit shall not exceed five years from that date.

[2-18-77, 6-26-80, 9-20-82, 7-2-81, 3-3-86, 12-1-95, 11-15-96; 20.6.2.3109 NMAC - Rn, 20 NMAC 6.2.III.3109, 1-15-01; A, 12-1-01; A, 9-15-02]

[Subsection 3109.A was added and subsequent subsections renumbered 11-15-96]

20.6.2.3110 PUBLIC HEARING PARTICIPATION:

A. The secretary may appoint an impartial hearing officer to preside over the hearing. The hearing officer may be a department employee other than an employee of the bureau evaluating the application.

B. The hearing shall be at a place in the area affected by the facility for which the discharge permit proposal, modification or renewal is sought.

C. Any person who wishes to present technical evidence at the hearing shall, no later than ten (10) days prior to the hearing, file with the department, and if filed by a person who is not the applicant, serve on the applicant, a statement of intent to present evidence. A person who does not file a statement of intent to present evidence may present a general non-technical statement in support of or in opposition to the proposed discharge plan, modification or renewal. The statement of intent to present technical evidence shall include:

(1) the name of the person filing the statement;

(2) indication of whether the person filing the statement supports or opposes the proposed discharge plan proposal, modification or renewal;

(3) the name of each witness;

(4) an estimate of the length of the direct testimony of each witness;

(5) a list of exhibits, if any, to be offered into evidence at the hearing; and

(6) a summary or outline of the anticipated direct testimony of each witness.

D. At the hearing, the New Mexico Rules of Civil Procedure, SCRA 1986, 1-001 to 1-102 and the New Mexico Rules of Evidence, SCRA 1986, 11-101 to 11-1102 shall not apply. At the discretion of the hearing officer, the rules may be used as guidance. Any reference to the Rules of Civil Procedure and the Rules of Evidence shall not be construed to extend or otherwise modify the authority and jurisdiction of the department under the Act.

E. The hearing officer shall conduct a fair and impartial proceeding, assure that the facts are fully elicited, and avoid delay. The hearing officer shall have authority to take all measures necessary for the maintenance of order and for the efficient, fair and impartial adjudication of issues arising in the proceedings.

F. At the hearing, all persons shall be given a reasonable chance to submit data, views or arguments orally or in writing and to examine witnesses testifying at the hearing.

G. Unless otherwise allowed by the hearing officer, testimony shall be presented in the following order:

(1) testimony by and examination of the applicant or permittee proving the facts relied upon to justify the proposed discharge plan, renewal or modification and meeting the requirements of the regulations;

(2) testimony by and examination of technical witnesses supporting or opposing approval, approval subject to conditions, or disapproval of the proposed discharge plan, renewal or modification, in any reasonable order;

(3) testimony by the general public; and

(4) rebuttal testimony, if appropriate.

H. The secretary may provide translation service at a public hearing conducted in a locale where the Department can reasonably expect to receive testimony from non-English speaking people.

I. If determined useful by the hearing officer, within thirty (30) days after conclusion of the hearing, or within such time as may be fixed by the hearing officer, the hearing officer may allow proposed findings of fact and conclusions of law and closing argument. All such submissions, if allowed, shall be in writing, shall be served upon the applicant or permittee, the department and all persons who request copies in advance in writing, and shall contain adequate references to the record and authorities relied on. No new evidence shall be presented unless specifically allowed by the hearing officer.

J. The department shall make an audio recording of the hearing. If the applicant or permittee, or a participant requests a written transcript or certified copy of the audio recording, the requestor shall pay the cost of the transcription or audio copying.

K. The hearing officer shall issue a report within thirty (30) days after the close of the hearing record. The report may include findings of fact, conclusions regarding all material issues of law or discretion, as well as reasons therefore. The report shall be served on the applicant or permittee, the department, and all persons who request copies in advance in writing. The report will be available for public inspection at the department's office in Santa Fe and at the field office closest to the point of the proposed discharge.

L. The secretary shall issue a decision in the matter no later than thirty (30) days of receipt of the hearing report. The decision shall be served and made available for inspection pursuant to Subsection K of this section.

M. Any person who testifies at the hearing or submits a written statement for the record will be considered a participant for purposes of Subsection 20.6.2.3113 NMAC and NMSA 1978, Section 74-6-5.N.

[2-18-77, 12-1-95, 11-15-96; 20.6.2.3110 NMAC - Rn, 20 NMAC 6.2.III.3110, 1-15-01; A, 12-1-01]

20.6.2.3111 TRANSFER OF DISCHARGE PERMIT: No purported transfer of any discharge permit shall be effective to create, alter or extinguish any right or responsibility of any person subject to this Part, unless the following transfer requirements are met:

A. Prior to any transfer of ownership, control, or possession (whether by lease, conveyance or otherwise) of a facility with a discharge permit, the transferror shall notify the transferee in writing of the existence of the discharge permit, and shall deliver or send by certified mail to the department a copy of such written notification, together with a certification or other proof that such notification has in fact been received by the transferee.

B. Upon receipt of such notification, the transferee shall have the duty to inquire into all of the provisions and requirements contained in such discharge permit, and the transferee shall be charged with notice of all such provisions and requirements as they appear of record in the department's file or files concerning such discharge permit.

C. Until both ownership and possession of the facility have been transferred to the transferee, the transferor shall continue to be responsible for any discharge from the facility.

D. Upon assuming either ownership or possession of the facility, the transferee shall have the same rights and responsibilities under the discharge permit as were applicable to the transferor.

E. Nothing in this section or in this part shall be construed to relieve any person of responsibility or liability for any act or omission which occurred while that person owned, controlled or was in possession of the facility.

[2-18-77, 12-24-87, 12-1-95, 11-15-96; 20.6.2.3111 NMAC - Rn, 20 NMAC 6.2.III.3111, 1-15-01; A, 12-1-01]

20.6.2.3112 APPEALS OF SECRETARY'S DECISIONS:

A. If the secretary approves, approves subject to conditions, or disapproves a proposed discharge plan, renewal or modification, or modifies or terminates a discharge permit, appeal therefrom shall be in accordance with the provisions of Sections 74-6-5(N), (O) and (P), NMSA 1978. The filing of an appeal does not act as a stay of any provision of the Act, the regulations, or any permit issued pursuant to the Act, unless otherwise ordered by the secretary or the commission.

B. If the secretary determines that a discharger is not exempt from obtaining a discharge permit, or that the material to be discharged contains any toxic pollutant as defined in Section 20.6.2.1101 NMAC, which is not included in the numerical standards of Section 20.6.2.3103 NMAC, then the discharger may appeal such determination by filing with the commission's secretary a notice of appeal to the commission within thirty days after receiving the secretary's written determination, and the appeal therefrom and any action of the commission thereon shall be in accordance with the provisions of Sections 74-6-5(N),(O) and (P), NMSA 1978.

C. Proceedings before the commission shall be conducted in accordance with the commission's adjudicatory procedures, 20 NMAC 1.3.

[2-18-77, 7-2-81, 12-1-95, 11-15-96; 20.6.2.3112 NMAC - Rn, 20 NMAC 6.2.III.3112, 1-15-01; A, 12-1-01]

20.6.2.3113 APPEALS OF COMMISSION DECISIONS: An applicant, permittee or a person who participated in a permitting action and who is adversely affected by such action may appeal the decision of the commission in accordance with the provis-ions of Section 74-6-7(A), NMSA 1978.

[2-18-77, 12-1-95, 11-15-96; 20.6.2.3113 NMAC - Rn, 20 NMAC 6.2.III.3113, 1-15-01; A, 12-1-01]

20.6.2.3114 FEES:

A. FEE AMOUNT AND SCHEDULE OF PAYMENT - Every facility submitting a discharge permit application for approval or renewal shall pay the permit fees specified in Table 1 of this section and shall pay a filing fee as specified in Table 2 of this section to the Water Quality Management Fund. Every facility submitting a request for temporary permission to discharge pursuant to Subsection B of Section 20.6.2.3106 NMAC, or financial assurance pursuant to Paragraph 11 of Subsection A of Section 20.6.2.3107 NMAC shall pay the fees specified in Table 2 of this section to the Water Quality Management Fund.

B. Facilities applying for discharge permits which are subsequently withdrawn or denied shall pay one-half of the permit fee at the time of denial or withdrawal.

C. Every facility submitting an application for discharge permit modification will be assessed a filing fee plus one-half of the permit fee. Applications for both renewal and modification will pay the filing fee plus the permit fee.

D. If the secretary requires a discharge permit modification as a component of an enforcement action, the facility shall pay the applicable discharge permit modification fee. If the secretary requires a discharge permit modification outside the context of an enforcement action, the facility shall not be assessed a fee.

E. The secretary may waive or reduce fees for discharge permit modifications or renewals which require little or no cost for investigation or issuance.

F. Facilities shall pay the filing fee at the time of discharge permit application. The filing fee is nonrefundable. The required permit fees may be paid in a single payment at the time of discharge permit approval or in equal installments over the term of the discharge permit. Installment payments shall be remitted yearly, with the first installment due on the date of discharge permit approval. Subsequent installment payments shall be remitted yearly thereafter. The discharge permit or discharge permit application review of any facility shall be suspended or terminated if the facility fails to submit an installment payment by its due date.

G. Every three years beginning in 2004, the department shall review the fees specified in Table 1 and 2 of this section and shall provide a report to the commission. The department shall revise the fees as necessary in accordance with Section 74-6-5(J), NMSA 1978.

20.6.2.3114 TABLE 1 (gpd=gallons per day)	**Permit Fee**
Agriculture <10,000 gpd	$ 1,150
Agriculture 10,000 to 49,999 gpd	$ 2,300
Agriculture 50,000 to 99,999 gpd	$ 3,450
Agriculture 100,000 gpd or greater	$ 4,600
Domestic Waste <10,000 gpd	$ 1,150
Domestic Waste 10,000 to 49,999 gpd	$ 2,300
Domestic Waste 50,000 to 99,999 gpd	$ 3,450
Domestic Waste 100,000 to 999,999 gpd	$ 4,600
Domestic Waste 1,000,000 to 9,999,999 gpd	$ 7,000
Domestic Waste 10,000,000 gpd or greater	$ 9,200
Food Processing <10,000 gpd	$ 1,150
Food Processing 10,000 to 49,999 gpd	$ 2,300
Food Processing 50,000 to 99,999 gpd	$ 3,450
Food Processing 100,000 to 999,999 gpd	$ 4,600
Food Processing 1,000,000 or greater	$ 7,000
Grease/Septage surface disposal <10,000 gpd	$ 1,725
Grease/Septage surface disposal 10,000 gpd or greater	$ 3,450
Industrial <10,000 gpd; or <10,000 yd^3 of contaminated solids	$ 1,725
Industrial 10,000 to 99,999 gpd; or 10,000 to 99,999 yd^3 of contaminated solids	$ 3,450
Industrial 100,000 to 999,999 gpd; or 100,000 to 999,999 yd^3 of contaminated solids or greater	$ 6,900
Industrial 1,000,000 gpd or greater; or 1,000,000 yd^3 of contaminated solids or greater	$10,350
Discharge of remediation system effluent - remediation plan approved under separate regulatory authority	$ 1,600
Mining dewatering	$ 3,250
Mining leach dump	$13,000
Mining tailings	$13,000
Mining waste rock	$13,000
Mining in-situ leach (except salt) and old stope leaching	$13,000
Mining other (mines with minimal environmental impact, post closure operation and maintenance, evaporation lagoons and land application at uranium mines)	$ 4,750
Gas Compressor Stations 0 to 1000 Horsepower	$ 400
Gas Compressor Stations >1001 Horsepower	$ 1,700
Gas Processing Plants	$ 4,000
Injection Wells: Class I	$ 4,500
Injection Wells: Class III and Geothermal	$ 1,700
Oil and Gas Service Companies	$ 1,700
Refineries	$ 8,400
Crude Pump Station	$ 1,200
Underground Gas Storage	$ 1,700
Abatement of ground water and vadose zone contamination at oil and gas Sites	$ 2,600
General permit	$ 600

20.6.2.3114 Table 2

	Fee Amount
Filing fee	$ 100
Temporary permission	$ 150
Financial assurance: approval of instrument	greater of $250 or .01%
Financial assurance: annual review	greater of $100 or .001%

[8-17-91, 12-1-95; 20.6.2.3114, Rn & A, 20 NMAC 6.2.III.3114, 01-01-01]

20.6.2.3115 - 20.6.2.3999: [RESERVED]
[12-1-95; 20.6.2.3115 - 20.6.2.3999 NMAC - Rn, 20 NMAC 6.2.III.3115-4100, 1-15-01]

20.6.2.4000 PREVENTION AND ABATEMENT OF WATER POLLUTION:
[12-1-95; 20.6.2.4000 NMAC - Rn, 20 NMAC 6.2.IV, 1-15-01]

20.6.2.4001 - 20.6.2.4100: [RESERVED]
[12-1-95; 20.6.2.4001 - 20.6.2.4100 NMAC - Rn, 20 NMAC 6.2.III.3115-4100, 1-15-01]

20.6.2.4101 PURPOSE:

A. The purposes of Sections 20.6.2.4000 through 20.6.2.4115 NMAC are to:

(1) Abate pollution of subsurface water so that all ground water of the State of New Mexico which has a background concentration of 10,000 mg/L or less TDS, is either remediated or protected for use as domestic and agricultural water supply, and to remediate or protect those segments of surface waters which are gaining because of subsurface-water inflow, for uses designated in the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC); and

(2) Abate surface-water pollution so that all surface waters of the State of New Mexico are remediated or protected for designated or attainable uses as defined in the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC).

B. If the background concentration of any water contaminant exceeds the standard or requirement of Subsections A, B and C of Section 20.6.2.4103 NMAC, pollution shall be abated by the responsible person to the background concentration.

C. The standards and requirements set forth in Section 20.6.2.4103 NMAC are not intended as maximum ranges and concentrations for use, and nothing herein contained shall be construed as limiting the use of waters containing higher ranges and concentrations.
[12-1-95; 20.6.2.4101 NMAC - Rn, 20 NMAC 6.2.IV.4101, 1-15-01]

20.6.2.4102: [RESERVED]
[12-1-95; 20.6.2.4102 NMAC - Rn, 20 NMAC 6.2.IV.4102, 1-15-01]

20.6.2.4103 ABATEMENT STANDARDS AND REQUIREMENTS:

A. The vadose zone shall be abated so that water contaminants in the vadose zone shall not be capable of contaminating ground water or surface water, in excess of the standards in Subsections B and C below, through leaching, percolation or as the water table elevation fluctuates.

B. Ground-water pollution at any place of withdrawal for present or reasonably foreseeable future use, where the TDS concentration is 10,000 mg/L or less, shall be abated to conform to the following standards:

(1) toxic pollutant(s) as defined in Section 20.6.2.1101 NMAC shall not be present; and

(2) the standards of Section 20.6.2.3103 NMAC shall be met.

C. Surface-water pollution shall be abated to conform to the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC).

D. Subsurface-water and surface-water abatement shall not be considered complete until a minimum of eight (8) consecutive quarterly samples from all compliance sampling stations approved by the secretary meet the abatement standards of Subsections A, B and C of this section. Abatement of water contaminants measured in solid-

matrix samples of the vadose zone shall be considered complete after one-time sampling from compliance stations approved by the secretary.

E. Technical Infeasibility.

(1) If any responsible person is unable to fully meet the abatement standards set forth in Subsections A and B of this section using commercially accepted abatement technology pursuant to an approved abatement plan, he may propose that abatement standards compliance is technically infeasible. Technical infeasibility proposals involving the use of experimental abatement technology shall be considered at the discretion of the secretary. Technical infeasibility may be demonstrated by a statistically valid extrapolation of the decrease in concentration(s) of any water contaminant(s) over the remainder of a twenty (20) year period, such that projected future reductions during that time would be less than 20 percent of the concentration(s) at the time technical infeasibility is proposed. A statistically valid decrease cannot be demonstrated by fewer than eight (8) consecutive quarters. The technical infeasibility proposal shall include a substitute abatement standard(s) for those contaminants that is/are technically feasible. Abatement standards for all other water contaminants not demonstrated to be technically infeasible shall be met.

(2) In no event shall a proposed technical infeasibility demonstration be approved by the secretary for any water contaminant if its concentration is greater than 200 percent of the abatement standard for that contaminant.

(3) If the secretary cannot approve any or all portions of a proposed technical infeasibility demonstration because the water contaminant concentration(s) is/are greater than 200 percent of the abatement standard(s) for each contaminant, the responsible person may further pursue the issue of technical infeasibility by filing a petition with the commission seeking:

(a) approval of alternate abatement standard(s) pursuant to Subsection F of this section; or

(b) granting of a variance pursuant to Section 20.6.2.1210 NMAC.

F. Alternative Abatement Standards.

(1) At any time during or after the submission of a Stage 2 abatement plan, the responsible person may file a petition seeking approval of alternative abatement standard(s) for the standards set forth in Subsections A and B of this section. The commission may approve alternative abatement standard(s) if the petitioner demonstrates that:

(a) compliance with the abatement standard(s) is/are not feasible, by the maximum use of technology within the economic capability of the responsible person; OR there is no reasonable relationship between the economic and social costs and benefits (including attainment of the standard(s) set forth in Section 20.6.2.4103 NMAC) to be obtained;

(b) the proposed alternative abatement standard(s) is/are technically achievable and cost-benefit justifiable; and

(c) compliance with the proposed alternative abatement standard(s) will not create a present or future hazard to public health or undue damage to property.

(2) The petition shall be in writing, filed with the secretary. The petition shall specify, in addition to the information required by Subsection A of Section 20.6.2.1210 NMAC, the water contaminant(s) for which alternative standard(s) is/are proposed, the alternative standard(s) proposed, the three-dimensional body of water pollution for which approval is sought, and the extent to which the abatement standard(s) set forth in Section 20.6.2.4103 NMAC is/are now, and will in the future be, violated. The petition may include a transport, fate and risk assessment in accordance with accepted methods, and other information as the petitioner deems necessary to support the petition.

(3) The commission shall review a petition for alternative abatement standards in accordance with the procedures for review of a variance petition provided in the commission's adjudicatory procedures, 20.1.3 NMAC. [12-1-95, 11-15-96; 20.6.2.4103 NMAC - Rn, 20 NMAC 6.2.IV.4103, 1-15-01]

20.6.2.4104 ABATEMENT PLAN REQUIRED:

A. Unless otherwise provided by this Part, all responsible persons who are abating, or who are required to abate, water pollution in excess of the standards and requirements set forth in Section 20.6.2.4103 NMAC of this Part shall do so pursuant to an abatement plan approved by the secretary. When an abatement plan has been approved, all actions leading to and including abatement shall be consistent with the terms and conditions of the abatement plan.

B. In the event of a transfer of the ownership, control or possession of a facility for which an abatement plan is required or approved, where the transferor is a responsible person, the transferee also shall be considered a responsible person for the duration of the abatement plan, and may jointly share the responsibility to

conduct the actions required by this Part with other responsible persons. The transferor shall notify the transferee in writing, at least thirty (30) days prior to the transfer, that an abatement plan has been required or approved for the facility, and shall deliver or send by certified mail to the secretary a copy of such notification together with a certificate or other proof that such notification has in fact been received by the transferee. The transferor and transferee may agree to a designated responsible person who shall assume the responsibility to conduct the actions required by this Part. The responsible persons shall notify the secretary in writing if a designated responsible person is agreed upon. If the secretary determines that the designated responsible person has failed to conduct the actions required by this Part, the secretary shall notify all responsible persons of this failure in writing and allow them thirty (30) days, or longer for good cause shown, to conduct the required actions before issuing a compliance order pursuant to Section 20.6.2.1220 NMAC.

C. If the source of the water pollution to be abated is a facility that operated under a discharge plan, the secretary may require the responsible person(s) to submit a financial assurance plan which covers the estimated costs to conduct the actions required by the abatement plan. Such a financial assurance plan shall be consistent with any financial assurance requirements adopted by the commission.

[12-1-95; 20.6.2.4104 NMAC - Rn, 20 NMAC 6.2.IV.4104, 1-15-01]

20.6.2.4105 EXEMPTIONS FROM ABATEMENT PLAN REQUIREMENTS:

A. Except as provided in Subsection B of this Section, Sections 20.6.2.4104 and 20.6.2.4106 NMAC do not apply to a person who is abating water pollution:

(1) from a storage tank, under the authority of the Petroleum Storage Tank Regulations (20.5 NMAC) adopted by the New Mexico Environmental Improvement Board, or in accordance with the New Mexico Ground Water Protection Act;

(2) under the authority of the U.S. Environmental Protection Agency pursuant to either the federal Comprehensive Environmental Response, Compensation and Liability Act, and amendments, or the Resource Conservation and Recovery Act;

(3) under the authority of the secretary pursuant to the Hazardous Waste Management Regulations (20.4.1 NMAC) adopted by the New Mexico Environmental Improvement Board;

(4) under the authority of the U.S. Nuclear Regulatory Commission or the U.S. Department of Energy pursuant to the Atomic Energy Act;

(5) from a solid waste landfill, under the authority of the secretary pursuant to the Solid Waste Management Regulations (20.9.1 NMAC) adopted by the N.M. Environmental Improvement Board;

(6) under the authority of a ground-water discharge plan approved by the secretary, provided that such abatement is consistent with the requirements and provisions of Sections 20.6.2.4101, 20.6.2.4103, Subsections C and E of Section 20.6.2.4106, Sections 20.6.2.4107 and 20.6.2.4112 NMAC;

(7) under the authority of a Letter of Understanding, Settlement Agreement or Administrative Order on Consent signed by the secretary prior to December 1, 1995, provided that abatement is being performed in full compliance with the terms of the Letter of Understanding, Settlement Agreement or Administrative Order on Consent; and

(8) on an emergency basis, or while abatement plan approval is pending, or in a manner that will result in compliance with the standards and requirements set forth in Section 20.6.2.4103 NMAC within one hundred and eighty (180) days after notice is required to be given pursuant to Paragraph (1) of Subsection A of Section 20.6.2.1203 NMAC, provided that the delegated agency does not object to the abatement action pursuant to Paragraphs (6) and (7) of Subsection A of Section 20.6.2.1203 NMAC.

B. If the secretary determines that abatement of water pollution subject to Subsection A of this section will not meet the standards of Subsections B and C of Section 20.6.2.4103 NMAC, or that additional action is necessary to protect health, welfare, environment or property, the secretary may notify a responsible person, by certified mail, to submit an abatement plan pursuant to Section 20.6.2.4104 and Subsection A of Section 20.6.2.4106 NMAC. The notification shall state the reasons for the secretary's determination. In any appeal of the secretary's determination under this Section, the secretary shall have the burden of proof.

C. Sections 20.6.2.4104 and 20.6.2.4106 NMAC do not apply to the following activities:

(1) Discharges subject to an effective and enforceable National Pollutant Discharge Elimination System (NPDES) permit;

(2) Land application of ground water contaminated with nitrogen originating from human or animal waste and not otherwise exceeding the standards of Subsection A of Section 20.6.2.3103 NMAC and not containing a toxic pollutant as defined in Section 20.6.2.1101 NMAC, provided that it is done in compliance with a discharge plan approved by the secretary;

(3) Abatement of water pollution resulting from the withdrawal and decontamination or blending of polluted water for use as a public or private drinking-water supply, by any person other than a responsible person, unless the secretary determines that a hazard to public health may result; and

(4) Reasonable operation and maintenance of irrigation and flood control facilities.

[12-1-95; 20.6.2.4105 NMAC - Rn, 20 NMAC 6.2.IV.4105, 1-15-01; A, 10/15/03]

20.6.2.4106 ABATEMENT PLAN PROPOSAL:

A. Except as provided for in Section 20.6.2.4105 NMAC, a responsible person shall, within sixty (60) days of receipt of written notice from the secretary that an abatement plan is required, submit an abatement plan proposal to the secretary for approval. For good cause shown, the secretary may allow for a total of one hundred and twenty (120) days to prepare and submit the abatement plan proposal.

B. Voluntary Abatement:

(1) Any person wishing to abate water pollution in excess of the standards and requirements set forth in Section 20.6.2.4103 NMAC may submit a Stage 1 abatement plan proposal to the secretary for approval. Following approval by the secretary of a final site investigation report prepared pursuant to Stage 1 of an abatement plan, any person may submit a Stage 2 abatement plan proposal to the secretary for approval.

(2) Following approval of a Stage 1 or Stage 2 abatement plan proposal under Paragraph (1) of Subsection B of this Section, the person submitting the approved plan shall be a responsible person under Sections 20.6.2.4000 through 20.6.2.4115 NMAC for the purpose of performing the approved Stage 1 or Stage 2 abatement plan. Nothing in this Section shall preclude the secretary from applying Paragraph (9) of Subsection A of Section 20.6.2.1203 NMAC to a responsible person if applicable.

C. Stage 1 Abatement Plan: The purpose of Stage 1 of the abatement plan shall be to design and conduct a site investigation that will adequately define site conditions, and provide the data necessary to select and design an effective abatement option. Stage 1 of the abatement plan may include, but not necessarily be limited to, the following information depending on the media affected, and as needed to select and implement an expeditious abatement option:

(1) Descriptions of the site, including a site map, and of site history including the nature of the discharge that caused the water pollution, and a summary of previous investigations;

(2) Site investigation workplan to define:

(a) site geology and hydrogeology, the vertical and horizontal extent and magnitude of vadose-zone and ground-water contamination, subsurface hydraulic parameters including hydraulic conductivity, transmissivity, storativity, and rate and direction of contaminant migration, inventory of water wells inside and within one (1) mile from the perimeter of the three-dimensional body where the standards set forth in Subsection B of Section 20.6.2.4103 NMAC are exceeded, and location and number of such wells actually or potentially affected by the pollution; and

(b) surface-water hydrology, seasonal stream flow characteristics, ground-water/surface-water relationships, the vertical and horizontal extent and magnitude of contamination and impacts to surface water and stream sediments. The magnitude of contamination and impacts on surface water may be, in part, defined by conducting a biological assessment of fish, benthic macroinvertebrates and other wildlife populations. Seasonal variations should be accounted for when conducting these assessments.

(3) Monitoring program, including sampling stations and frequencies, for the duration of the abatement plan that may be modified, after approval by the secretary, as additional sampling stations are created;

(4) Quality assurance plan, consistent with the sampling and analytical techniques listed in Subsection B of Section 20.6.2.3107 NMAC and with Section 20.6.4.10 NMAC of the Water Quality Standards for Interstate and Intrastate Streams in New Mexico (20.6.4 NMAC), for all work to be conducted pursuant to the abatement plan;

(5) Site health and safety plan for all work to be performed pursuant to the abatement plan;

(6) A schedule for all Stage 1 abatement plan activities, including the submission of summary quarterly progress reports, and the submission, for approval by the secretary, of a detailed final site investigation report; and

(7) Any additional information that may be required to design and perform an adequate site investigation.

D. Stage 2 Abatement Plan: Any responsible person shall submit a Stage 2 abatement plan proposal to the secretary for approval within sixty (60) days, or up to one hundred and twenty (120) days for good cause shown, after approval by the secretary of the final site investigation report prepared pursuant to Stage 1 of the abatement plan.

E. The purpose of Stage 2 of the abatement plan shall be to select and design, if necessary, an abatement option that, when implemented, will result in attainment of the abatement standards and requirements set forth in Section 20.6.2.4103 NMAC, including post-closure maintenance activities. Stage 2 of the abatement plan should include, at a minimum, the following information:

(1) Brief description of the current situation at the site;

(2) Development and assessment of abatement options;

(3) Description, justification and design, if necessary, of preferred abatement option;

(4) Modification, if necessary, of the monitoring program approved pursuant to Stage 1 of the abatement plan, including the designation of pre and post abatement-completion sampling stations and sampling frequencies to be used to demonstrate compliance with the standards and requirements set forth in Section 20.6.2.4103 NMAC;

(5) Site maintenance activities, if needed, proposed to be performed after termination of abatement activities;

(6) A schedule for the duration of abatement activities, including the submission of summary quarterly progress reports;

(7) A public notification proposal designed to satisfy the requirements of Subsections B and C of Sections 20.6.2.4108 and 20.6.2.4108 NMAC; and

(8) Any additional information that may be reasonably required to select, describe, justify and design an effective abatement option.

[12-1-95; 20.6.2.4106 NMAC - Rn, 20 NMAC 6.2.IV.4106, 1-15-01]

20.6.2.4107 OTHER REQUIREMENTS:

A. Any responsible person shall allow any authorized representative of the secretary to:

(1) upon presentation of proper credentials, enter the facility at reasonable times;

(2) inspect and copy records required by an abatement plan;

(3) inspect any treatment works, monitoring and analytical equipment;

(4) sample any wastes, ground water, surface water, stream sediment, plants, animals, or vadose-zone material including vadose-zone vapor;

(5) use monitoring systems and wells under such responsible person's control in order to collect samples of any media listed in Paragraph (4) of Subsection A of this section; and

(6) gain access to off-site property not owned or controlled by such responsible person, but accessible to such responsible person through a third-party access agreement, provided that it is allowed by the agreement.

B. Any responsible person shall provide the secretary, or a representative of the secretary, with at least four (4) working days advance notice of any sampling to be performed pursuant to an abatement plan, or any well plugging, abandonment or destruction at any facility where an abatement plan has been required.

C. Any responsible person wishing to plug, abandon or destroy a monitoring or water supply well within the perimeter of the 3-dimensional body where the standards set forth in Subsection B of Section 20.6.2.4103 NMAC are exceeded, at any facility where an abatement plan has been required, shall propose such action by certified mail to the secretary for approval, unless such approval is required from the State Engineer. The proposed action shall be designed to prevent water pollution that could result from water contaminants migrating through the well or borehole. The proposed action shall not take place without written approval from the secretary, unless written approval or disapproval is not received by the responsible person within thirty (30) days of the date of receipt of the proposal.

[12-1-95; 20.6.2.4107 NMAC - Rn, 20 NMAC 6.2.IV.4107, 1-15-01]

20.6.2.4108 PUBLIC NOTICE AND PARTICIPATION:

A. Within thirty (30) days of filing of a Stage 1 abatement plan proposal, the secretary shall issue a news release summarizing:

(1) the source, extent, magnitude and significance of water pollution, as known at that time;

(2) the proposed Stage 1 abatement plan investigation; and

(3) the name and telephone number of an agency contact who can provide additional information.

B. Within thirty (30) days of filing of a Stage 2 abatement plan proposal, or proposed significant modification of Stage 2 of the abatement plan, any responsible person shall provide to the secretary proof of public notice of the abatement plan to the following persons:

(1) the public, who shall be notified through publication of a notice in newspapers of general circulation in this state and in the county where the abatement will occur and, in areas with large percentages of non-

English speaking people, through the mailing of the public notice in English to a bilingual radio station serving the area where the abatement will occur with a request that it be aired as a public service announcement in the predominant non-English language of the area;

(2) those persons, as identified by the secretary, who have requested notification, who shall be notified by mail;

(3) the New Mexico Trustee for Natural Resources, and any other local, state or federal governmental agency affected, as identified by the secretary, which shall be notified by certified mail;

(4) owners and residents of surface property located inside, and within one (1) mile from, the perimeter of the geographic area where the standards and requirements set forth in Section 20.6.2.4103 NMAC are exceeded who shall be notified by a means approved by the secretary; and

(5) the Governor or President of each Indian Tribe, Pueblo or Nation within the state of New Mexico, as identified by the secretary, who shall be notified by mail.

C. The public notice shall include, as approved in advance by the secretary:

(1) name and address of the responsible person;

(2) location of the proposed abatement;

(3) brief description of the nature of the water pollution and of the proposed abatement action;

. (4) brief description of the procedures followed by the secretary in making a final determination;

(5) statement on the comment period;

(6) statement that a copy of the abatement plan can be viewed by the public at the department's main office or at the department field office for the area in which the discharge occurred;

(7) statement that written comments on the abatement plan, and requests for a public meeting or hearing that include the reasons why a meeting or hearing should be held, will be accepted for consideration if sent to the secretary within sixty (60) days after the determination of administrative completeness; and

(8) address and phone number at which interested persons may obtain further information.

D. A public meeting or hearing may be held if the secretary determines there is significant public interest. Notice of the time and place of the meeting or hearing shall be given at least thirty (30) days prior to the meeting or hearing pursuant to Subsections A and B above. The secretary may appoint a meeting facilitator or hearing officer. The secretary may require the responsible person to prepare for approval by the secretary a fact sheet, to be distributed at the public meeting or hearing and afterwards upon request, written in English and Spanish, describing site history, the nature and extent of water pollution, and the proposed abatement. The record of the meeting or hearing, requested under this Section, consists of a tape recorded or transcribed session, provided that the cost of a court recorder shall be paid by the person requesting the transcript. If requested by the secretary, the responsible person will provide a translator approved by the secretary at a public meeting or hearing conducted in a locale where testimony from non-English speaking people can reasonably be expected. At the meeting or hearing, all interested persons shall be given a reasonable chance to submit data, views or arguments orally or in writing, and to ask questions of the secretary or the secretary's designee and of the responsible person, or their authorized representatives.

[12-1-95; 20.6.2.4108 NMAC - Rn, 20 NMAC 6.2.IV.4108, 1-15-01]

20.6.2.4109 SECRETARY APPROVAL OR NOTICE OF DEFICIENCY OF SUBMITTALS:

A. The secretary shall, within sixty (60) days of receiving a Stage 1 abatement plan proposal, a site investigation report, a technical infeasibility demonstration, or an abatement completion report, approve the document, or notify the responsible person of the document's deficiency, based upon the information available.

B. The secretary shall, within thirty (30) days of receiving a fact sheet, approve or notify the responsible person of the document's deficiency, based upon the information available.

C. If no public meeting or hearing is held pursuant to Subsection D of Section 20.6.2.4108 NMAC, then the secretary shall, within ninety (90) days of receiving a Stage 2 abatement plan proposal, approve the plan, or notify the responsible person of the plan's deficiency, based upon the information available.

D. If a public meeting or hearing is held pursuant to Subsection D of Section 20.6.2.4108, then the secretary shall, within sixty (60) days of receipt of all required information, approve Stage 2 of the abatement plan proposal, or notify the responsible person of the plan's deficiency, based upon the information contained in the plan and information submitted at the meeting or hearing.

E. If the secretary notifies a responsible person of any deficiencies in a site investigation report, or in a Stage 1 or Stage 2 abatement plan proposal, the responsible person shall submit a modified document to cure the deficiencies specified by the secretary within thirty (30) days of receipt of the notice of deficiency. The responsible person shall be in violation of Sections 20.6.2.4000 through 20.6.2.4115 NMAC if he fails to submit a modified

document within the required time, or if the modified document does not make a good faith effort to cure the deficiencies specified by the secretary.

F. Provided that the other requirements of this Part are met and provided further that Stage 2 of the abatement plan, if implemented, will result in the standards and requirements set forth in Section 20.6.2.4103 NMAC being met within a schedule that is reasonable given the particular circumstances of the site, the secretary shall approve the plan.

[12-1-95; 20.6.2.4109 NMAC - Rn, 20 NMAC 6.2.IV.4109, 1-15-01]

20.6.2.4110 INVESTIGATION AND ABATEMENT: Any responsible person who receives approval for Stage 1 and/or Stage 2 of an abatement plan shall conduct all investigation, abatement, monitoring and reporting activity in full compliance with Sections 20.6.2.4000 through 20.6.2.4115 NMAC and according to the terms and schedules contained in the approved abatement plans.

[12-1-95; 20.6.2.4110 NMAC - Rn, 20 NMAC 6.2.IV.4110, 1-15-01]

20.6.2.4111 ABATEMENT PLAN MODIFICATION:

A. Any approved abatement plan may be modified, at the written request of the responsible person, in accordance with Sections 20.6.2.4000 through 20.6.2.4115 NMAC, and with written approval of the secretary.

B. If data submitted pursuant to any monitoring requirements specified in the approved abatement plan or other information available to the secretary indicates that the abatement action is ineffective, or is creating unreasonable injury to or interference with health, welfare, environment or property, the secretary may require a responsible person to modify an abatement plan within the shortest reasonable time so as to effectively abate water pollution which exceeds the standards and requirements set forth in Section 20.6.2.4103 NMAC, and to abate and prevent unreasonable injury to or interference with health, welfare, environment or property.

[12-1-95; 20.6.2.4111 NMAC - Rn, 20 NMAC 6.2.IV.4111, 1-15-01]

20.6.2.4112 COMPLETION AND TERMINATION:

A. Abatement shall be considered complete when the standards and requirements set forth in Section 20.6.2.4103 NMAC are met. At that time, the responsible person shall submit an abatement completion report, documenting compliance with the standards and requirements set forth in Section 20.6.2.4103 NMAC, to the secretary for approval. The abatement completion report also shall propose any changes to long term monitoring and site maintenance activities, if needed, to be performed after termination of the abatement plan.

B. Provided that the other requirements of this Part are met and provided further that the standards and requirements set forth in Section 20.6.2.4103 NMAC have been met, the secretary shall approve the abatement completion report. When the secretary approves the abatement completion report, he shall also notify the responsible person in writing that the abatement plan is terminated.

[12-1-95; 20.6.2.4112 NMAC - Rn, 20 NMAC 6.2.IV.4112, 1-15-01]

20.6.2.4113 DISPUTE RESOLUTION: In the event of any technical dispute regarding the requirements of Paragraph (9) of Subsection A and Subsection E of Section 20.6.2.1203, Sections 20.6.2.4103, 20.6.2.4105, 20.6.2.4106, 20.6.2.4111 or 20.6.2.4112 NMAC, including notices of deficiency, the responsible person may notify the secretary by certified mail that a dispute has arisen, and desires to invoke the dispute resolution provisions of this Section, provided that such notification must be made within thirty (30) days after receipt by the responsible person of the decision of the secretary that causes the dispute. Upon such notification, all deadlines affected by the technical dispute shall be extended for a thirty (30) day negotiation period, or for a maximum of sixty (60) days if approved by the secretary for good cause shown. During this negotiation period, the secretary or his/her designee and the responsible person shall meet at least once. Such meeting(s) may be facilitated by a mutually agreed upon third party, but the third party shall assume no power or authority granted or delegated to the secretary by the Water Quality Act or by the commission. If the dispute remains unresolved after the negotiation period, the decision of secretary shall be final.

[12-1-95; 20.6.2.4113 NMAC - Rn, 20 NMAC 6.2.IV.4113, 1-15-01]

20.6.2.4114 APPEALS FROM SECRETARY'S DECISIONS:

A. If the secretary determines that an abatement plan is required pursuant to Paragraph (9) of Subsection A of Section 20.6.2.1203, Paragraph (4) of Subsection E of Section 20.6.2.3109, or Subsection B of Section 20.6.2.4105 NMAC, approves or provides notice of deficiency of a proposed abatement plan, technical infeasibility demonstration or abatement completion report, or modifies or terminates an approved abatement plan,

he shall provide written notice of such action by certified mail to the responsible person and any person who participated in the action.

B. Any person who participated in the action before the secretary and who is adversely affected by the action listed in Subsection A of this section may file a petition requesting a hearing before the commission.

C. The petition shall be made in writing to the commission and shall be filed with the commission's secretary within thirty (30) days after receiving notice of the secretary's action. The petition shall specify the portions of the action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered to the secretary, and to the applicant or permittee if the petitioner is not the applicant or permittee, and attach a copy of the action for which review is sought. Unless a timely petition for hearing is made, the secretary's action is final.

D. The proceedings before the commission shall be conducted as provided in the commission's adjudicatory procedures, 20 NMAC 1.3.

E. The cost of the court reporter for the hearing shall be paid by the petitioner.

F. The appeal provisions do not relieve the owner, operator or responsible person of their obligations to comply with any federal or state laws or regulations.

[12-1-95, 11-15-96; 20.6.2.4114 NMAC - Rn, 20 NMAC 6.2.IV.4114, 1-15-01]

20.6.2.4115 COURT REVIEW OF COMMISSION DECISIONS: Court review of commission decisions shall be as provided by law.

[12-1-95; 20.6.2.4115 NMAC - Rn, 20 NMAC 6.2.IV.4115, 1-15-01]

20.6.2.4116 - 20.6.2.4999: [RESERVED]

[12-1-95; 20.6.2.4116 - 20.6.2.4999 NMAC - Rn, 20 NMAC 6.2.IV.4116-5100, 1-15-01]

20.6.2.5000 UNDERGROUND INJECTION CONTROL:

[12-1-95; 20.6.2.5000 NMAC - Rn, 20 NMAC 6.2.V, 1-15-01]

20.6.2.5001 PURPOSE: The purpose of Sections 20.6.2.5000 through 20.6.2.5299 NMAC controlling discharges from underground injection control wells is to protect all ground water of the State of New Mexico which has an existing concentration of 10,000 mg/l or less TDS, for present and potential future use as domestic and agricultural water supply, and to protect those segments of surface waters which are gaining because of ground water inflow for uses designated in the New Mexico Water Quality Standards. Sections 20.6.2.5000 through 20.6.2.5299 NMAC include notification requirements, and requirements for discharges directly into the subsurface through underground injection control wells.

[20.6.2.5001 NMAC - N, 12-1-01]

20.6.2.5002 UNDERGROUND INJECTION CONTROL WELL CLASSIFICATIONS:

A. Underground injection control wells include the following.

(1) Any dug hole or well that is deeper than its largest surface dimension, where the principal function of the hole is emplacement of fluids.

(2) Any septic tank or cesspool used by generators of hazardous waste, or by owners or operators of hazardous waste management facilities, to dispose of fluids containing hazardous waste.

(3) Any subsurface distribution system, cesspool or other well which is used for the injection of wastes.

B. Underground injection control wells are classified as follows:

(1) Class I wells inject fluids beneath the lowermost formation that contains 10,000 milligrams per liter or less TDS. Class I hazardous or radioactive waste injection wells inject fluids containing any hazardous or radioactive waste as defined in 74-4-3 and 74-4A-4 NMSA 1978, including any combination of these wastes. Class I non-hazardous waste injection wells inject non-hazardous and non-radioactive fluids, and they inject naturally-occurring radioactive material (NORM) as provided by Section 20.3.1.1407 NMAC.

(2) Class II wells inject fluids associated with oil and gas recovery.

(3) Class III wells inject fluids for extraction of minerals or other natural resources, including sulfur, uranium, metals, salts or potash by in situ extraction. This classification includes only in situ production from ore bodies that have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.

(4) Class IV wells inject fluids containing any radioactive or hazardous waste as defined in 74-4-3 and 74-4A-4 NMSA 1978, including any combination of these wastes, above or into a formation that contains 10,000 mg/l or less TDS.

(5) Class V wells inject a variety of fluids and are those wells not included in Class I, II, III or IV. Types of Class V wells include, but are not limited to, the following:

(a) Domestic liquid waste injection wells

(i) domestic liquid waste disposal wells used to inject greater than 2,000 gallons per day of treated domestic liquid waste through subsurface fluid distribution systems or vertical wells;

(ii) septic system wells used to emplace greater than 2,000 gallons per day of domestic liquid waste into the subsurface, which are comprised of a septic tank and subsurface fluid distribution system;

(iii) large capacity cesspools used to inject greater than 2,000 gallons per day of domestic liquid waste, including drywells that sometimes have an open bottom and/or perforated sides.

(b) Industrial waste injection wells

(i) air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling;

(ii) dry wells used for the injection of wastes into a subsurface formation;

(iii) geothermal energy injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electrical power;

(iv) stormwater drainage wells used to inject storm runoff from the surface into the subsurface;

(v) motor vehicle waste disposal wells that receive or have received fluids from vehicular repair or maintenance activities;

(vi) car wash waste disposal wells used to inject fluids from motor vehicle washing activities.

(c) Mining injection wells

(i) stopes leaching wells used for solution mining of conventional mines;

(ii) brine injection wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts;

(iii) backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether water injected is a radioactive waste or not;

(iv) injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale.

(d) Ground water management injection wells

(i) ground water remediation injection wells used to inject contaminated ground water that has been treated to ground water quality standards;

(ii) in situ ground water remediation wells used to inject a fluid that facilitates vadose zone or ground water remediation.

(iii) recharge wells used to replenish the water in an aquifer, including use to reclaim or improve the quality of existing ground water;

(iv) barrier wells used to inject fluids into ground water to prevent the intrusion of saline or contaminated water into ground water of better quality;

(v) subsidence control wells (not used for purposes of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water;

(vi) wells used in experimental technologies.

(e) Agricultural injection wells - drainage wells used to inject fluids into ground water to prevent the intrusion of saline or contaminated water into ground water of better quality.

[20.6.2.5002 NMAC - N, 12-1-01]

20.6.2.5003 NOTIFICATION AND GENERAL OPERATION REQUIREMENTS FOR ALL UNDERGROUND INJECTION CONTROL WELLS: All operators of underground injection control wells, except those wells regulated under the Oil and Gas Act, the Geothermal Resources Conservation Act, and the Surface Mining Act, shall:

A. For existing underground injection control wells, submit to the secretary the information enumerated in Subsection C of Section 20.6.2.1201 NMAC of this Part; provided, however, that if the information in Subsection C of Section 20.6.2.1201 NMAC has been previously submitted to the secretary and acknowledged by him, the information need not be resubmitted; and

B. Operate and continue to operate in conformance with Sections 20.6.2.1 through 20.6.2.5299 NMAC.

C. For new underground injection control wells, submit to the secretary the information enumerated in Subsection C of Section 20.6.2.1201 NMAC of this Part at least 120 days prior to well construction.
[9-20-82, 12-1-95; 20.6.2.5300 NMAC - Rn, 20 NMAC 6.2.V.5300, 1-15-01; 20.6.2.5003 NMAC - Rn, 20.6.2.5300 NMAC, 12-1-01; A, 12-1-01; A, 9-15-02]

20.6.2.5004 PROHIBITED UNDERGROUND INJECTION CONTROL ACTIVITIES AND WELLS:

A. No person shall perform the following underground injection activities nor operate the following underground injection control wells:

(1) The injection of fluids into a motor vehicle waste disposal well is prohibited. Motor vehicle waste disposal wells are prohibited. Any person operating a new motor vehicle waste disposal well (for which construction began after April 5, 2000) must close the well immediately. Any person operating an existing motor vehicle waste disposal well must cease injection immediately and must close the well by December 31, 2002, except as provided in this Subsection.

(2) The injection of fluids into a large capacity cesspool is prohibited. Large capacity cesspools are prohibited. Any person operating a new large capacity cesspool (for which construction began after April 5, 2000) must close the cesspool immediately. Any person operating an existing large capacity cesspool must cease injection immediately and must close the cesspool by December 31, 2002.

(3) The injection of any hazardous or radioactive waste into a well is prohibited, except as provided in this Subsection.

(a) Class I hazardous or radioactive waste injection wells are prohibited, except naturally-occurring radioactive material (NORM) regulated under Section 20.3.1.1407 NMAC is allowed as a Class I non-hazardous waste injection well pursuant to Subsection B (1) of Section 20.6.2.5002 NMAC;

(b) Class IV wells are prohibited, except for wells re-injecting treated ground water into the same formation from which it was drawn as part of a removal or remedial action if the injection has prior approval from the Environmental Protection Agency (EPA) or the department under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or the Resource Conservation and Recovery Act (RCRA).

(4) Barrier wells, drainage wells, recharge wells, return flow wells, and motor vehicle waste disposal wells are prohibited, except when the discharger can demonstrate that the discharge will not adversely affect the health of persons, and

(a) the injection fluid does not contain a contaminant which may cause an exceedance at any place of present or reasonable foreseeable future use of any primary state drinking water maximum contaminant level as specified in the water supply regulations, "Drinking Water" (20 NMAC 7.1) [20.7.10 NMAC], adopted by the Environmental Improvement Board under the Environmental Improvement Act or the standard of Section 20.6.2.3103 NMAC, whichever is more stringent;

(b) the discharger can demonstrate that the injection will result in an overall or net improvement in water quality as determined by the secretary.

B. Closure of prohibited underground injection control wells shall be in accordance with Section 20.6.2.5005 NMAC and Section 20.6.2.5209 NMAC.
[20.6.2.5004 NMAC - N, 12-1-01]

20.6.2.5005 PRE-CLOSURE NOTIFICATION AND CLOSURE REQUIREMENTS:

A. Any person proposing to close a Class I, III, IV or V underground injection control well must submit pre-closure notification to the department at least 30 days prior to closure. Pre-closure notification must include the following information:

(1) Name of facility
(2) Address of facility
(3) Name of Owner/Operator
(4) Address of Owner/Operator
(5) Contact Person
(6) Phone Number
(7) Type of Well(s)
(8) Number of Well(s)
(9) Well Construction (e.g. drywell, improved sinkhole, septic tank, leachfield, cesspool, other…)
(10) Type of Discharge

(11) Average Flow (gallons per day)
(12) Year of Well Construction
(13) Proposed Well Closure Activities (e.g. sample fluids/sediment, appropriate disposal of remaining fluids/sediments, remove well and any contaminated soil, clean out well, install permanent plug, conversion to other type well, ground water and vadose zone investigation, other)
(14) Proposed Date of Well Closure
(15) Name of Preparer
(16) Date

B. Proposed well closure activities must be approved by the department prior to implementation.
[20.6.2.5005 NMAC - N, 12-1-01]

20.6.2.5006 DISCHARGE PERMIT REQUIREMENTS FOR CLASS V INJECTION WELLS
Class V injection wells must meet the requirements of Sections 20.6.2.3000 through 20.6.2.3999 NMAC and Sections 20.6.2.5000 through 20.6.2.5006 NMAC.
[20.6.2.5006 NMAC - N, 12-1-01]

20.6.2.5007 - 20.6.2.5100: [RESERVED]
[12-1-95; 20.6.2.5001 - 20.6.2.5100 NMAC - Rn, 20 NMAC 6.2.IV.4116-5100, 1-15-01; 20.6.2.5007 -20.6.2.5100 NMAC - Rn 20.6.2.5001 - 20.6.2.5100 NMAC, 12-1-01]

20.6.2.5101 DISCHARGE PERMIT AND OTHER REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Class I non-hazardous waste injection wells and Class III wells must meet the requirements of Sections 20.6.2.5000 through 20.6.2.5299 NMAC in addition to other applicable requirements of the commission regulations. The secretary may also require that some Class IV and Class V wells comply with the requirements for Class I non-hazardous waste injection wells in Sections 20.6.2.5000 through 20.6.2.5299 NMAC if the secretary determines that the additional requirements are necessary to prevent the movement of water contaminants from a specified injection zone into ground water having 10,000 mg/l or less TDS. No Class I non-hazardous waste injection well or Class III well may be approved which allows for movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC, or pursuant to a temporary designation as provided in Paragraph (2) of Subsection C of Section 20.6.2.5101 NMAC.

B. Operation of a Class I non-hazardous waste injection well or Class III well must be pursuant to a discharge permit meeting the requirements of Sections 20.6.2.3000 through 20.6.2.3999 NMAC and Sections 20.6.2.5000 through 20.6.2.5299 NMAC.

C. Discharge permits for Class I non-hazardous waste injection wells, or Class III wells affecting ground water of 10,000 mg/l or less TDS submitted for secretary approval shall:

(1) Receive an aquifer designation if required in Section 20.6.2.5103 NMAC prior to discharge permit issuance; or

(2) For Class III wells only, address the methods or techniques to be used to restore ground water so that upon final termination of operations including restoration efforts, ground water at any place of withdrawal for present or reasonably foreseeable future use will not contain either concentrations in excess of the standards of Section 20.6.2.3103 NMAC or any toxic pollutant. Issuance of a discharge permit or project discharge permit for Class III wells that provides for restoration of ground water in accordance with the requirements of this Subsection shall substitute for the aquifer designation provisions of Section 20.6.2.5103 NMAC. The approval shall constitute a temporary aquifer designation for a mineral bearing or producing aquifer, or portion thereof, to allow injection as provided for in the discharge permit. Such temporary designation shall expire upon final termination of operations including restoration efforts.

D. The exemptions from the discharge permit requirement listed in Section 20.6.2.3105 NMAC do not apply to underground injection control wells except as provided below:

(1) Wells regulated by the Oil Conservation Division under the exclusive authority granted under Section 70-2-12 NMSA 1978 or under other Sections of the "Oil and Gas Act";

(2) Wells regulated by the Oil Conservation Division under the "Geothermal Resources Act";

(3) Wells regulated by the New Mexico Coal Surface Mining Bureau under the "Surface Mining Act";

(4) Wells for the disposal of effluent from systems which receive less than 2,000 gallons per day of domestic sewage effluent and are regulated under the "Liquid Waste Disposal Regulations" (20 NMAC 7.3) [20.7.3 NMAC] adopted by the Environmental Improvement Board under the "Environmental Improvement Act".

E. Project permits for Class III wells.

(1) The secretary may consider a project discharge permit for Class III wells, if the wells are:

(a) Within the same well field, facility site or similar unit,

(b) Within the same aquifer and ore deposit,

(c) Of similar construction,

(d) Of the same purpose, and

(e) Operated by a single owner or operator.

(2) A project discharge permit does not allow the discharger to commence injection in any individual operational area until the secretary approves an application for injection in that operational area (operational area approval).

(3) A project discharge permit shall:

(a) Specify the approximate locations and number of wells for which operational area approvals are or will be sought with approximate time frames for operation and restoration (if restoration is required) of each area; and

(b) Provide the information required under the following Sections of this Part, except for such additional site-specific information as needed to evaluate applications for individual operational area approvals: Subsection C of Section 20.6.2.3106, Sections 20.6.2.3107, 20.6.2.5204 through 20.6.2.5209, and Subsection B of Section 20.6.2.5210 NMAC.

(4) Applications for individual operational area approval shall include the following:

(a) Site-specific information demonstrating that the requirements of this Part are met, and

(b) Information required under Sections 20.6.2.5202 through 20.6.2.5210 NMAC and not previously provided pursuant to Subparagraph (b) of Paragraph (3) of Subsection E of this Section.

(5) Applications for project discharge permits and for operational area approval shall be processed in accordance with the same procedures provided for discharge permits under Sections 20.6.2.3000 through 20.6.2.3114 NMAC, allowing for public notice on the project discharge permit and on each application for operational area approval pursuant to Section 20.6.2.3108 NMAC with opportunity for public hearing prior to approval or disapproval.

(6) The discharger shall comply with additional requirements that may be imposed by the secretary pursuant to this Part on wells in each new operational area.

F. If the holder of a discharge permit for a Class I non-hazardous waste injection well, or Class III well submits an application for discharge permit renewal at least 120 days before discharge permit expiration, and the discharger is in compliance with his discharge permit on the date of its expiration, then the existing discharge permit for the same activity shall not expire until the application for renewal has been approved or disapproved. An application for discharge permit renewal must include and adequately address all of the information necessary for evaluation of a new discharge permit. Previously submitted materials may be included by reference provided they are current, readily available to the secretary and sufficiently identified to be retrieved.

G. Discharge Permit Signatory Requirements: No discharge permit for a Class I non-hazardous waste injection well or Class III well may be issued unless:

(1) The application for a discharge permit has been signed as follows:

(a) For a corporation: by a principal executive officer of at least the level of vice-president, or a representative who performs similar policy-making functions for the corporation who has authority to sign for the corporation; or

(b) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(c) For a municipality, state, federal, or other public agency: by either a principal executive officer who has authority to sign for the agency, or a ranking elected official; and

(2) The signature is directly preceded by the following certification: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

H. Transfer of Class I non-hazardous waste injection well and Class III well Discharge Permits.

(1) The transfer provisions of Section 20.6.2.3111 NMAC do not apply to a discharge permit for a Class I non-hazardous waste injection well or Class III well.

(2) A Class I non-hazardous waste injection well or Class III well discharge permit may be transferred if:

(a) The secretary receives written notice 30 days prior to the transfer date; and

(b) The secretary does not object prior to the proposed transfer date. The secretary may require modification of the discharge permit as a condition of transfer, and may require demonstration of adequate financial responsibility.

(3) The written notice required by Subparagraph (b) of Paragraph (2) of Subsection I above shall:

(a) Have been signed by the discharger and the succeeding discharger, including an acknowledgement that the succeeding discharger shall be responsible for compliance with the discharge permit upon taking possession of the facility; and

(b) Set a specific date for transfer of discharge permit responsibility, coverage and liability; and

(c) Include information relating to the succeeding discharger's financial responsibility required by Paragraph (17) of Subsection B of Section 20.6.2.5210 NMAC.

I. Modification or Termination of a Discharge Permit for a Class I non-hazardous waste injection well or Class III well: If data submitted pursuant to any monitoring requirements specified in the discharge permit or other information available to the secretary indicate that this Part are being or may be violated, the secretary may require modification or, if it is determined by the secretary that the modification may not be adequate, may terminate a discharge permit for a Class I non-hazardous waste injection Well, or Class III well or well field, that was approved pursuant to the requirements of this under Sections 20.6.2.5000 through 20.6.2.5299 NMAC for the following causes:

(1) Noncompliance by the discharger with any condition of the discharge permit; or

(2) The discharger's failure in the discharge permit application or during the discharge permit review process to disclose fully all relevant facts, or the discharger's misrepresentation of any relevant facts at any time; or

(3) A determination that the permitted activity may cause a hazard to public health or undue risk to property and can only be regulated to acceptable levels by discharge permit modification or termination.

[9-20-82, 12-1-95, 11-15-96; 20.6.2.5101 NMAC - Rn, 20 NMAC 6.2.V.5101, 1-15-01; A, 12-1-01; A, 9-15-02]

20.6.2.5102 PRE-CONSTRUCTION REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Discharge Permit Requirement for Class I non-hazardous waste injection wells.

(1) Prior to construction of a Class I non-hazardous waste injection well or conversion of an existing well to a Class I non-hazardous waste injection well, an approved discharge permit is required that incorporates the requirements of Sections 20.6.2.5000 through 20.6.2.5299 NMAC, except Subsection C of Section 20.6.2.5210 NMAC. As a condition of discharge permit issuance, the operation of the Class I non-hazardous waste injection well under the discharge permit will not be authorized until the secretary has:

(a) Reviewed the information submitted for his consideration pursuant to Subsection C of Section 20.6.2.5210 NMAC, and

(b) Determined that the information submitted demonstrates that the operation will be in compliance with this Part and the discharge permit.

(2) If conditions encountered during construction represent a substantial change which could adversely impact ground water quality from those anticipated in the discharge permit, the secretary shall require a discharge permit modification or may terminate the discharge permit pursuant to Subsection I of Section 20.6.2.5101 NMAC, and the secretary shall publish public notice and allow for comments and hearing in accordance with Section 20.6.2.3108 NMAC.

B. Notification Requirement for Class III wells.

(1) The discharger shall notify the secretary in writing prior to the commencement of drilling or construction of wells which are expected to be used for in situ extraction, unless the discharger has previously received a discharge permit or project discharge permit for the Class III well operation.

(a) Any person, proposing to drill or construct a new Class III well or well field, or convert an existing well to a Class III well, shall file plans, specifications and pertinent documents regarding such construction or conversion, with the Ground Water Quality Bureau of the Environment Department.

(b) Plans, specifications, and pertinent documents required by this Section, if pertaining to geothermal installations, carbon dioxide facilities, or facilities for the exploration, production, refinement or pipeline transmission of oil and natural gas, shall be filed instead with the Oil Conservation Division.

(c) Plans, specifications and pertinent documents required to be filed under this Section must be filed 90 days prior to the planned commencement of construction or conversion.

(d) The following plans, specifications and pertinent documents shall be provided with the notification:

(i) Information required in Subsection C of Section 20.6.2.3106 NMAC;

(ii) A map showing the Class III wells which are to be constructed. The map must also show, in so far as is known or is reasonably available from the public records, the number, name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features, including residences and roads, that are within the expected area of review (Section 20.6.2.5202 NMAC) of the Class III well or well field perimeter;

(iii) Maps and cross-sections indicating the general vertical and lateral limits of all ground water having 10,000 mg/l or less TDS within one mile of the site, the position of such ground water within this area relative to the injection formation, and the direction of water movement, where known, in each zone of ground water which may be affected by the proposed injection operation;

(iv) Maps and cross-sections detailing the geology and geologic structure of the local area, including faults, if known or suspected;

(v) The proposed formation testing program to obtain an analysis or description, whichever the secretary requires, of the chemical, physical, and radiological characteristics of, and other information on, the receiving formation;

(vi) The proposed stimulation program;

(vii) The proposed injection procedure;

(viii) Schematic or other appropriate drawings of the surface and subsurface construction details of the well;

(ix) Proposed construction procedures, including a cementing and casing program, logging procedures, deviation checks, and a drilling, testing, and coring program;

(x) Information, as described in Paragraph (17) of Subsection B of Section 20.6.2.5210 NMAC, showing the ability of the discharger to undertake measures necessary to prevent groundwater contamination; and

(xi) A plugging and abandonment plan showing that the requirements of Subsections B, C and D of Section 20.6.2.5209 NMAC will be met.

(2) Prior to construction, the discharger shall have received written notice from the secretary that the information submitted under item 10 of Subparagraph (d) of Paragraph (1) of Subsection B of Section 20.6.2.5102 NMAC is acceptable. Within 30 days of submission of the above information the secretary shall notify the discharger that the information submitted is acceptable or unacceptable.

(3) Prior to construction, the secretary shall review said plans, specifications and pertinent documents and shall comment upon their adequacy of design for the intended purpose and their compliance with pertinent Sections of this Part. Review of plans, specifications and pertinent documents shall be based on the criteria contained in Section 20.6.2.5205, Subsection E of Section 20.6.2.5209, and Subparagraph (d) of Paragraph (1) of Subsection B of Section 20.6.2.5102 NMAC.

(4) Within thirty (30) days of receipt, the secretary shall issue public notice, consistent with Subsection B of Section 20.6.2.3108 NMAC, that notification was submitted pursuant to Subsection B of Section 20.6.2.5102 NMAC. The secretary shall allow a period of at least thirty (30) days during which comments may be submitted. The public notice shall include:

(a) Name and address of the proposed discharger;

(b) Location of the discharge;

(c) Brief description of the proposed activities;

(d) Statement of the public comment period; and

(e) Address and telephone number at which interested persons may obtain further information.

(5) The secretary shall comment in writing upon the plans and specifications within sixty (60) days of their receipt by the secretary.

(6) Within thirty (30) days after completion, the discharger shall submit written notice to the secretary that the construction or conversion was completed in accordance with submitted plans and specifications, or shall submit as-built plans detailing changes from the originally submitted plans and specifications.

(7) In the event a discharge permit application is not submitted or approved, all wells which may cause groundwater contamination shall be plugged and abandoned by the applicant pursuant to the plugging and abandonment plan submitted in the notification; these measures shall be consistent with any comments made by the

secretary in his review. If the wells are not to be permanently abandoned and the discharger demonstrates that plugging at this time is unnecessary to prevent groundwater contamination, plugging pursuant to the notification is not required. Financial responsibility established pursuant to Sections 20.6.2.5000 through 20.6.2.5299 NMAC will remain in effect until the discharger permanently abandons and plugs the wells in accordance with the plugging and abandonment plan.
[9-20-82, 12-24-87, 12-1-95; 20.6.2.5102 NMAC - Rn, 20 NMAC 6.2.V.5102, 1-15-01; A, 12-1-01]

20.6.2.5103 DESIGNATED AQUIFERS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Any person may file a written petition with the secretary seeking commission consideration of certain aquifers or portions of aquifers as "designated aquifers". The purpose of aquifer designation is:

(1) For Class I non-hazardous waste injection wells, to allow as a result of injection, the addition of water contaminants into ground water, which before initiation of injection has a concentration between 5,000 and 10,000 mg/l TDS; or

(2) For Class III wells, to allow as a result of injection, the addition of water contaminants into ground water, which before initiation of injection has a concentration between 5,000 and 10,000 mg/l TDS, and not provide for restoration or complete restoration of that ground water pursuant to Paragraph (2) of Subsection C of Section 20.6.2.5101 NMAC.

B. The applicant shall identify (by narrative description, illustrations, maps or other means) and describe such aquifers, in geologic and/or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite.

C. An aquifer or portion of an aquifer may be considered for aquifer designation under Subsection A. of this Section, if the applicant demonstrates that the following criteria are met:

(1) It is not currently used as a domestic or agricultural water supply; and

(2) There is no reasonable relationship between the economic and social costs of failure to designate and benefits to be obtained from its use as a domestic or agricultural water supply because:

(a) It is situated at a depth or location which makes recovery of water for drinking or agricultural purposes economically or technologically impractical at present and in the reasonably foreseeable future; or

(b) It is already so contaminated that it would be economically or technologically impractical to render that water fit for human consumption or agricultural use at present and in the reasonably foreseeable future.

D. The petition shall state the extent to which injection would add water contaminants to ground water and why the proposed aquifer designation should be approved. For Class III wells, the applicant shall state whether and to what extent restoration will be carried out.

E. The secretary shall either transmit the petition to the commission within sixty (60) days recommending that a public hearing be held, or refuse to transmit the petition and notify the applicant in writing citing reasons for such refusal.

F. If the secretary transmits the petition to the commission, the commission shall review the petition and determine to either grant or deny a public hearing on the petition. If the commission grants a public hearing, it shall issue a public notice, including the following information:

(1) Name and address of the applicant;

(2) Location, depth, TDS, areal extent, general description and common name or other identification of the aquifer for which designation is sought;

(3) Nature of injection and extent to which the injection will add water contaminants to ground water; and

(4) Address and telephone number at which interested persons may obtain further information.

G. If the secretary refuses to transmit the petition to the commission, then the applicant may appeal the secretary's disapproval of the proposed aquifer designation to the commission within thirty (30) days, and address the issue of whether the proposed aquifer designation meets the criteria of Subsections A, B, C, and D of this Section.

H. If the commission grants a public hearing, the hearing shall be held in accordance with the provisions of Section 74-6-6, NMSA 1978.

I. If the commission does not grant a public hearing on the petition, the aquifer designation shall not be approved.

J. After public hearing and consideration of all facts and circumstances included in Section 74-6-4(D), NMSA 1978, the commission may authorize the secretary to approve a proposed designated aquifer if the commission determines that the criteria of Subsection A, B, C, and D of this section are met.

K. Approval of a designated aquifer petition does not alleviate the applicant from complying with other Sections of Sections 20.6.2.5000 through 20.6.2.5299 NMAC, or of the responsibility for protection, pursuant to this part, of other nondesignated aquifers containing ground water having 10,000 mg/l or less TDS.

L. Persons other than the petitioner may add water contaminants as a result of injection into an aquifer designated for injection, provided the person receives a discharge permit pursuant to the requirements of Sections 20.6.2.5000 through 20.6.2.5299 NMAC. Persons, other than the original petitioner or his designee, requesting addition of water contaminants as a result of injection into aquifers previously designated only for injection with partial restoration shall file a petition with the commission pursuant to the requirements of Subsections A, B, C, and D of this Section.

[9-20-82, 12-1-95; 20.6.2.5103 NMAC - Rn, 20 NMAC 6.2.V.5103, 1-15-01; A, 12-1-01]

20.6.2.5104 WAIVER OF REQUIREMENT BY SECRETARY FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Where a Class I non-hazardous waste injection well or a Class III well or well field, does not penetrate, or inject into or above, and which will not affect, ground water having 10,000 mg/l of less TDS, the secretary may:

(1) Issue a discharge permit for a well or well field with less stringent requirements for area of review, construction, mechanical integrity, operation, monitoring, and reporting than required by Sections 20.6.2.5000 through 20.6.2.5299 NMAC; or

(2) For Class III wells only, issue a discharge permit pursuant to the requirements of Sections 20.6.2.3000 through 20.6.2.3114 NMAC.

B. Authorization of a reduction in requirements under Subsection A of this Section shall be granted only if injection will not result in an increased risk of movement of fluids into ground water having 10,000 mg/l or less TDS, except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

[9-20-82, 12-1-95; 20.6.2.5104 NMAC - Rn & A, 20 NMAC 6.2.V.5104, 1-15-01; A, 12-1-01]

20.6.2.5105 - 20.6.2.5199: [RESERVED]

[12-1-95; 20.6.2.5105 - 20.6.2.5199 NMAC - Rn, 20 NMAC 6.2.V.5105-5199, 1-15-01]

20.6.2.5200 TECHNICAL CRITERIA AND PERFORMANCE STANDARDS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

[12-1-95; 20.6.2.5200 NMAC - Rn, 20 NMAC 6.2.V.5200, 1-15-01; A, 12-1-01]

20.6.2.5201 PURPOSE: Sections 20.6.2.5200 through 20.6.2.5210 NMAC provide the technical criteria and performance standards for Class I non-hazardous waste injection wells and Class III wells.

[9-20-82; 20.6.2.5201 NMAC - Rn, 20 NMAC 6.2.V.5201, 1-15-01; A, 12-1-01]

20.6.2.5202 AREA OF REVIEW:

A. The area of review is the area surrounding a Class I non-hazardous waste injection well or Class III well or the area within and surrounding a well field that is to be examined to identify possible fluid conduits, including the location of all known wells and fractures which may penetrate the injection zone.

B. The area of review for each Class I non-hazardous waste injection well, or each Class III well or well field shall be an area which extends:

(1) Two and one half (2 1/2) miles from the well, or well field; or

(2) One-quarter (1/4) mile from a well or well field where the area of review is calculated to be zero pursuant to Paragraph (3) of Subsection B below, or where the well field production at all times exceeds injection to produce a net withdrawal; or

(3) A suitable distance, not less than one-quarter (1/4) mile, proposed by the discharger and approved by the secretary, based upon a mathematical calculation to determine the area of review. Computations to determine the area of review may be based upon the parameters listed below and should be calculated for an injection time period equal to the expected life of the Class I non-hazardous waste injection well, or Class III well or well field. The following modified Theis equation illustrates one form which the mathematical model may take to compute the

area of review; the discharger must demonstrate that any equation or simulation used to compute the area of review applies to the hydrogeologic conditions in the area of review.

$$r = \left(\frac{2.25 K H t}{S 10^{x}} \right)^{1/2}$$

Where:

$$x = \frac{4BKH (H_w - H_{bo}) x \, S_p G_b}{2.3 \, Q}$$

r = Radius of the area of review for a Class I non-hazardous waste injection well or Class III well (length)

K = Hydraulic conductivity of the injection zone (length/time)

H = Thickness of the injection zone (length)

t = Time of injection (time)

S = Storage coefficient (dimensionless)

Q = Injection rate (volume/time)

H_{bo} = Observed original hydrostatic head of injection zone (length) measured from the base of the lowest aquifer containing ground water of 10,000 mg/l or less TDS

H_w = Hydrostatic head of underground source of drinking water (length) measured from the base of the lowest aquifer containing ground water of 10,000 mg/l or less TDS

S_pG_b = Specific gravity of fluid in the injection zone (dimensionless)

B = 3.142 (dimensionless)

(4) The above equation is based on the following assumptions:

(a) The injection zone is homogenous and isotropic;

(b) The injection zone has infinite areal extent;

(c) The Class I non-hazardous waste injection well or Class III well penetrates the entire thickness of the injection zone;

(d) The well diameter is infinitesimal compared to "r" when injection time is longer than a few minutes; and

(e) The emplacement of fluid into the injection zone creates an instantaneous increase in pressure.

C. The secretary shall require submittal by the discharger of information regarding the area of review including the information to be considered by the secretary in Subsection B of Section 20.6.2.5210 NMAC.
[9-20-82, 12-1-95; 20.6.2.5202 NMAC - Rn, 20 NMAC 6.2.V.5202, 1-15-01; A, 12-1-01]

20.6.2.5203 CORRECTIVE ACTION FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Persons applying for approval of a Class I non-hazardous waste injection well, or a Class III well or well field shall identify the location of all known wells, drill holes, shafts, stopes and other conduits within the area of review which may penetrate the injection zone, in so far as is known or is reasonably available from the public records. For such wells or other conduits which are improperly sealed, completed, or abandoned, or otherwise provide a pathway for the migration of contaminants, the discharger shall address in the proposed discharge plan such steps or modifications (corrective action) as are necessary to prevent movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

B. Prior to operation, or continued operation of a well for which corrective action is required pursuant to Subsections A or D of Section 20.6.2.5203 NMAC, the discharger must demonstrate that:

(1) All required corrective action has been taken; or

(2) Injection pressure is to be limited so that pressure in the injection zone does not cause fluid movement through any well or other conduit within the area of review into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC. This pressure limitation may be removed after all required corrective action has been taken.

C. In determining the adequacy of corrective action proposed in the discharge permit application, the following factors will be considered by the secretary:

(1) Chemical nature and volume of the injected fluid;

(2) Chemical nature of native fluids and by-products of injection;

(3) Geology and hydrology;

(4) History of the injection and production operation;

(5) Completion and plugging records;

(6) Abandonment procedures in effect at the time a well, drill hole, or shaft was abandoned; and

(7) Hydraulic connections with waters having 10,000 mg/l or less TDS

D. In the event that, after approval for a Class I non-hazardous waste injection well or Class III well has been granted, additional information is submitted or it is discovered that a well or other conduit within the applicable area of review might allow movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC, the secretary may require action in accordance with Subsection I of Section 20.6.2.5101 and Subsection B Section 20.6.2.5203 NMAC.
[9-20-82, 12-1-95; 20.6.2.5203 NMAC - Rn, 20 NMAC 6.2.V.5203, 1-15-01; A, 12-1-01]

20.6.2.5204 MECHANICAL INTEGRITY FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. A Class I non-hazardous waste injection well or Class III well has mechanical integrity if there is no detectable leak in the casing, tubing or packer which the secretary considers to be significant at maximum operating temperature and pressure; and no detectable conduit for fluid movement out of the injection zone through the well bore or vertical channels adjacent to the well bore which the secretary considers to be significant.

B. Prior to well injection and at least once every five years or more frequently as the secretary may require for good cause during the life of the well, the discharger must demonstrate that a Class I non-hazardous waste injection well or Class III well has mechanical integrity. The demonstration shall be made through use of the following tests:

(1) For evaluation of leaks,

(a) Monitoring of annulus pressure (after an initial pressure test with liquid or gas before operation commences), or

(b) Pressure test with liquid or gas;

(2) For determination of conduits for fluid movement,

(a) The results of a temperature or noise log, or

(b) Where the nature of the casing used for Class III wells precludes use of these logs, cementing records and an appropriate monitoring program as the secretary may require which will demonstrate the presence of adequate cement to prevent such movement;

(3) Other appropriate tests as the secretary may require.

C. The secretary may consider the use by the discharger of equivalent alternative test methods to determine mechanical integrity. The discharger shall submit information on the proposed test and all technical data supporting its use. The secretary may approve the request if it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. For Class III wells this demonstration may be made by submission of adequate monitoring data after the initial mechanical integrity tests.

D. In conducting and evaluating the tests enumerated in this Section or others to be allowed by the secretary, the discharger and the secretary shall apply methods and standards generally accepted in the affected industry. When the discharger reports the results of mechanical integrity tests to the secretary, he shall include a description of the test(s), the method(s) used, and the test results. In making an evaluation, the secretary's review shall include monitoring and other test data submitted since the previous evaluation.

[9-20-82, 12-1-95; 20.6.2.5204 NMAC - Rn, 20 NMAC 6.2.V.5204, 1-15-01; A, 12-1-01]

20.6.2.5205 CONSTRUCTION REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. General Construction Requirements Applicable to Class I non-hazardous waste injection wells and Class III wells.

(1) Construction of all Class I non-hazardous waste injection wells and all new Class III wells shall include casing and cementing. Prior to well injection, the discharger shall demonstrate that the construction and operation of:

(a) Class I non-hazardous waste injection wells will not cause or allow movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC;

(b) Class III wells will not cause or allow movement of fluids out of the injection zone into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

(2) The construction of each newly drilled well shall be designed for the proposed life expectancy of the well.

(3) In determining if the discharger has met the construction requirements of this Section and has demonstrated adequate construction, the secretary shall consider the following factors:

(a) Depth to the injection zone;

(b) Injection pressure, external pressure, annular pressure, axial loading, and other stresses that may cause well failure;

(c) Hole size;

(d) Size and grade of all casing strings, including wall thickness, diameter, nominal weight, length, joint specification, and construction material;

(e) Type and grade of cement;

(f) Rate, temperature, and volume of injected fluid;

(g) Chemical and physical characteristics of the injected fluid, including corrosiveness, density, and temperature;

(h) Chemical and physical characteristics of the formation fluids including pressure and temperature;

(i) Chemical and physical characteristics of the receiving formation and confining zones including lithology and stratigraphy, and fracture pressure; and

(j) Depth, thickness and chemical characteristics of penetrated formations which may contain ground water.

(4) To demonstrate adequate construction, appropriate logs and other tests shall be conducted during the drilling and construction of new Class I non-hazardous waste injection wells or Class III wells or during work-over of existing wells in preparation for reactivation or for change to injection use. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the secretary for review prior to well injection. The logs and tests appropriate to each type of injection well shall be based on the intended function, depth, construction and other characteristics of the well, availability of similar data in the area of the drilling site and the need for additional information that may arise from time to time as the construction of the well progresses.

(a) The discharger shall demonstrate through use of sufficiently frequent deviation checks, or another equivalent method, that a Class I non-hazardous waste injection well or Class III well drilled using a pilot hole then enlarged by reaming or another method, does not allow a vertical avenue for fluid migration in the form of diverging holes created during drilling.

(b) The secretary may require use by the discharger of the following logs to assist in characterizing the formations penetrated and to demonstrate the integrity of the confining zones and the lack of vertical avenues for fluid migration:

(i) For casing intended to protect ground water having 10,000 mg/l or less TDS: Resistivity, spontaneous potential, and caliper logs before the casing is installed; and a cement bond, or temperature log after the casing is set and cemented.

(ii) For intermediate and long strings of casing intended to facilitate injection: Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed; and fracture finder or spectral logs; and a cement bond or temperature log after the casing is set and cemented.

(5) In addition to the requirements of Section 20.6.2.5102 NMAC, the discharger shall provide notice prior to commencement of drilling, cementing and casing, well logging, mechanical integrity tests, and any well work-over to allow opportunity for on-site inspection by the secretary or his representative.

B. Additional Construction Requirements for Class I non-hazardous waste injection wells.

(1) All Class I non-hazardous waste injection wells shall be sited in such a manner that they inject into a formation which is beneath the lowermost formation containing, within one quarter mile of the well bore, ground water having 10,000 mg/l TDS or less except as approved pursuant to Section 20.6.2.5103 NMAC.

(2) All Class I non-hazardous waste injection wells shall be cased and cemented by circulating cement to the surface.

(3) All Class I non-hazardous waste injection wells, except those municipal wells injecting noncorrosive wastes, shall inject fluids through tubing with a packer set in the annulus immediately above the injection zone, or tubing with an approved fluid seal as an alternative. The tubing, packer, and fluid seal shall be designed for the expected length of service.

(a) The use of other alternatives to a packer may be allowed with the written approval of the secretary. To obtain approval, the operator shall submit a written request to the secretary which shall set forth the proposed alternative and all technical data supporting its use. The secretary may approve the request if the alternative method will reliably provide a comparable level of protection to ground water. The secretary may approve an alternative method solely for an individual well or for general use.

(b) In determining the adequacy of the specifications proposed by the discharger for tubing and packer, or a packer alternative, the secretary shall consider the following factors:

(i) Depth of setting;

(ii) Characteristics of injection fluid (chemical nature or characteristics, corrosiveness, and density);

(iii) Injection pressure;

(iv) Annular pressure;

(v) Rate, temperature and volume of injected fluid; and

(vi) Size of casing.

C. Additional Construction Requirements for Class III wells.

(1) Where injection is into a formation containing ground water having 10,000 mg/l or less TDS, monitoring wells shall be completed into the injection zone and into the first formation above the injection zone containing ground water having 10,000 mg/l or less TDS which could be affected by the extraction operation. If ground water having 10,000 mg/l or less TDS below the injection zone could be affected by the extraction operation, monitoring of such ground water may be required. These wells shall be of sufficient number, located and constructed so as to detect any excursion of injection fluids, process byproducts, or formation fluids outside the extraction area or injection zone. The requirement for monitoring wells in aquifers designated pursuant to Section

20.6.2.5103 NMAC may be waived by the secretary, provided that the absence of monitoring wells does not result in an increased risk of movement of fluids into protected ground waters having 10,000 mg/l or less TDS.

(2) Where injection is into a formation which does not contain ground water having 10,000 mg/l or less TDS, no monitoring wells are necessary in the injection zone. However, monitoring wells may be necessary in adjoining zones with ground water having 10,000 mg/l or less TDS that could be affected by the extraction operation.

(3) In an area that the secretary determines is subject to subsidence or collapse, the required monitoring wells may be required to be located outside the physical influence of that area.

(4) In determining the adequacy of monitoring well location, number, construction and frequency of monitoring proposed by the discharger, the secretary shall consider the following factors:

(a) The local geology and hydrology;

(b) The operating pressures and whether a negative pressure gradient to the monitor well is being maintained;

(c) The nature and volume of injected fluid, formation water, and process by-products; and

(d) The number and spacing of Class III wells in the well field.

[9-20-82, 12-1-95; 20.6.2.5205 NMAC - Rn, 20 NMAC 6.2.V.5205, 1-15-01; A, 12-1-01]

20.6.2.5206 OPERATING REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. General Operating Requirements Applicable to Class I non-hazardous waste injection wells and Class III wells.

(1) The maximum injection pressure at the wellhead shall not initiate new fractures or propagate existing fractures in the confining zone, or cause the movement of injection or formation fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

(2) Injection between the outermost casing and the well bore is prohibited in a zone other than the authorized injection zone.

B. Additional Operating Requirements for Class I non-hazardous waste injection wells.

(1) Except during well stimulation, the maximum injection pressure shall not initiate new fractures or propagate existing fractures in the injection zone.

(2) Unless an alternative to a packer has been approved under Subparagraph (c) of Paragraph (3) of Subsection B of Section 20.6.2.5205 NMAC, the annulus between the tubing and the long string of casing shall be filled with a fluid approved by the secretary and a pressure, also approved by the secretary shall be maintained on the annulus.

C. Additional Operating Requirements for Class III wells: Initiation of new fractures or propagation of existing fractures in the injection zone will not be approved by the secretary as part of a discharge permit unless it is done during well stimulation and the discharger demonstrates:

(1) That such fracturing will not cause movement of fluids out of the injection zone into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC, and

(2) That the provisions of Subsection C of Section 20.6.2.3109 and Subsection C of Section 20.6.2.5101 NMAC for protection of ground water are met.

[9-20-82, 12-1-95; 20.6.2.5206 NMAC - Rn, 20 NMAC 6.2.V.5206, 1-15-01; A, 12-1-01]

20.6.2.5207 MONITORING REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. The discharger shall demonstrate mechanical integrity for each Class I non-hazardous waste injection well or Class III well at least once every five years during the life of the well pursuant to Section 20.6.2.5204 NMAC.

B. Additional Monitoring Requirements for Class I non-hazardous waste injection wells.

(1) The discharger shall provide analysis of the injected fluids at least quarterly or, if necessary, more frequently to yield data representative of their characteristics.

(2) Continuous monitoring devices shall be used to provide a record of injection pressure, flow rate, flow volume, and pressure on the annulus between the tubing and the long string of casing.

(3) The discharger shall provide wells within the area of review as required by the discharge permit to be used by the discharger to monitor pressure in, and possible fluid movement into, ground water having 10,000 mg/l or less TDS except for such ground waters designated pursuant to Section 20.6.2.5103 NMAC. This Section

does not require monitoring wells for Class I non-hazardous waste injection wells unless monitoring wells are necessary due to possible flow paths within the area of review.

C. Additional Monitoring Requirements for Class III wells.

(1) The discharger shall provide an analysis or description, whichever the secretary requires, of the injected fluids at least quarterly or, if necessary, more frequently to yield representative data.

(2) The discharger shall perform:

(a) Appropriate monitoring of injected and produced fluid volumes by whichever of the following methods the secretary requires:

(i) Recording injection pressure and either flow rate or volume every two weeks; or

(ii) Metering and daily recording of fluid volumes;

(b) Monitoring every two weeks, or more frequently as the secretary determines, of the monitor wells, required in Subsection C of Section 20.6.2.5205 NMAC for:

(i) Water chemistry parameters used to detect any migration from the injection zone;

(ii) Fluid levels adjacent to the injection zone; and

(c) Other necessary monitoring as the secretary for good cause may require to detect movement of fluids from the injection zone into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC.

(3) With the approval of the secretary, all Class III wells may be monitored on a well field basis by manifold monitoring rather than on an individual well basis. Manifold monitoring to determine the quality, pressure, and flow rate of the injected fluid may be approved in cases of facilities consisting of more than one Class III well, operating with a common manifold, provided that the discharger demonstrates that manifold monitoring is comparable to individual well monitoring.

[9-20-82, 12-1-95; 20.6.2.5207 NMAC - Rn, 20 NMAC 6.2.V.5207, 1-15-01; A, 12-1-01]

20.6.2.5208 REPORTING REQUIREMENTS FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. Reporting Requirements for Class I non-hazardous waste injection wells.

(1) If a Class I non-hazardous waste injection well is found to be discharging or is suspected of discharging fluids into a zone or zones other than the permitted or authorized injection zone, the discharger shall within 24 hours notify the secretary of the circumstances and action taken. The discharger shall provide subsequent written reports as required by the secretary.

(2) The discharger shall provide reports quarterly to the secretary on:

(a) The physical, chemical and other relevant characteristics of injection fluids;

(b) Monthly average, maximum and minimum values for injection pressure, flow rate and volume, and annular pressure; and

(c) The results of monitoring prescribed under Subsection B of Section 20.6.2.5207 NMAC.

(3) The discharger shall report, no later than the first quarterly report after completion, the results of:

(a) Periodic tests of mechanical integrity as required in Sections 20.6.2.5204 and 20.6.2.5207 NMAC;

(b) Any other test of the Class I non-hazardous waste injection well conducted by the discharger if required by the secretary;

(c) Any well work-over; and

(d) Any changes within the area of review which might impact subsurface conditions.

B. Reporting Requirements for Class III wells.

(1) The discharger shall notify the secretary within 48 hours of the detection or suspected detection of a leachate excursion, and provide subsequent reports as required by the secretary.

(2) The discharger shall provide to the secretary:

(a) Reports on required monitoring quarterly, or more frequently as required by the secretary; and

(b) Results of mechanical integrity testing as required in Sections 20.6.2.5204 and 20.6.2.5207 NMAC and any other periodic tests required by the secretary. These results are to be reported no later than the first regular report after the completion of the test.

(3) Where manifold monitoring is permitted, monitoring results may be reported on a well field basis, rather than individual well basis.

C. Report Signatory Requirements.

(1) All reports submitted pursuant to this Section shall be signed and certified as provided in Subsection G of Section 20.6.2.5101 NMAC, or by a duly authorized representative.

(2) For a person to be a duly authorized representative, authorization must:

(a) Be made in writing by a signatory described in Paragraph (1) of Subsection G of Section 20.6.2.5101 NMAC.;

(b) Specify either an individual or a position having responsibility for the overall operation of that regulated facility or activity, such as the position of plant manager, operator of a well or well field, superintendent, or position of equivalent responsibility; and

(c) Have been submitted to the secretary.

[9-20-82, 12-1-95; 20.6.2.5208 NMAC - Rn, 20 NMAC 6.2.V.5208, 1-15-01; A, 12-1-01]

20.6.2.5209 PLUGGING AND ABANDONMENT FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. The discharger shall submit as part of the discharge permit application, a plan for plugging and abandonment of a Class I non-hazardous waste injection well or a Class III well that meets the requirements of Subsection C of Section 20.6.2.3109 and Subsection C of Section 20.6.2.5101 NMAC and 20.6.2.5005 NMAC for protection of ground water. If requested, a revised or updated abandonment plan shall be submitted for approval prior to closure. The obligation to implement the plugging and abandonment plan as well as the requirements of the plan survives the termination or expiration of the permit.

B. Prior to abandonment of a well used in a Class I non-hazardous waste injection well or Class III well operation, the well shall be plugged in a manner which will not allow the movement of fluids through the well bore out of the injection zone or between other zones of ground water. Cement plugs shall be used unless a comparable method has been approved by the secretary for the plugging of Class III wells at that site.

C. Prior to placement of the plugs, the well to be abandoned shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable method approved by the secretary.

D. Placement of the plugs shall be accomplished by one of the following:

(1) The Balance Method; or

(2) The Dump Bailer Method; or

(3) The Two-Plug Method; or

(4) An equivalent method with the approval of the secretary.

E. The following shall be considered by the secretary in determining the adequacy of a plugging and abandonment plan.

(1) The type and number of plugs to be used;

(2) The placement of each plug, including the elevation of the top and bottom;

(3) The type, grade and quantity of cementing slurry to be used;

(4) The method of placement of the plugs;

(5) The procedure to be used to plug and abandon the well; and

(6) Such other factors that may affect the adequacy of the plan.

F. The discharger shall retain all records concerning the nature and composition of injected fluids until five years after completion of any plugging and abandonment procedures.

[9-20-82, 12-1-95; 20.6.2.5209 NMAC - Rn, 20 NMAC 6.2.V.5209, 1-15-01; A, 12-1-01]

20.6.2.5210 INFORMATION TO BE CONSIDERED BY THE SECRETARY FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELLS AND CLASS III WELLS:

A. This Section sets forth the information to be considered by the secretary in authorizing construction and use of a Class I non-hazardous waste injection well or Class III well or well field. Certain maps, cross-sections, tabulations of all wells within the area of review, and other data may be included in the discharge permit application submittal by reference provided they are current, readily available to the secretary and sufficiently identified to be retrieved.

B. Prior to the issuance of a discharge permit or project discharge permit allowing construction of a new Class I non-hazardous waste injection well, operation of an existing Class I non-hazardous waste injection well, or operation of a new or existing Class III well or well field, or conversion of any well to injection use, the secretary shall consider the following:

(1) Information required in Subsection C of Section 20.6.2.3106 NMAC;

(2) A map showing the Class I non-hazardous waste injection well, or Class III well or well fields, for which approval is sought and the applicable area of review. Within the area of review, the map must show, in so far as is known or is reasonably available from the public records, the number, name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features, including residences and roads;

(3) A tabulation of data on all wells within the area of review which may penetrate into the proposed injection zone. Such data shall include, as available, a description of each well's type, the distance and direction to the injection well or well field, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the secretary may require;

(4) For wells within the area of review which penetrate the injection zone, but are not properly completed or plugged, the corrective action proposed to be taken under Section 20.6.2.5203 NMAC;

(5) Maps and cross-sections indicating the general vertical and lateral limits of all ground water having 10,000 mg/l or less TDS within the area of review, the position of such ground water within the area of review relative to the injection formation, and the direction of water movement, where known, in each zone of ground water which may be affected by the proposed injection operation;

(6) Maps and cross-sections detailing the geology and geologic structure of the local area, including faults, if known or suspected;

(7) Generalized maps and cross-sections illustrating the regional geologic setting;

(8) Proposed operating data, including:

(a) Average and maximum daily flow rate and volume of the fluid to be injected;

(b) Average and maximum injection pressure;

(c) Source of injection fluids and an analysis or description, whichever the secretary requires, of their chemical, physical, radiological and biological characteristics;

(9) Results of the formation testing program to obtain an analysis or description, whichever the secretary requires, of the chemical, physical, and radiological characteristics of, and other information on, the receiving formation, provided that the secretary may issue a conditional approval of a discharge permit if he finds that further formation testing is necessary for final approval;

(10) Expected pressure changes, native fluid displacement, and direction of movement of the injected fluid;

(11) Proposed stimulation program;

(12) Proposed or actual injection procedure;

(13) Schematic or other appropriate drawings of the surface and subsurface construction details of the well;

(14) Construction procedures, including a cementing and casing program, logging procedures, deviation checks, and a drilling, testing, and coring program;

(15) Contingency plans to cope with all shut-ins or well failures so as to prevent movement of fluids into ground water having 10,000 mg/l or less TDS except for fluid movement approved pursuant to Section 20.6.2.5103 NMAC;

(16) Plans, including maps, for meeting the monitoring requirements of Section 20.6.2.5207 NMAC; and

(17) The ability of the discharger to undertake measures necessary to prevent contamination of ground water having 10,000 mg/l or less TDS after the cessation of operation, including the proper closing, plugging and abandonment of a well, ground water restoration if applicable, and any post-operational monitoring as may be needed. Methods by which the discharger shall demonstrate the ability to undertake these measures shall include submission of a surety bond or other adequate assurances, such as financial statements or other materials acceptable to the secretary, such as: (1) a surety bond; (2) a trust fund with a New Mexico bank in the name of the State of New Mexico, with the State as Beneficiary; (3) a non-renewable letter of credit made out to the State of New Mexico; (4) liability insurance specifically covering the contingencies listed in this paragraph; or (5) a performance bond, generally in conjunction with another type of financial assurance. Such bond or materials shall be approved and executed prior to discharge permit issuance and shall become effective upon commencement of construction. If an adequate bond is posted by the discharger to a federal or another state agency, and this bond covers all of the measures referred to above, the secretary shall consider this bond as satisfying the bonding requirements of Sections 20.6.2.5000 through 20.6.2.5299 NMAC wholly or in part, depending upon the extent to which such bond is adequate to ensure that the discharger will fully perform the measures required hereinabove.

C. Prior to the secretary's approval that allows the operation of a new or existing Class I non-hazardous waste injection well or Class III well or well field, the secretary shall consider the following:

(1) Update of pertinent information required under Subsection B of Section 20.6.2.5210 NMAC;
(2) All available logging and testing program data on the well;
(3) The demonstration of mechanical integrity pursuant to Section 20.6.2.5204 NMAC;
(4) The anticipated maximum pressure and flow rate at which the permittee will operate;
(5) The results of the formation testing program;
(6) The physical, chemical, and biological interactions between the injected fluids and fluids in the injection zone, and minerals in both the injection zone and the confining zone; and
(7) The status of corrective action on defective wells in the area of review.

[9-20-82, 12-24-87, 12-1-95; 20.6.2.5210 NMAC - Rn, 20 NMAC 6.2.V.5210, 1-15-01; A, 12-1-01]

20.6.2.5211 - 20.6.2.5299: [RESERVED]

[12-1-95; 20.6.2.5211 - 20.6.2.5299 NMAC - Rn, 20 NMAC 6.2.V.5211-5299, 1-15-01]

HISTORY of 20.6.2. NMAC:

Pre-NMAC History:

Material in this Part was derived from that previously filed with the commission of public records - state records center and archives:

WQC 67-2, Regulations Governing Water Pollution Control in New Mexico, filed 12-5-67, effective 1-4-68
WQC 72-1, Water Quality Control Commission Regulations, filed 8-4-72, effective 9-3-72
WQC 77-1, Amended Water Quality Control Commission Regulations, filed 1-18-77, effective 2-18-77
WQC 81-2, Water Quality Control Commission Regulations, filed 6-2-81, effective 7-2-81
WQC 82-1, Water Quality Control Commission Regulations, filed 8-19-82, effective 9-20-82

History of Repealed Material: [Reserved]

Other History:

20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 10-27-95, effective 12-1-95
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 10-15-96, effective 11-15-96
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 11-30-00, effective 1-15-01
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 9-16-01, effective 12-1-01
20 NMAC 6.2, Water Quality - Ground and Surface Water Protection, filed 8-1-02, effective 9-15-02

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(b) The effective dates for §141.62 are as follows:

(1) The effective date of paragraph (b)(1) of §141.62 is October 2, 1987.

(2) The effective date for paragraphs (b)(2) and (b)(4) through (b)(10) of §141.62 is July 30, 1992.

(3) The effective date for paragraphs (b)(11) through (b)(15) of §141.62 is January 17, 1994.

(4) The effective date for §141.62(b)(16) is January 23, 2006.

[56 FR 3593, Jan. 30, 1991, as amended at 57 FR 31846, July 17, 1992; 59 FR 34324, July 1, 1994; 66FR 7063, Jan. 22, 2001]

§141.61 Maximum contaminant levels for organic contaminants.

(a) The following maximum contaminant levels for organic contaminants apply to community and non-transient, non-community water systems.

CAS No.	Contaminant	MCL (mg/l)
(1) 75–01–4	Vinyl chloride	0.002
(2) 71–43–2	Benzene	0.005
(3) 56–23–5	Carbon tetrachloride	0.005
(4) 107–06–2	1,2-Dichloroethane	0.005
(5) 79–01–6	Trichloroethylene	0.005
(6) 106–46–7	para-Dichlorobenzene	0.075
(7) 75–35–4	1,1-Dichloroethylene	0.007
(8) 71–55–6	1,1,1-Trichloroethane	0.2
(9) 156–59–2	cis-1,2-Dichloroethylene	0.07
(10) 78–87–5	1,2-Dichloropropane	0.005
(11) 100–41–4	Ethylbenzene	0.7
(12) 108–90–7	Monochlorobenzene	0.1
(13) 95–50–1	o-Dichlorobenzene	0.6
(14) 100–42–5	Styrene	0.1
(15) 127–18–4	Tetrachloroethylene	0.005
(16) 108–88–3	Toluene	1
(17) 156–60–5	trans-1,2-Dichloroethylene	0.1
(18) 1330–20–7	Xylenes (total)	10
(19) 75–09–2	Dichloromethane	0.005
(20) 120–82–1	1,2,4-Trichloro- benzene	.07
(21) 79–00–5	1,1,2-Trichloro- ethane	.005

(b) The Administrator, pursuant to section 1412 of the Act, hereby identifies as indicated in the Table below granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) as the best technology treatment technique, or other means available for achieving compliance with the maximum contaminant level for organic contaminants identified in paragraphs (a) and (c) of this section:

BAT FOR ORGANIC CONTAMINANTS LISTED IN §141.61 (a) AND (c)

CAS No.	Contaminant	GAC	PTA	OX
15972–60–8	Alachlor	X	.....	.....
116–06–3	Aldicarb	X	.....	.....
1646–88–4	Aldicarb sulfone	X	.....	.....
1646–87–3	Aldicarb sulfoxide	X	.....	.....
1912–24–9	Atrazine	X	.....	.....
71–43–2	Benzene	X	X	.....
50–32–8	Benzo[a]pyrene	X	.....	.....
1563–66–2	Carbofuran	X	.....	.....
56–23–5	Carbon tetrachloride	X	X	.....
57–74–9	Chlordane	X	.....	.....
75–99–0	Dalapon	X	.....	.....
94–75–7	2,4-D	X	.....	.....
103–23–1	Di (2-ethylhexyl) adipate	X	X	.....
117–81–7	Di (2-ethylhexyl) phthalate	X	.....	.....
96–12–8	Dibromochloropropane (DBCP)	X	X	.....
95–50–1	o-Dichlorobenzene	X	X	.....
106–46–7	para-Dichlorobenzene	X	X	.....
107–06–2	1,2-Dichloroethane	X	X	.....
75–35–4	1,1-Dichloroethylene	X	X	.....
156–59–2	cis-1,2-Dichloroethylene	X	X	.....
156–60–5	trans-1,2-Dichloroethylene	X	X	.....

BAT FOR ORGANIC CONTAMINANTS LISTED IN § 141.61 (a) AND (c)—Continued

CAS No.	Contaminant	GAC	PTA	OX
75-09-2	Dichloromethane		X	
78-87-5	1,2-Dichloropropane	X	X	
88-85-7	Dinoseb	X		
85-00-7	Diquat	X		
145-73-3	Endothall	X		
72-20-8	Endrin	X		
100-41-4	Ethylbenzene	X	X	
106-93-4	Ethylene Dibromide (EDB)	X	X	
1071-83-6	Glyphosate			X
76-44-8	Heptachlor	X		
1024-57-3	Heptachlor epoxide	X		
118-74-1	Hexachlorobenzene	X		
77-47-3	Hexachlorocyclopentadiene	X	X	
58-89-9	Lindane	X		
72-43-5	Methoxychlor	X		
108-90-7	Monochlorobenzene	X	X	
23135-22-0	Oxamyl (Vydate)	X		
87-86-5	Pentachlorophenol	X		
1918-02-1	Picloram	X		
1336-36-3	Polychlorinated biphenyls (PCB)	X		
122-34-9	Simazine	X		
100-42-5	Styrene	X	X	
1746-01-6	2,3,7,8-TCDD (Dioxin)	X		
127-18-4	Tetrachloroethylene	X	X	
108-88-3	Toluene	X	X	
8001-35-2	Toxaphene	X		
93-72-1	2,4,5-TP (Silvex)	X		
120-82-1	1,2,4-Trichlorobenzene	X	X	
71-55-6	1,1,1-Trichloroethane	X	X	
79-00-5	1,1,2-Trichloroethane	X	X	
79-01-6	Trichloroethylene	X	X	
75-01-4	Vinyl chloride		X	
1330-20-7	Xylene	X	X	

(c) The following maximum contaminant levels for synthetic organic contaminants apply to community water systems and non-transient, non-community water systems:

CAS No.	Contaminant	MCL (mg/l)
(1) 15972-60-8	Alachlor	0.002
(2) 116-06-3	Aldicarb	0.003
(3) 1646-87-3	Aldicarb sulfoxide	0.004
(4) 1646-87-4	Aldicarb sulfone	0.002
(5) 1912-24-9	Atrazine	0.003
(6) 1563-66-2	Carbofuran	0.04
(7) 57-74-9	Chlordane	0.002
(8) 96-12-8	Dibromochloropropane	0.0002
(9) 94-75-7	2,4-D	0.07
(10) 106-93-4	Ethylene dibromide	0.00005
(11) 76-44-8	Heptachlor	0.0004
(12) 1024-57-3	Heptachlor epoxide	0.0002
(13) 58-89-9	Lindane	0.0002
(14) 72-43-5	Methoxychlor	0.04
(15) 1336-36-3	Polychlorinated biphenyls	0.0005
(16) 87-86-5	Pentachlorophenol	0.001
(17) 8001-35-2	Toxaphene	0.003
(18) 93-72-1	2,4,5-TP	0.05
(19) 50-32-8	Benzo[a]pyrene	0.0002
(20) 75-99-0	Dalapon	0.2
(21) 103-23-1	Di(2-ethylhexyl) adipate	0.4
(22) 117-81-7	Di(2-ethylhexyl) phthalate	0.006
(23) 88-85-7	Dinoseb	0.007
(24) 85-00-7	Diquat	0.02
(25) 145-73-3	Endothall	0.1
(26) 72-20-8	Endrin	0.002
(27) 1071-53-6	Glyphosate	0.7
(28) 118-74-1	Hexacholorbenzene	0.001
(29) 77-47-4	Hexachlorocyclopentadiene	0.05

CAS No.	Contaminant	MCL (mg/l)
(30) 23135–22–0	Oxamyl (Vydate)	0.2
(31) 1918–02–1	Picloram	0.5
(32) 122–34–9	Simazine	0.004
(33) 1746–01–6	2,3,7,8-TCDD (Dioxin)	3×10^{-8}

[56 FR 3593, Jan. 30, 1991, as amended at 56 FR 30280, July 1, 1991; 57 FR 31846, July 17, 1992; 59 FR 34324, July 1, 1994]

§ 141.62 Maximum contaminant levels for inorganic contaminants.

(a) [Reserved]

(b) The maximum contaminant levels for inorganic contaminants specified in paragraphs (b) (2)–(6), (b)(10), and (b)(11)–(16) of this section apply to community water systems and non-transient, non-community water systems. The maximum contaminant level specified in paragraph (b)(1) of this section only applies to community water systems. The maximum contaminant levels specified in (b)(7), (b)(8), and (b)(9) of this section apply to community water systems; non-transient, non-community water systems; and transient non-community water systems.

Contaminant	MCL (mg/l)
(1) Fluoride	4.0
(2) Asbestos	7 Million Fibers/liter (longer than 10 μm).
(3) Barium	2
(4) Cadmium	0.005
(5) Chromium	0.1
(6) Mercury	0.002
(7) Nitrate	10 (as Nitrogen)
(8) Nitrite	1 (as Nitrogen)
(9) Total Nitrate and Nitrite	10 (as Nitrogen)
(10) Selenium	0.05
(11) Antimony	0.006
(12) Beryllium	0.004
(13) Cyanide (as free Cyanide).	0.2
(14) [Reserved].	
(15) Thallium	0.002
(16) Arsenic	0.010

(c) The Administrator, pursuant to section 1412 of the Act, hereby identifies the following as the best technology, treatment technique, or other means available for achieving compliance with the maximum contaminant levels for inorganic contaminants identified in paragraph (b) of this section, except fluoride:

BAT FOR INORGANIC COMPOUNDS LISTED IN SECTION 141.62(b)

Chemical Name	BAT(s)
Antimony	2,7
Arsenic [4]	1, 2, 5, 6, 7, 9, 12 [5]
Asbestos	2,3,8
Barium	5,6,7,9
Beryllium	1,2,5,6,7
Cadmium	2,5,6,7
Chromium	2,5,6 [2],7
Cyanide	5,7,13
Mercury	2 [1],4,6 [1],7 [1]
Nickel	5,6,7
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2 [3],6,7,9
Thallium	1,5

[1] BAT only if influent Hg concentrations ≤10μg/1.
[2] BAT for Chromium III only.
[3] BAT for Selenium IV only.
[4] BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.
[5] To obtain high removals, iron to arsenic ratio must be at least 20:1.

Key to BATS in Table

1 = Activated Alumina
2 = Coagulation/Filtration (not BAT for systems <500 service connections)
3 = Direct and Diatomite Filtration
4 = Granular Activated Carbon
5 = Ion Exchange
6 = Lime Softening (not BAT for systems <500 service connections)
7 = Reverse Osmosis
8 = Corrosion Control
9 = Electrodialysis
10 = Chlorine
11 = Ultraviolet
12 = Oxidation/Filtration
13 = Alkaline Chlorination (pH ≥8.5)

(d) The Administrator, pursuant to section 1412 of the Act, hereby identifies in the following table the affordable technology, treatment technique, or other means available to systems serving 10,000 persons or fewer for achieving compliance with the maximum contaminant level for arsenic:

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CAS No.	Contaminant	MCL (mg/l)
(30) 23135–22–0	Oxamyl (Vydate)	0.2
(31) 1918–02–1	Picloram	0.5
(32) 122–34–9	Simazine	0.004
(33) 1746–01–6	2,3,7,8-TCDD (Dioxin)	3×10^{-8}

[56 FR 3593, Jan. 30, 1991, as amended at 56 FR 30280, July 1, 1991; 57 FR 31846, July 17, 1992; 59 FR 34324, July 1, 1994]

§ 141.62 Maximum contaminant levels for inorganic contaminants.

(a) [Reserved]

(b) The maximum contaminant levels for inorganic contaminants specified in paragraphs (b) (2)–(6), (b)(10), and (b)(11)–(16) of this section apply to community water systems and non-transient, non-community water systems. The maximum contaminant level specified in paragraph (b)(1) of this section only applies to community water systems. The maximum contaminant levels specified in (b)(7), (b)(8), and (b)(9) of this section apply to community water systems; non-transient, non-community water systems; and transient non-community water systems.

Contaminant	MCL (mg/l)
(1) Fluoride	4.0
(2) Asbestos	7 Million Fibers/liter (longer than 10 μm).
(3) Barium	2
(4) Cadmium	0.005
(5) Chromium	0.1
(6) Mercury	0.002
(7) Nitrate	10 (as Nitrogen)
(8) Nitrite	1 (as Nitrogen)
(9) Total Nitrate and Nitrite	10 (as Nitrogen)
(10) Selenium	0.05
(11) Antimony	0.006
(12) Beryllium	0.004
(13) Cyanide (as free Cyanide)	0.2
(14) [Reserved].	
(15) Thallium	0.002
(16) Arsenic	0.010

(c) The Administrator, pursuant to section 1412 of the Act, hereby identifies the following as the best technology, treatment technique, or other means available for achieving compliance with the maximum contaminant levels for inorganic contaminants identified in paragraph (b) of this section, except fluoride:

BAT FOR INORGANIC COMPOUNDS LISTED IN SECTION 141.62(b)

Chemical Name	BAT(s)
Antimony	2,7
Arsenic[4]	1, 2, 5, 6, 7, 9, 12[5]
Asbestos	2,3,8
Barium	5,6,7,9
Beryllium	1,2,5,6,7
Cadmium	2,5,6,7
Chromium	2,5,6[2],7
Cyanide	5,7,13
Mercury	2[1],4,6[1],7[1]
Nickel	5,6,7
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2[3],6,7,9
Thallium	1,5

[1] BAT only if influent Hg concentrations <10μg/1.
[2] BAT for Chromium III only.
[3] BAT for Selenium IV only.
[4] BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.
[5] To obtain high removals, iron to arsenic ratio must be at least 20:1.

Key to BATS in Table

1 = Activated Alumina
2 = Coagulation/Filtration (not BAT for systems <500 service connections)
3 = Direct and Diatomite Filtration
4 = Granular Activated Carbon
5 = Ion Exchange
6 = Lime Softening (not BAT for systems <500 service connections)
7 = Reverse Osmosis
8 = Corrosion Control
9 = Electrodialysis
10 = Chlorine
11 = Ultraviolet
12 = Oxidation/Filtration
13 = Alkaline Chlorination (pH ≥8.5)

(d) The Administrator, pursuant to section 1412 of the Act, hereby identifies in the following table the affordable technology, treatment technique, or other means available to systems serving 10,000 persons or fewer for achieving compliance with the maximum contaminant level for arsenic:

SMALL SYSTEM COMPLIANCE TECHNOLOGIES (SSCTs) [1] FOR ARSENIC [2]

Small system compliance technology	Affordable for listed small system categories [3]
Activated Alumina (centralized)	All size categories.
Activated Alumina (Point-of-Use) [4]	All size categories.
Coagulation/Filtration [5]	501–3,300, 3,301–10,000.
Coagulation-assisted Microfiltration.	501–3,300, 3,301–10,000.
Electrodialysis reversal [6]	501–3,300, 3,301–10,000.
Enhanced coagulation/filtration.	All size categories
Enhanced lime softening (pH>10.5).	All size categories.
Ion Exchange	All size categories.
Lime Softening [5]	501–3,300, 3,301–10,000.
Oxidation/Filtration [7]	All size categories.
Reverse Osmosis (centralized) [6]	501–3,300, 3,301–10,000.
Reverse Osmosis (Point-of-Use) [4]	All size categories.

[1] Section 1412(b)(4)(E)(ii) of SDWA specifies that SSCTs must be affordable and technically feasible for small systems.
[2] SSCTs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.
[3] The Act (ibid.) specifies three categories of small systems: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 10,001.
[4] When POU or POE devices are used for compliance, programs to ensure proper long-term operation, maintenance, and monitoring must be provided by the water system to ensure adequate performance.
[5] Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.
[6] Technologies reject a large volume of water—may not be appropriate for areas where water quantity may be an issue.
[7] To obtain high removals, iron to arsenic ratio must be at least 20:1.

[56 FR 3594, Jan. 30, 1991, as amended at 56 FR 30280, July 1, 1991; 57 FR 31847, July 17, 1992; 59 FR 34325, July 1, 1994; 60 FR 33932, June 29, 1995; 66 FR 7063, Jan. 22, 2001; 68 FR 14506, Mar. 25, 2003; 69 FR 38855, June 29, 2004]

§ 141.63 Maximum contaminant levels (MCLs) for microbiological contaminants.

(a) Until March 31, 2016, the total coliform MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.

(1) For a system that collects at least 40 samples per month, if no more than 5.0 percent of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms.

(2) For a system that collects fewer than 40 samples per month, if no more than one sample collected during a month is total coliform-positive, the system is in compliance with the MCL for total coliforms.

(b) Until March 31, 2016, any fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample, constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in subpart Q of this part, this is a violation that may pose an acute risk to health.

(c) Beginning April 1, 2016, a system is in compliance with the MCL for *E. coli* for samples taken under the provisions of subpart Y of this part unless any of the conditions identified in paragraphs (c)(1) through (c)(4) of this section occur. For purposes of the public notification requirements in subpart Q of this part, violation of the MCL may pose an acute risk to health.

(1) The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

(2) The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

(3) The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

(4) The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

(d) Until March 31, 2016, a public water system must determine compliance with the MCL for total coliforms in paragraphs (a) and (b) of this section for each month in which it is required to monitor for total coliforms. Beginning April 1, 2016, a public water system must determine compliance with the MCL for *E. coli* in paragraph (c) of this section for each month in which it is required to monitor for total coliforms.

(e) The Administrator, pursuant to section 1412 of the Act, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant level for total coliforms in paragraphs (a) and (b) of this section and for achieving compliance with the maximum contaminant level for *E. coli* in paragraph (c) of this section:

Chemical	Residential Soil, Cancer (mg/kg)	Residential Soil, Noncancer (mg/kg)	Industrial/ Occupational Soil, Cancer (mg/kg)	Industrial/ Occupational Soil, Noncancer (mg/kg)	Construction Worker Soil, Cancer (mg/kg)	Construction Worker Soil, Noncancer (mg/kg)	Tap Water, Cancer (µg/L)	Tap Water, Noncancer (µg/L)	Risk-based SSL, DAF 1 (mg/kg)	Risk-based SSL, DAF 20 (mg/kg)	NMGW/MCL-based SSL, DAF 1 (mg/kg)	NMGW/MCL-based SSL, DAF 20 (mg/kg)
Acenaphthene		3.48E+03		5.05E+04		1.51E+04		5.35E+02	4.12E+00	8.25E+01	1.54E-03	3.09E-02
Acetaldehyde	3.28E+02	2.41E+02	1.59E+03	1.14E+03	7.39E+03	2.11E+02	2.55E+01	1.88E+01	3.29E-03	6.58E-02		
Acetone		6.63E+04		9.59E+05		2.41E+05		1.41E+04	2.49E+00	4.98E+01		
Acetophenone		7.82E+03		1.30E+05		3.54E+04		1.92E+03	4.82E-01	9.64E+00		
Acrolein		4.50E-01		2.14E+00		3.97E-01		4.15E-02	7.29E-06	1.46E-04		
Acrylonitrile	4.90E+00	3.95E+01	2.45E+01	1.88E+02	1.29E+02	3.49E+01	5.23E-01	4.15E+00	9.77E-05	1.95E-03		
Alachlor	9.51E+01	6.16E+02	4.58E+02	9.16E+03	3.36E+03	2.69E+03	1.37E-01	1.86E+02	8.78E-05	1.76E-03	1.28E-03	2.57E-02
Aldrin	3.11E-01	1.85E+00	1.50E+00	2.75E+01	1.09E+01	8.07E+00	1.98E-03	3.31E-02	2.44E-04	4.88E-03		
Aluminum		7.80E+04		1.29E+06		4.14E+04		1.99E+04	2.99E+04	5.97E+05		
Anthracene		1.74E+04		2.53E+05		7.53E+04		1.72E+03	4.25E+01	8.51E+02		
Antimony		3.13E+01		5.19E+02		1.42E+02		7.26E+00	3.28E-01	6.56E+00	2.71E-01	5.42E+00
Arsenic	7.07E+00	1.30E+01	3.59E+01	2.08E+02	2.16E+02	4.12E+01	8.55E-01	3.55E+00	2.50E-02	4.99E-01	2.92E-01	5.83E+00
Atrazine	2.32E+01	2.16E+03	1.12E+02	3.21E+04	8.19E+02	9.42E+03	3.39E+00	7.02E+02	1.70E-03	3.41E-02	1.51E-03	3.02E-02
Barium		1.56E+04		2.55E+05		4.39E+03		3.28E+03	1.35E+02	2.70E+03	8.23E+01	1.65E+03
Benzene	1.77E+01	1.14E+02	8.65E+01	7.24E+02	4.20E+02	1.41E+02	4.55E+00	3.32E+01	1.90E-03	3.80E-02	2.09E-03	4.18E-02
Benzidine	5.18E-03	1.85E+02	1.12E-01	2.75E+03	8.12E-01	8.07E+02	1.09E-03	5.89E+01	2.13E-06	4.27E-05		
Benzo(a)anthracene	1.53E+00		3.23E+01		2.40E+02		1.20E-01		3.18E-02	6.37E-01		
Benzo(a)pyrene	1.12E+00		2.36E+01		1.73E+02	1.06E+02	2.51E-01	6.02E+00	2.21E-01	4.42E+00	1.76E-01	3.53E+00
Benzo(b)fluoranthene	1.53E+00		3.23E+01		2.40E+02		3.43E-01		3.09E-01	6.17E+00		
Benzo(k)fluoranthene	1.53E+01		3.23E+02		2.31E+03		3.43E+00		3.02E+00	6.05E+01		
Beryllium	6.44E+04	1.56E+02	3.13E+05	2.58E+03	2.71E+03	1.48E+02		1.24E+01	9.79E+00	1.96E+02	3.16E+00	6.32E+01
a-BHC (a-Hexachlorocyclohexane, a-HCH)	8.45E-01	4.93E+02	4.07E+00	7.33E+03	2.97E+01	2.15E+03	6.93E-02	9.18E+01	3.04E-04	6.08E-03		
b-BHC (b-Hexachlorocyclohexane, b-HCH)	2.96E+00		1.43E+01		1.04E+02		2.43E-01		1.06E-03	2.13E-02		
t-BHC (t-Hexachlorocyclohexane, Lindane)	5.63E+00	2.12E+01	2.83E+01	3.34E+02	1.98E+02	9.43E+01	4.15E-01	3.60E+00	1.82E-03	3.64E-02		
1,1-Biphenyl	8.48E+02	3.91E+04	4.43E+03	6.49E+05	3.02E+04	1.77E+05	3.71E+01	8.34E-01	6.56E-03	1.31E-01		
Bis(2-chloroethyl) ether	3.10E+00		1.56E+01		1.93E+00		1.37E-01		3.03E-05	6.05E-04		
Bis(2-chloroisopropyl) ether	9.93E+01		5.19E+02		3.54E+03		9.81E+00		2.38E-03	4.75E-02		
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl)phthalate, DEHP]	3.80E+02	1.23E+03	1.83E+03	1.83E+04	1.34E+04	5.38E+03	5.56E+01	4.01E+02	9.99E+00	2.00E+02	1.08E+00	2.15E+01
Bis(chloromethyl) ether	2.06E-03		1.01E-02		4.77E-02		7.20E-04		1.50E-07	3.00E-06		
Boron		1.56E+04		2.59E+05		5.14E+04		3.95E+03	1.25E+01	2.51E+02		
Bromodichloromethane	6.14E+00	1.56E+03	2.99E+01	2.60E+04	1.41E+02	7.08E+03	1.34E+00	3.77E+02	3.10E-04	6.21E-03		
Bromomethane		1.76E+01		9.37E+01		1.77E+01		7.54E+00	1.71E-03	3.43E-02		
1,3-Butadiene	6.82E-01	2.28E+00	3.39E+00	1.07E+01	1.75E+01	2.00E+00	1.81E-01	4.17E+00	1.04E-04	2.08E-03		
2-Butanone (Methyl ethyl ketone, MEK)		3.73E+04		4.09E+05		9.12E+04		5.56E+03	1.00E+00	2.01E+01		
tert-Butyl methyl ether (MTBE)	9.68E+02	3.74E+04	4.78E+03	1.76E+05	2.40E+04	3.28E+04	1.43E+02	6.26E+03	2.77E-02	5.53E-01		
Cadmium	8.59E+04	7.05E+01	4.17E+05	1.11E+03	3.61E+03	7.21E+01		6.24E+00	4.69E-01	9.39E+00	3.76E-01	7.52E+00
Carbofuran		3.08E+02		4.58E+03		1.35E+03		9.36E+01	2.96E-02	5.91E-01	1.26E-02	2.53E-01
Carbon disulfide		1.54E+03		8.47E+03		1.61E+03		8.10E+02	2.21E-01	4.42E+00		
Carbon tetrachloride	1.06E+01	1.44E+02	5.21E+01	1.01E+03	2.50E+02	2.00E+02	4.55E+00	4.92E+01	1.67E-03	3.34E-02	1.84E-03	3.67E-02
Chlordane	1.77E+01	3.53E+01	8.90E+01	5.56E+02	6.23E+02	1.53E+02	4.48E-01	1.27E+00	2.28E-02	4.56E-01	1.02E-01	2.03E+00
2-Chloroacetophenone		1.72E+05		8.12E+05		2.81E+02						
2-Chloro-1,3-butadiene	1.73E-01	3.77E+01	8.41E-01	1.81E+02	3.91E+00	3.37E+01	1.87E-01	3.70E+01	9.83E-05	1.97E-03		
1-Chloro-1,1-difluoroethane		1.08E+05		5.10E+05		9.49E+04		1.04E+05	5.34E+01	1.07E+03		
Chlorobenzene (Monochlorobenzene)		3.76E+02		2.14E+03		4.08E+02		7.76E+01	4.18E-02	8.36E-01	5.39E-02	1.08E+00
1-Chlorobutane		3.13E+03		5.19E+04		1.42E+04		6.31E+02	2.27E-01	4.53E+00		
Chlorodifluoromethane		1.02E+05		4.79E+05		8.90E+04		1.04E+05	4.27E+01	8.55E+02		
Chloroform	5.85E+00	3.04E+02	2.84E+01	1.99E+03	1.33E+02	3.88E+02	2.29E+00	9.72E+01	5.46E-04	1.09E-02		
Chloromethane	4.08E+01	2.66E+02	1.99E+02	1.25E+03	9.47E+02	2.33E+02	2.03E+01	1.88E+02	4.76E-03	9.52E-02		
b-Chloronaphthalene		6.26E+03		1.04E+05		2.83E+04		7.33E+02	2.85E+00	5.70E+01		
o-Chloronitrobenzene	1.78E+01	1.84E+02	8.55E+01	2.72E+03	6.28E+02	8.39E+01	2.36E+00	5.49E+01	1.72E-03	3.44E-02		
p-Chloronitrobenzene	8.45E+02	6.16E+01	4.07E+03	9.16E+02	2.99E+04	2.57E+02	1.10E+02	1.79E+01	1.28E-02	2.57E-01		
2-Chlorophenol		3.91E+02		6.49E+03		1.77E+03		9.10E+01	5.76E-02	1.15E+00		
2-Chloropropane		2.84E+02		1.34E+03		2.49E+02		2.09E+02	6.31E-02	1.26E+00		
o-Chlorotoluene		1.56E+03		2.60E+04		7.08E+03		2.33E+02	1.78E-01	3.56E+00		
Chromium III		1.17E+05		1.95E+06		5.31E+05		1.36E+04	2.46E+07	4.91E+08		
Chromium VI	3.05E+00	2.35E+02	7.21E+01	3.89E+03	6.69E+01	4.98E+02	5.01E-01	2.67E+01	9.61E-03	1.92E-01		
Chromium (Total)	9.66E+01	4.52E+04	5.05E+02	3.14E+05	4.68E+02	1.34E+02	5.70E+00	1.17E+04	1.03E+04	2.05E+05	1.80E+05	3.60E+03
Chrysene	1.53E+02		3.23E+03		2.31E+04		3.43E+01		9.30E+00	1.86E+02		
Cobalt	1.72E+04	2.34E+01	8.34E+04	3.88E+02	7.22E+02	3.67E+01		5.98E+00	2.70E-01	5.40E+00		

Copper		3.13E+03		5.19E+04		1.42E+04		7.90E+02	2.78E+01	5.56E+02	4.57E+01	9.15E+02
Crotonaldehyde	3.66E+00	7.82E+01	1.91E+01	1.30E+03	1.30E+02	3.54E+02	4.04E-01	1.98E+01	7.11E-05	1.42E-03		
Cumene (isopropylbenzene)		2.35E+03		1.41E+04		2.71E+03		4.47E+02	5.69E-01	1.14E+01		
Cyanide		1.11E+01		6.28E+01		1.20E+01		1.46E+00	2.61E-04	5.22E-03	3.56E-02	7.13E-01
Cyanogen		7.82E+01		1.30E+03		3.54E+02		1.99E+01	4.01E-03	8.01E-02		
Cyanogen bromide		7.04E+03		1.17E+05		3.19E+04		1.80E+03	5.29E-01	1.06E+01		
Cyanogen chloride		3.91E+03		6.49E+04		1.77E+04		9.99E+02	2.94E-01	5.88E+00		
DDD	2.22E+01		1.07E+02		7.78E+02		3.17E-01		5.60E-02	1.12E+00		
DDE	1.57E+01		7.55E+01		5.49E+02		4.62E-01		8.15E-02	1.63E+00		
DDT	1.87E+01	3.62E+01	9.50E+01	5.77E+02	6.59E+02	1.62E+02	2.29E+00	1.00E+01	5.80E-01	1.16E+01		
Dibenz(a,h)anthracene	1.53E-01		3.23E+00		2.40E+01		3.43E-02		9.84E-02	1.97E+00		
1,2-Dibromo-3-chloropropane	8.51E-02	5.85E+00	1.17E+00	4.08E+01	5.48E+00	8.23E+00	3.34E-03	3.72E-01	1.16E-06	2.33E-05	6.95E-05	1.39E-03
Dibromochloromethane	1.38E+01	1.23E+03	6.69E+01	1.83E+04	3.38E+02	5.38E+03	1.68E+00	3.78E+02	3.77E-04	7.55E-03		
1,2-Dibromoethane (Ethylene dibromide)	6.68E-01	1.34E+02	3.28E+00	7.32E+02	1.62E+01	1.39E+02	7.47E-02	1.69E+01	1.76E-05	3.52E-04	1.18E-05	2.36E-04
1,4-Dichloro-2-butene	1.14E-01		5.53E-01		2.57E+00		1.34E-02		5.00E-06	9.99E-05		
1,2-Dichlorobenzene		2.14E+03		1.29E+04		2.47E+03		3.02E+02	2.29E-01	4.58E+00	4.54E-01	9.08E+00
1,4-Dichlorobenzene	1.29E+03	5.48E+03	6.73E+03		4.59E+04	2.48E+04	4.82E+00	5.63E+02	3.60E-03	7.20E-02	5.61E-02	1.12E+00
3,3-Dichlorobenzidine	1.18E+01		5.70E+01		4.10E+02		1.25E+00		6.21E-03	1.24E-01		
Dichlorodifluoromethane		1.80E+02		8.57E+02		1.59E+02		1.97E+02	3.61E-01	7.23E+00		
1,1-Dichloroethane	7.79E+01	1.56E+04	3.80E+02	2.60E+05	1.80E+03	7.08E+04	2.75E+01	3.74E+03	6.80E-03	1.36E-01		
1,2-Dichloroethane	8.25E+00	5.52E+01	4.03E+01	2.84E+02	1.94E+02	5.34E+01	1.71E+00	1.30E+01	4.07E-04	8.14E-03	1.19E-03	2.38E-02
cis-1,2-Dichloroethene		1.56E+02		2.60E+03		7.08E+02		3.65E+01	9.18E-03	1.84E-01	1.76E-02	3.52E-01
trans-1,2-Dichloroethene		2.93E+02		1.60E+03		3.03E+02		9.32E+01	2.35E-02	4.69E-01	2.52E-02	5.03E-01
1,1-Dichloroethene		4.36E+02		2.24E+03		4.20E+02		2.84E+02	9.74E-02	1.95E+00	2.40E-03	4.79E-02
2,4-Dichlorophenol		1.85E+02		2.75E+03		8.07E+02		4.53E+01	4.13E-02	8.25E-01		
1,2-Dichloropropane	1.76E+01	2.87E+01	8.61E+01	1.36E+02	4.11E+02	2.52E+01	4.38E+00	8.30E+00	1.21E-03	2.43E-02	1.39E-03	2.77E-02
1,3-Dichloropropene	2.91E+01	1.40E+02	1.46E+02	6.89E+02	7.76E+02	1.29E+02	4.71E+00	3.88E+01	1.40E-03	2.81E-02		
Dicyclopentadiene		6.26E+03		1.04E+05		2.83E+04		6.25E-01	1.71E-03	3.42E-02		
Dieldrin	3.33E-01	3.08E+00	1.60E+00	4.58E+01	1.17E+01	1.35E+01	1.75E-02	3.72E-01	5.32E-04	1.06E-02		
Diethyl phthalate		4.93E+04		7.33E+05		2.15E+05		1.48E+04	4.89E+00	9.79E+01		
Di-n-butyl phthalate (Dibutyl phthalate)		6.16E+03		9.16E+04		2.69E+04		8.85E+02	1.69E+00	3.38E+01		
2,4-Dimethylphenol		1.23E+03		1.83E+04		5.38E+03		3.54E+02	3.22E-01	6.45E+00		
Dimethyl phthalate (DMP, Phthalic Acid)		6.16E+04		9.16E+05		2.69E+05		6.12E+02	1.78E-01	3.57E+00		
4,6-Dinitro-o-cresol		4.93E+00		7.33E+01		2.15E+01		1.52E+00	1.99E-03	3.98E-02		
2,4-Dinitrophenol		1.23E+02		1.83E+03		5.38E+02		3.87E+01	3.34E-02	6.69E-01		
2,4-Dinitrotoluene	1.71E+01	1.23E+02	8.23E+01	1.82E+03	6.00E+02	5.36E+02	2.37E+00	3.80E+01	2.46E-03	4.92E-02		
2,6-Dintitrotoluene	3.56E+00	1.85E+01	1.72E+01	2.76E+02	1.65E+02	8.09E+01	4.85E-01	5.64E+00	5.12E-04	1.02E-02		
2,4/2,6-Dintrotoluene Mixture	7.83E+00		3.77E+01		2.77E+02		1.06E+00		1.12E-03	2.24E-02		
1,4-Dioxane	5.33E+01	1.85E+03	2.57E+02	2.75E+04	1.88E+03	7.85E+03	4.59E+00	5.67E+01	8.14E-04	1.63E-02		
1,2-Diphenylhydrazine	6.66E+00		3.21E+01		2.34E+02		7.80E-01		1.90E-03	3.79E-02		
Endosulfan		3.70E+02		5.50E+03		1.61E+03		9.87E+01	1.02E+00	2.04E+01		
Endrin		1.85E+01		2.75E+02		8.07E+01		2.23E+00	6.77E-02	1.35E+00	6.06E-02	1.21E+00
Epichlorohydrin	4.20E+02	4.24E+01	2.13E+03	2.14E+02	1.21E+04	3.99E+01	2.92E+01	2.05E+00	3.86E-04	7.72E-03		
Ethyl acetate		1.80E+03		8.67E+03		1.61E+03		1.45E+02	2.64E-02	5.28E-01		
Ethyl acrylate	1.45E+02		7.57E+02		5.16E+03		1.57E+01		2.99E-03	5.98E-02		
Ethyl chloride		1.88E+04		8.87E+04		1.65E+04		2.09E+04	5.37E+00	1.07E+02		
Ethyl ether		1.56E+04		2.60E+05		7.08E+04		3.93E+03	7.60E-01	1.52E+01		
Ethyl methacrylate		2.72E+03		1.77E+04		3.45E+03		4.55E+02	9.15E-02	1.83E+00		
Ethylbenzene	7.45E+01	3.92E+03	3.65E+02	2.88E+04	1.76E+03	5.75E+03	1.50E+01	8.00E+02	1.32E-02	2.64E-01	6.15E-01	1.23E+01
Ethylene oxide	1.87E-01	6.29E+02	9.06E-01	2.97E+03	4.22E+00	5.50E+02	1.86E-02	6.26E+01	3.32E-06	6.65E-05		
Fluoranthene		2.32E+03		3.37E+04		1.00E+04		8.02E+02	6.69E+01	1.34E+03		
Fluorene		2.32E+03		3.37E+04		1.00E+04		2.88E+02	4.00E+00	8.00E+01		
Fluoride		4.69E+03		7.78E+04		1.81E+04		1.18E+03	1.78E+02	3.56E+03	6.01E+02	1.20E+04
Furan		7.24E+01		1.15E+03		3.54E+02		1.92E+01	6.12E-03	1.22E-01		
Glyphosate		6.16E+03		9.16E+04		2.69E+04		2.01E+03	6.66E+00	1.33E+02	2.33E+00	4.65E+01
Heptachlor	1.18E+00	3.08E+01	5.70E+00	4.58E+02	4.15E+01	1.35E+02	2.21E-02	2.72E+00	1.37E-03	2.75E-02	2.48E-02	4.97E-01
Hexachlorobenzene	3.33E+00	4.93E+01	1.60E+01	7.33E+02	1.17E+02	2.15E+02	9.76E-02	1.60E+01	9.25E-04	1.85E-02	9.47E-03	1.89E-01
Hexachloro-1,3-butadiene	6.83E+01	6.16E+01	5.17E+01	9.16E+02	2.40E+03	2.69E+02	1.39E+00	6.30E+00	2.07E-03	4.13E-02		
Hexachlorocyclopentadiene		2.28E+00		5.49E+03		8.67E+02		4.11E-01	9.88E-04	1.98E-02	1.20E-01	2.40E+00
Hexachloroethane	1.33E+02	4.31E+01	6.41E+02	6.41E+02	4.67E+03	1.88E+02	3.28E+00	6.14E+00	1.60E-03	3.20E-02		
n-Hexane		6.10E+02		3.17E+03		5.97E+02		3.19E+02	2.78E+00	5.57E+01		
HMX		3.85E+03		6.33E+04		1.74E+04		1.00E+03	9.72E-01	1.94E+01		
Hydrazine anhydride	1.78E+00	1.80E+00	1.35E+00	8.12E+05	5.99E+01	2.81E+02	1.10E-02	6.26E-02	1.90E-06	3.81E-05		
Hydrogen cyanide		1.02E+01		5.67E+01		1.08E+01		1.46E+00	2.61E-04	5.22E-03		

Indeno(1,2,3-c,d)pyrene	1.53E+00		3.23E+01		2.40E+02		3.43E-01		1.00E+00	2.01E+01		
Iron		5.48E+04		9.08E+05		2.48E+05		1.38E+04	3.48E+02	6.96E+03		
Isobutanol (Isobutyl alcohol)		1.85E+04		2.75E+05		8.07E+04		5.91E+03	1.05E+00	2.10E+01		
Isophorone	5.61E+03	1.23E+04	2.70E+04	1.83E+05	1.98E+05	5.37E+04	7.81E+02	3.83E+03	2.12E-01	4.23E+00		
Lead											2.60E-03	5.20E-02
Lead (tetraethyl-)		6.16E-03		9.16E-02		3.54E-02		1.24E-03	4.70E-06	9.41E-05		
Maleic hydrazide		3.08E+04		4.58E+05		1.35E+05		1.00E+04	1.79E+00	3.57E+01		
Manganese		1.05E+04		1.60E+05		4.64E+02		2.02E+03	1.31E+02	2.63E+03		
Mercury (elemental)		2.36E+01		1.11E+02		2.05E+01		6.26E-01	3.27E-02	6.54E-01	1.04E-01	2.09E+00
Mercury (methyl)		7.82E+00		1.30E+02		3.54E+01		1.96E+00	3.79E-04	7.58E-03		
Mercury (salts)		2.35E+01		3.89E+02		7.71E+01		4.92E+00	2.56E-01	5.13E+00	1.04E-01	2.09E+00
Methacrylonitrile		7.70E+00		1.23E+02		3.27E+01		1.91E+00	3.71E-04	7.43E-03		
Methomyl		1.54E+03		2.29E+04		6.73E+03		4.98E+02	9.37E-02	1.87E+00		
Methyl acetate		7.82E+04		1.30E+06		3.54E+05		1.99E+04	3.55E+00	7.11E+01		
Methyl acrylate		3.47E+02		1.83E+03		3.45E+02		3.90E+01	7.13E-03	1.43E-01		
Methyl isobutyl ketone		5.81E+03		8.15E+04		2.02E+04		1.24E+03	2.40E-01	4.80E+00		
Methyl methacrylate		1.10E+04		5.60E+04		1.05E+04		1.39E+03	2.61E-01	5.22E+00		
Methyl styrene (alpha)		5.48E+03		9.08E+04		2.48E+04		7.65E+02	9.43E-01	1.89E+01		
Methyl styrene (mixture)		2.72E+02		2.19E+03		4.46E+02		3.73E+01	4.70E-02	9.40E-01		
Methylcyclohexane		5.45E+03		2.57E+04		4.78E+03		6.26E+03	1.58E+01	3.16E+02		
Methylene bromide (Dibromomethane)		5.74E+01		2.86E+02		5.34E+01		8.00E+00	1.68E-03	3.35E-02		
Methylene chloride (Dichloromethane)	7.66E+02	4.09E+02	1.44E+04	5.11E+03	8.93E+04	1.20E+03	1.18E+02	1.06E+02	2.35E-02	4.71E-01	1.11E-03	2.21E-02
1-Methylnaphthalene	1.72E+02	4.06E+03	8.13E+02	5.89E+04	6.06E+03	1.76E+04	1.14E+01	6.11E+02	4.47E-02	8.93E-01		
2-Methylnaphthalene		2.32E+02		3.37E+03		1.00E+03		3.51E+01	1.38E-01	2.76E+00		
Molybdenum		3.91E+02		6.49E+03		1.77E+03		9.87E+01	1.99E+00	3.98E+01		
Naphthalene		1.16E+03		1.68E+04		5.02E+03	1.65E+00	6.11E+00	4.11E-03	8.23E-02		
Nickel	5.95E+05	1.56E+03	2.89E+06	2.57E+04	2.50E+04	7.53E+02		3.72E+02	2.42E+01	4.85E+02		
Nitrate		1.25E+05		2.08E+06		5.66E+05		3.16E+04	2.13E+01	4.25E+02	6.73E+00	1.35E+02
Nitrite		7.82E+03		1.30E+05		3.54E+04		1.97E+03	1.33E+00	2.66E+01	6.73E-01	1.35E+01
Nitrobenzene	5.99E+01	1.31E+02	2.91E+02	1.54E+03	1.34E+03	3.51E+02	1.40E+00	1.25E+01	7.20E-04	1.44E-02		
Nitroglycerin	3.13E+02	6.16E+00	1.51E+03	9.16E+01	1.11E+04	2.69E+01	4.47E+01	1.96E+00	6.80E-04	1.36E-02		
p-Nitrophenol												
N-Nitrosodiethylamine	7.94E-03		1.71E-01		1.25E+00		1.67E-03		4.97E-07	9.94E-06		
N-Nitrosodimethylamine	2.34E-02	4.93E-01	5.03E-01	7.33E+00	3.66E+00	2.14E+00	4.91E-03	1.60E-01	1.02E-06	2.04E-05		
N-Nitrosodi-*n*-butylamine	7.79E-01		3.76E+00		2.45E+01		2.73E-02		4.21E-05	8.42E-04		
N-Nitrosodiphenylamine	1.09E+03		5.24E+03		3.79E+04		1.22E+02		5.02E-01	1.00E+01		
N-Nitrosopyrrolidine	2.54E+00		1.22E+01		8.89E+01		3.70E-01		1.15E-04	2.30E-03		
m-Nitrotoluene		6.16E+00		9.16E+01		2.69E+01		1.74E+00	1.25E-03	2.50E-02		
o-Nitrotoluene	3.16E+01	7.04E+01	1.65E+02	1.17E+03	1.13E+03	3.19E+02	3.14E+00	1.61E+01	2.29E-03	4.58E-02		
p-Nitrotoluene	3.33E+02	2.47E+02	1.60E+03	3.67E+03	1.18E+04	1.08E+03	4.27E+01	7.07E+01	3.06E-02	6.13E-01		
Pentachlorobenzene		4.93E+01		7.33E+02		2.15E+02		3.07E+00	1.76E-02	3.52E-01		
Pentachlorophenol	9.85E+00	2.34E+02	4.45E+01	3.18E+03	3.46E+02	9.89E+02	4.13E-01	2.21E+01	3.14E-03	6.29E-02	7.61E-03	1.52E-01
Perchlorate		5.48E+01		9.08E+02		2.48E+02		1.38E+01	5.85E-03	1.17E-01	6.35E-04	1.27E-02
Perfluorinate chemicals (PFCs)								7.00E-02				
Perfluorohexane sulfonic acid (PFHxS)												
Perfluorooctane sulfonate (PFO, PFOS)								7.00E-02				
Perfluorooctanoic acid (PFOA)								7.00E-02				
Phenanthrene		1.74E+03		2.53E+04		7.53E+03		1.70E+02	4.30E+00	8.59E+01		
Phenol		1.85E+04		2.75E+05		7.74E+04		5.76E+03	2.62E+00	5.23E+01		
Polychlorinatedbiphenyls (PCBs)												
Aroclor 1016	6.96E+01	3.98E+00	3.04E+02	5.74E+01	2.44E+03	1.72E+01	2.24E+00	1.40E+00	1.01E-01	2.01E+00	3.59E-02	7.17E-01
Aroclor 1221	1.80E+00		8.55E+00		5.52E+01		5.61E-02		7.17E-04	1.43E-02		
Aroclor 1232	1.85E+00		8.80E+00		5.74E+01		5.61E-02		7.17E-04	1.43E-02		
Aroclor 1242	2.43E+00		1.09E+01		8.53E+01		7.86E-02		9.22E-03	1.84E-01		
Aroclor 1248	2.43E+00		1.07E+01		8.53E+01		7.86E-02		9.04E-03	1.81E-01		
Aroclor 1254	2.43E+00	1.14E+00	1.10E+01	1.64E+01	8.53E+01	4.91E+00	7.86E-02	4.01E-01	1.54E-02	3.08E-01		
Aroclor 1260	2.43E+00		1.11E+01		8.53E+01		7.86E-02		4.13E-02	8.25E-01		
2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)	3.75E-01	3.98E-01	1.77E+00	5.74E+00	1.31E+01	1.72E+00	5.99E-02	1.40E-01	3.21E-02	6.42E-01		
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	3.75E+00	3.98E+00	1.77E+01	5.74E+01	1.31E+02	1.72E+01	5.99E-01	1.40E+00	3.14E-01	6.29E+00		
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	1.25E+00	1.33E+00	5.81E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	2.07E-02	4.15E-01		
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	1.25E+00	1.33E+00	5.78E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	1.24E-02	2.48E-01		
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	1.25E+00	1.33E+00	5.78E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	1.27E-02	2.53E-01		
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	1.25E+00	1.33E+00	5.74E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	1.27E-02	2.53E-01		
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	1.25E-03	1.33E-03	5.78E-03	1.91E-02	4.37E-02	5.73E-03	3.95E-05	4.01E-04	1.24E-05	2.48E-04		

2',3,4,4',5-Pentachlorobiphenyl (PCB 123)	1.25E+00	1.33E+00	5.73E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	7.74E-03	1.55E-01		
2',3',4,4',5-Pentachlorobiphenyl (PCB 118)	1.25E+00	1.32E+00	5.63E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	7.59E-03	1.52E-01		
2',3,3',4,4'-Pentachlorobiphenyl (PCB 105)	1.25E+00	1.32E+00	5.64E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	7.74E-03	1.55E-01		
2,3,4,4',5-Pentachlorobiphenyl (PCB 114)	1.25E+00	1.33E+00	5.73E+00	1.91E+01	4.37E+01	5.73E+00	3.95E-02	4.01E-01	7.74E-03	1.55E-01		
3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	3.75E-04	3.98E-04	1.72E-03	5.74E-03	1.31E-02	1.72E-03	1.19E-05	1.20E-04	2.28E-06	4.55E-05		
3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	3.75E-01	3.98E-01	1.77E+00	5.74E+00	1.31E+01	1.72E+00	5.99E-02	1.40E-01	7.03E-03	1.41E-01		
3,4,4',5-Tetrachlorobiphenyl (PCB 81)	1.25E-01	1.32E-01	5.66E-01	1.91E+00	4.37E+00	5.73E-01	3.95E-03	4.01E-02	4.64E-04	9.27E-03		
Propylene oxide	2.56E+01	9.06E+02	1.33E+02	4.27E+03	8.54E+02	7.92E+02	2.66E+00	6.26E+01	4.82E-04	9.65E-03		
Pyrene		1.74E+03		2.53E+04		7.53E+03		1.17E+02	9.59E+00	1.92E+02		
RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine	6.04E+01	2.26E+02	3.11E+02	3.66E+03	2.15E+03	1.01E+03	7.02E+00	5.97E+01	2.16E-03	4.31E-02		
Selenium		3.91E+02		6.49E+03		1.75E+03		9.87E+01	5.11E-01	1.02E+01	2.59E-01	5.17E+00
Silver		3.91E+02		6.49E+03		1.77E+03		8.12E+01	6.88E-01	1.38E+01		
Simazine	4.44E+01	3.08E+02	2.14E+02	4.58E+03	1.57E+03	1.35E+03	6.07E+00	9.40E+01	2.42E-03	4.83E-02	1.59E-03	3.19E-02
Strontium		4.69E+04		7.79E+05		2.12E+05		1.18E+04	4.17E+02	8.33E+03		
Styrene		7.23E+03		5.09E+04		1.01E+04		1.21E+03	1.03E+00	2.06E+01	8.55E-02	1.71E+00
Sulfolane		6.16E+01		9.16E+02		2.65E+02		2.00E+01	3.75E-03	7.49E-02		
2,3,7,8-TCDD	4.90E-05	5.06E-05	2.38E-04	8.08E-04	1.72E-03	2.26E-04	1.19E-06	1.20E-05	4.43E-07	8.86E-06	1.12E-05	2.24E-04
2,3,7,8-TCDF	4.90E-04		2.43E-03		1.72E-02		1.84E-06		3.85E-07	7.69E-06		
1,2,4,5-Tetrachlorobenzene		1.85E+01		2.75E+02		8.07E+01		1.66E+00	5.83E-03	1.17E-01		
1,1,1,2-Tetrachloroethane	2.78E+01	2.35E+03	1.36E+02	3.89E+04	6.53E+02	1.06E+04	5.74E+00	4.77E+02	1.80E-03	3.60E-02		
1,1,2,2-Tetrachloroethane	7.93E+00	1.56E+03	3.91E+01	2.60E+04	1.95E+02	7.08E+03	7.57E-01	3.60E+02	2.40E-04	4.81E-03		
Tetrachloroethene	3.35E+02	1.10E+02	1.64E+03	6.24E+02	7.84E+03	1.19E+02	1.13E+02	4.03E+01	1.60E-02	3.21E-01	1.99E-03	3.98E-02
Tetryl (Trinitrophenylmethylnitramine)		1.56E+02		2.59E+03		7.06E+02		3.94E+01	2.79E-01	5.59E+00		
Thallium		7.82E-01		1.30E+01		3.54E+00		1.97E-01	1.41E-02	2.81E-01	1.42E-01	2.85E+00
Toluene		5.22E+03		6.11E+04		1.40E+04		1.09E+03	6.07E-01	1.21E+01	5.55E-01	1.11E+01
Toxaphene	4.84E+00		2.33E+01		1.70E+02		1.58E-01		1.83E-02	3.66E-01	3.48E-01	6.96E+00
Tribromomethane (Bromoform)	6.74E+02	1.23E+03	1.75E+03	1.83E+04	2.37E+04	5.38E+03	3.29E+01	3.76E+02	7.34E-03	1.47E-01		
1,1,2-Trichloro-1,2,2-trifluoroethane		5.03E+04		2.41E+05		4.49E+04		5.50E+04	1.60E+02	3.20E+03		
1,2,4-Trichlorobenzene	2.40E+02	8.22E+01	1.25E+03	4.19E+02	8.54E+03	7.84E+01	1.15E+01	3.98E+00	8.82E-03	1.76E-01	1.55E-01	3.10E+00
1,1,1-Trichloroethane		1.43E+04		7.19E+04		1.35E+04		8.00E+03	2.55E+00	5.11E+01	6.38E-02	1.28E+00
1,1,2-Trichloroethane	1.86E+01	2.59E+00	9.13E+01	1.23E+01	4.30E+03	2.28E+00	2.75E+00	4.15E-01	1.11E-04	2.23E-03	1.34E-03	2.68E-02
Trichloroethylene	1.54E+01	6.72E+00	1.11E+02	3.61E+01	5.37E+03	6.84E+00	2.59E+00	2.82E+00	8.04E-04	1.61E-02	1.55E-03	3.10E-02
Trichlorofluoromethane		1.22E+03		5.98E+03		1.12E+03		1.14E+03	7.84E-01	1.57E+01		
2,4,5-Trichlorophenol		6.16E+03		9.16E+04		2.69E+04		1.17E+03	3.31E+00	6.62E+01		
2,4,6-Trichlorophenol	4.84E+02	6.16E+01	2.33E+03	9.16E+02	1.70E+04	2.69E+02	4.11E+01	1.19E+01	3.37E-02	6.74E-01		
1,1,2-Trichloropropane		3.91E+02		6.49E+03		1.77E+03		8.81E+01	2.79E-02	5.59E-01		
1,2,3-Trichloropropane	5.10E-02	7.03E+00	1.21E+00	3.37E+01	8.26E+00	6.26E+00	8.35E-03	6.20E-01	2.91E-06	5.82E-05		
Triethylamine		1.91E+02		9.00E+02		1.67E+02		1.46E+01	3.65E-03	7.31E-02		
2,4,6-Trinitrotoluene	2.11E+02	3.60E+01	1.07E+03	5.73E+02	7.50E+03	1.61E+02	2.53E+01	9.80E+00	4.30E-02	8.61E-01		
Uranium (soluable salts)		2.34E+02		3.88E+03		2.77E+02		5.92E+01	2.67E+01	5.33E+02		2.70E+02
Vanadium		3.94E+02		6.53E+03		6.14E+02		6.31E+01	6.31E+01	1.26E+03		
Vinyl acetate		2.54E+03		1.22E+04		2.28E+03		4.09E+02	7.52E-02	1.50E+00		
Vinyl bromide	2.68E+00	9.57E+00	1.30E+01	4.51E+01	6.06E+01	8.39E+00	1.75E+00	6.26E+00	4.62E-04	9.23E-03		
Vinyl chloride	7.41E-01	1.13E+02	2.83E+01	8.10E+02	1.60E+02	1.61E+02	3.24E-01	4.43E+01	1.08E-04	2.17E-03	6.70E-04	1.34E-02
m-Xylene		7.57E+02		3.70E+03		6.90E+02		1.93E+02	1.48E-01	2.97E+00		
o-Xylene		7.98E+02		3.91E+03		7.29E+02		1.93E+02	1.49E-01	2.98E+00		
p-Xylene		7.85E+02		3.84E+03		7.16E+02		1.93E+02	1.50E-01	2.99E+00		
Xylenes		8.63E+02		4.24E+03		7.91E+02		1.93E+02	1.49E-01	2.98E+00	7.72E+00	1.54E+02
Zinc		2.35E+04		3.89E+05		1.06E+05		5.96E+03	3.71E+02	7.41E+03		
Essential Nutrients												
Calcium		1.30E+07		4.06E+07		1.11E+07						
Chloride		1.88E+07		5.84E+07		1.59E+07						
Magnesium		2.09E+07		5.68E+06		1.55E+06						
Phosphorus		2.45E+07		6.49E+07		1.77E+07						
Potassium		1.56E+07		7.62E+07		2.08E+07						
Sodium		1.20E+07		3.73E+07		1.02E+07						

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information															Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
				1.2E-03		O				-0.85	1	1	Yes	Acephate	30560-19-1					2.4E+01	3.4E+04		2.4E+01	
		2.2E-06	I			9.0E-03	I	V		-0.34	1	1	Yes	Acetaldehyde	75-07-0			2.6E+00	2.6E+00			1.9E+01	1.9E+01	
				2.0E-02		I				3.03	1	0.9	Yes	Acetochlor	34256-82-1					4.0E+02	2.9E+03		3.5E+02	
				9.0E-01		I	3.1E+01	A	V	-0.24	1	1	Yes	Acetone	67-64-1					1.8E+04	4.4E+06	6.4E+04	1.4E+04	
						2.0E-03	X			-0.03	1	1	Yes	Acetone Cyanohydrin	75-86-5									
						6.0E-02	I	V		-0.34	1	1	Yes	Acetonitrile	75-05-8							1.3E+02	1.3E+02	
				1.0E-01		I			V	1.58	1	1	Yes	Acetophenone	98-86-2					2.0E+03	4.6E+04		1.9E+03	
3.8E+00	C	1.3E-03	C							3.12	1	1	Yes	Acetylaminofluorene, 2-	53-96-3	2.1E-02	6.7E-02		1.6E-02					
				5.0E-04	I	2.0E-05	I	V		-0.01	1	1	Yes	Acrolein	107-02-8					1.0E+01	1.7E+03	4.2E-02	4.2E-02	
5.0E-01	I	1.0E-04	I	2.0E-03	I	6.0E-03	I		M	-0.67	1	1	Yes	Acrylamide	79-06-1	5.0E-02	2.3E+01		5.0E-02	4.0E+01	2.1E+04		4.0E+01	
				5.0E-01	I	1.0E-03	I	V		0.35	1	1	Yes	Acrylic Acid	79-10-7					1.0E+04	1.1E+06	2.1E+00	2.1E+00	
5.4E-01	I	6.8E-05	I	4.0E-02	A	2.0E-03	I	V		0.25	1	1	Yes	Acrylonitrile	107-13-1	1.4E-01	1.4E+01	8.3E-02	5.2E-02	8.0E+02	8.9E+04	4.2E+00	4.1E+00	
						6.0E-03	P			-0.32	1	1	Yes	Adiponitrile	111-69-3									
5.6E-02	C			1.0E-02		I				3.52	1	0.9	Yes	Alachlor	15972-60-8	1.4E+00	4.4E+00		1.1E+00	2.0E+02	6.9E+02		1.6E+02	2.0E+00
				1.0E-03		I				1.13	1	1	Yes	Aldicarb	116-06-3					2.0E+01	1.4E+03		2.0E+01	3.0E+00
				1.0E-03		I				-0.57	1	1	Yes	Aldicarb Sulfone	1646-88-4					2.0E+01	2.4E+04		2.0E+01	2.0E+00
										-0.78	1	1	Yes	Aldicarb sulfoxide	1646-87-3									4.0E+00
1.7E+01	I	4.9E-03	I	3.0E-05		I			V	6.50	1	1	No	Aldrin	309-00-2	4.6E-03		1.1E-03	9.2E-04	6.0E-01			6.0E-01	
				5.0E-03	I	1.0E-04	X	V		0.17	1	1	Yes	Allyl Alcohol	107-18-6					1.0E+02	1.3E+04	2.1E-01	2.1E-01	
2.1E-02	C	6.0E-06	C			1.0E-03	I	V		1.93	1	1	Yes	Allyl Chloride	107-05-1	3.7E+00	3.5E+01	9.4E-01	7.3E-01			2.1E+00	2.1E+00	
				1.0E+00	P	5.0E-03	P				1	1	Yes	Aluminum	7429-90-5					2.0E+04	4.6E+06		2.0E+04	
				4.0E-04	I						1	1	Yes	Aluminum Phosphide	20859-73-8					8.0E+00	1.8E+03		8.0E+00	
				9.0E-03	I					2.98	1	1	Yes	Ametryn	834-12-8					1.8E+02	9.8E+02		1.5E+02	
2.1E+01	C	6.0E-03	C							2.86	1	1	Yes	Aminobiphenyl, 4-	92-67-1	3.7E-03	1.5E-02		3.0E-03					
				8.0E-02	P					0.21	1	1	Yes	Aminophenol, m-	591-27-5					1.6E+03	2.8E+05		1.6E+03	
				4.0E-03	X					0.62	1	1	Yes	Aminophenol, o-	95-55-6					8.0E+01	7.5E+03		7.9E+01	
				2.0E-02	P					0.04	1	1	Yes	Aminophenol, p-	123-30-8					4.0E+02	9.1E+04		4.0E+02	
				2.5E-03	I					5.50	1	0.9	Yes	Amitraz	33089-61-1					5.0E+01	9.8E+00		8.2E+00	
						5.0E-01	I	V		0.23	1	1		Ammonia	7664-41-7									
				2.0E-01	I						1	1	Yes	Ammonium Sulfamate	7773-06-0					4.0E+03	9.1E+05		4.0E+03	
						3.0E-03	X	V		0.89	1	1	Yes	Amyl Alcohol, tert-	75-85-4							6.3E+00	6.3E+00	
5.7E-03	I	1.6E-06	C	7.0E-03	P	1.0E-03	I			0.90	1	1	Yes	Aniline	62-53-3	1.4E+01	6.9E+02		1.3E+01	1.4E+02	7.7E+03		1.4E+02	
4.0E-02	P			2.0E-03	X					3.39	1	0.9	Yes	Anthraquinone, 9,10-	84-65-1	1.9E+00	5.1E+00		1.4E+00	4.0E+01	1.1E+02		3.0E+01	
				4.0E-04	I						0.15	1	Yes	Antimony (metallic)	7440-36-0					8.0E+00	2.7E+02		7.8E+00	6.0E+00
				5.0E-04	H						0.15	1	Yes	Antimony Pentoxide	1314-60-9					1.0E+01	3.4E+02		9.7E+00	
				4.0E-04	H						0.15	1	Yes	Antimony Tetroxide	1332-81-6					8.0E+00	2.7E+02		7.8E+00	
						2.0E-04	I				0.15	1	Yes	Antimony Trioxide	1309-64-4									
1.5E+00	I	4.3E-03	I	3.0E-04	I	1.5E-05	C				1	1	Yes	Arsenic, Inorganic	7440-38-2	5.2E-02	9.7E+00		5.2E-02	6.0E+00	1.4E+03		6.0E+00	1.0E+01
				3.5E-06	C	5.0E-05	I				1	1	Yes	Arsine	7784-42-1					7.0E-02	1.6E+01		7.0E-02	
				3.6E-02	O					-0.27	1	1	Yes	Asulam	3337-71-1					7.2E+02	5.8E+05		7.2E+02	
2.3E-01	C			3.5E-02	I					2.61	1	1	Yes	Atrazine	1912-24-9	3.4E-01	2.8E+00		3.0E-01	7.0E+02	6.2E+03		6.3E+02	3.0E+00
8.8E-01	C	2.5E-04	C							2.98	1	0.9	Yes	Auramine	492-80-8	8.9E-02	2.7E-01		6.7E-02					
				4.0E-04	I					4.48	1	1	No	Avermectin B1	65195-55-3					8.0E+00			8.0E+00	
				3.0E-03	A	1.0E-02	A			2.75	1	1	Yes	Azinphos-methyl	86-50-0					6.0E+01	8.3E+02		5.6E+01	
1.1E-01	I	3.1E-05	I						V	3.82	1	1	Yes	Azobenzene	103-33-3	7.1E-01	7.3E-01	1.8E-01	1.2E-01					
				1.0E+00	P	7.0E-06	P			-1.70	1	1	Yes	Azodicarbonamide	123-77-3					2.0E+04	6.8E+07		2.0E+04	
				2.0E-01	I	5.0E-04	H				0.07	1	Yes	Barium	7440-39-3					4.0E+03	6.4E+04		3.8E+03	2.0E+03
				5.0E-03	O				V	5.29	1	0.8	Yes	Benfluralin	1861-40-1					1.0E+02	4.0E+01		2.8E+01	
				5.0E-02	I					2.12	1	1	Yes	Benomyl	17804-35-2					1.0E+03	3.0E+04		9.7E+02	
				2.0E-01	I					2.18	1	1	Yes	Bensulfuron-methyl	83055-99-6					4.0E+03	2.4E+05		3.9E+03	
				3.0E-02	I					2.34	1	1	Yes	Bentazon	25057-89-0					6.0E+02	9.4E+03		5.7E+02	
4.0E-03	P			1.0E-01	I				V	1.48	1	1	Yes	Benzaldehyde	100-52-7	1.9E+01	4.4E+02		1.9E+01	2.0E+03	4.9E+04		1.9E+03	
5.5E-02	I	7.8E-06	I	4.0E-03	I	3.0E-02	I	V		2.13	1	1	Yes	Benzene	71-43-2	1.4E+00	9.8E+00	7.2E-01	4.6E-01	8.0E+01	6.1E+02	6.3E+01	3.3E+01	5.0E+00
1.0E-01	X			3.0E-04	X					-3.73	1	1	No	Benzenediamine-2-methyl sulfate, 1,4-	6369-59-1	7.8E-01			7.8E-01	6.0E+00			6.0E+00	
				1.0E-03	P				V	2.52	1	1	Yes	Benzenethiol	108-98-5					2.0E+01	1.0E+02		1.7E+01	
2.3E+02	I	6.7E-02	I	3.0E-03	I				M	1.34	1	1	Yes	Benzidine	92-87-5	1.1E-04	5.0E-03		1.1E-04	6.0E+01	3.0E+03		5.9E+01	
				4.0E+00	I					1.87	1	1	Yes	Benzoic Acid	65-85-0					8.0E+04	1.2E+06		7.5E+04	
1.3E+01	I								V	3.90	1	1	Yes	Benzotrichloride	98-07-7	6.0E-03	6.0E-03		3.0E-03					
				1.0E-01	P					1.10	1	1	Yes	Benzyl Alcohol	100-51-6					2.0E+03	8.9E+04		2.0E+03	
1.7E-01	I	4.9E-05	C	2.0E-03	P	1.0E-03	P	V		2.30	1	1	Yes	Benzyl Chloride	100-44-7	4.6E-01	3.4E+00	1.1E-01	8.9E-02	4.0E+01	3.2E+02	2.1E+00	2.0E+00	
		2.4E-03	I	2.0E-03	I	2.0E-05	I				0.007	1	Yes	Beryllium and compounds	7440-41-7					4.0E+01	6.4E+01		2.5E+01	4.0E+00
				9.0E-03	P					4.48	1	0.9	Yes	Bifenox	42576-02-3					1.8E+02	2.3E+02		1.0E+02	
				1.5E-02	I					6.00	1	0	Yes	Biphenthrin	82657-04-3					3.0E+02			3.0E+02	
8.0E-03	I			5.0E-01	I	4.0E-04	X	V		4.01	1	1	Yes	Biphenyl, 1,1'-	92-52-4	9.7E+00	6.5E+00		3.9E+00	1.0E+04	7.3E+03	8.3E-01	8.3E-01	
				4.0E-02	I				V	2.48	1	1	Yes	Bis(2-chloro-1-methylethyl) ether	108-60-1					8.0E+02	6.5E+03		7.1E+02	
				3.0E-03	P					1.30	1	1	Yes	Bis(2-chloroethoxy)methane	111-91-1					6.0E+01	3.0E+03		5.9E+01	
1.1E+00	I	3.3E-04	I						V	1.29	1	1	Yes	Bis(2-chloroethyl)ether	111-44-4	7.1E-02	2.7E+00	1.7E-02	1.4E-02					
2.2E+02	I	6.2E-02	I						V	0.57	1	1	Yes	Bis(chloromethyl)ether	542-88-1	3.5E-04	3.4E-02	9.1E-05	7.2E-05					
				5.0E-02	I					3.32	1	1	Yes	Bisphenol A	80-05-7					1.0E+03	3.2E+03		7.7E+02	
				2.0E-01	I	2.0E-02	H				1	1	Yes	Boron And Borates Only	7440-42-8					4.0E+03	9.1E+05		4.0E+03	
				2.0E+00	P	2.0E-02	P	V		1.16	1	1	Yes	Boron Trichloride	10294-34-5					4.0E+04	9.1E+06	4.2E+01	4.2E+01	

TR=1E-06
HQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
				4.0E-02	C	1.3E-02	C	V		0.22	1	1	Yes	Boron Trifluoride	7637-07-2					8.0E+02	1.8E+05	2.7E+01	2.6E+01	
7.0E-01	I			4.0E-03	I						1	1	Yes	Bromate	15541-45-4	1.1E-01	2.1E+01		1.1E-01	8.0E+01	1.8E+04		8.0E+01	1.0E+01
2.0E+00	X	6.0E-04	X											Bromo-2-chloroethane, 1-	107-04-0	3.9E-02	5.7E-01	9.4E-03	7.4E-03					
				3.0E-04	X			V		1.92	1	1	Yes	Bromo-3-fluorobenzene, 1-	1073-06-9					6.0E+00	2.6E+01		4.9E+00	
				3.0E-04	X			V		3.08	1	1	Yes	Bromo-4-fluorobenzene, 1-	460-00-4					6.0E+00	2.0E+01		4.6E+00	
				8.0E-03	I	6.0E-02	I	V		2.99	1	1	Yes	Bromobenzene	108-86-1					1.6E+02	5.4E+02	1.3E+02	6.2E+01	
						4.0E-02	X	V		1.41	1	1	Yes	Bromochloromethane	74-97-5							8.3E+01	8.3E+01	
6.2E-02	I	3.7E-05	C	2.0E-02	I			V		2.00	1	1	Yes	Bromodichloromethane	75-27-4	1.3E+00	1.9E+01	1.5E-01	1.3E-01	4.0E+02	6.5E+03		3.8E+02	8.0E+01(F)
7.9E-03	I	1.1E-06	I	2.0E-02	I			V		2.40	1	1	Yes	Bromoform	75-25-2	9.9E+00	1.4E+02	5.1E+00	3.3E+00	4.0E+02	6.2E+03		3.8E+02	8.0E+01(F)
				1.4E-03	I	5.0E-03	I	V		1.19	1	1	Yes	Bromomethane	74-83-9					2.8E+01	1.0E+03	1.0E+01	7.5E+00	
				5.0E-03	H			V		5.21	1	0.8	Yes	Bromophos	2104-96-3					1.0E+02	5.5E+01		3.5E+01	
						1.0E-01	A	V		2.10	1	1	Yes	Bromopropane, 1-	106-94-5							2.1E+02	2.1E+02	
1.0E-01	O			1.5E-02	O					2.80	1	0.9	Yes	Bromoxynil	1689-84-5	7.6E-01	3.1E+00		6.1E-01	3.0E+02	1.3E+03		2.5E+02	
1.0E-01	O			1.5E-02	O			V		5.40	1	0.8	Yes	Bromoxynil Octanoate	1689-99-2	7.6E-01	3.6E-01		2.4E-01	3.0E+02	1.6E+02		1.0E+02	
3.4E+00	C	3.0E-05	I			2.0E-03	I	V		1.99	1	1	Yes	Butadiene, 1,3-	106-99-0	2.3E-02	1.6E-01	1.9E-01	1.8E-02			4.2E+00	4.2E+00	
				3.0E-02	O					3.53	1	0.9	Yes	Butanoic acid, 4-(2,4-dichlorophenoxy)-	94-82-6					6.0E+02	1.8E+03		4.5E+02	
				1.0E-01	I			V		0.88	1	1	Yes	Butanol, N-	71-36-3					2.0E+03	1.0E+05		2.0E+03	
				2.0E+00	P	3.0E+01	P	V		0.61	1	1	Yes	Butyl alcohol, sec-	78-92-2					4.0E+04	3.0E+06	6.3E+04	2.4E+04	
				5.0E-02	I			V		4.15	1	1	Yes	Butylate	2008-41-5					1.0E+03	8.5E+02		4.6E+02	
2.0E-04	C	5.7E-08	C							3.50	1	0.8	Yes	Butylated hydroxyanisole	25013-16-5	3.9E+02	2.5E+02		1.5E+02					
3.6E-03	P			3.0E-01	P					5.10	1	1	Yes	Butylated hydroxytoluene	128-37-0	2.2E+01	4.0E+00		3.4E+00	6.0E+03	1.2E+03		1.0E+03	
				5.0E-02	P			V		4.38	1	1	No	Butylbenzene, n-	104-51-8					1.0E+03			1.0E+03	
				1.0E-01	X			V		4.57	1	1	No	Butylbenzene, sec-	135-98-8					2.0E+03			2.0E+03	
				1.0E-01	X			V		4.11	1	1	Yes	Butylbenzene, tert-	98-06-6					2.0E+03	1.1E+03		6.9E+02	
				2.0E-02	A					0.36	1	1	Yes	Cacodylic Acid	75-60-5					4.0E+02	6.7E+04		4.0E+02	
		1.8E-03	I	1.0E-03	I	1.0E-05	A				0.025	1		Cadmium (Diet)	7440-43-9									
		1.8E-03	I	5.0E-04	I	1.0E-05	A				0.05	1	Yes	Cadmium (Water)	7440-43-9					1.0E+01	1.1E+02		9.2E+00	5.0E+00
				5.0E-01	I	2.2E-03	C			-0.19	1	1	Yes	Caprolactam	105-60-2					1.0E+04	9.0E+05		9.9E+03	
1.5E-01	C	4.3E-05	C	2.0E-03	I					3.80	1	0.9	Yes	Captafol	2425-06-1	5.2E-01	1.8E+00		4.0E-01	4.0E+01	1.5E+02		3.2E+01	
2.3E-03	C	6.6E-07	C	1.3E-01	I					2.80	1	1	Yes	Captan	133-06-2	3.4E+01	3.6E+02		3.1E+01	2.6E+03	3.0E+04		2.4E+03	
				1.0E-01	I					2.36	1	1	Yes	Carbaryl	63-25-2					2.0E+03	2.4E+04		1.8E+03	
				5.0E-03	I					2.32	1	1	Yes	Carbofuran	1563-66-2					1.0E+02	1.4E+03		9.4E+01	4.0E+01
				1.0E-01	I	7.0E-01	I	V		1.94	1	1	Yes	Carbon Disulfide	75-15-0					2.0E+03	2.0E+04	1.5E+03	8.1E+02	
7.0E-02	I	6.0E-06	I	4.0E-03	I	1.0E-01	I	V		2.83	1	1	Yes	Carbon Tetrachloride	56-23-5	1.1E+00	4.3E+00	9.4E-01	4.6E-01	8.0E+01	3.4E+02	2.1E+02	4.9E+01	5.0E+00
						1.0E-01	P	V		-1.33	1	1	Yes	Carbonyl Sulfide	463-58-1							2.1E+02	2.1E+02	
				1.0E-02	I					5.57	1	0.8	Yes	Carbosulfan	55285-14-8					2.0E+02	6.9E+01		5.1E+01	
				1.0E-01	I					2.14	1	1	Yes	Carboxin	5234-68-4					2.0E+03	4.1E+04		1.9E+03	
						9.0E-04	I				1	1	Yes	Ceric oxide	1306-38-3									
				1.0E-01	I			V		0.99	1	1	Yes	Chloral Hydrate	302-17-0					2.0E+03	1.5E+05		2.0E+03	
				1.5E-02	I					1.90	1	1	Yes	Chloramben	133-90-4					3.0E+02	7.4E+03		2.9E+02	
4.0E-01	H									2.22	1	1	Yes	Chloranil	118-75-2	1.9E-01	3.5E+00		1.8E-01					
3.5E-01	I	1.0E-04	I	5.0E-04	I	7.0E-04	I	V		6.16	1	0.7	Yes	Chlordane	12789-03-6	2.2E-01	3.6E-02	5.6E-02	2.0E-02	1.0E+01	1.8E+00	1.5E+00	7.4E-01	2.0E+00
1.0E+01	I	4.6E-03	C	3.0E-04	I					5.41	1	0.8	Yes	Chlordecone (Kepone)	143-50-0	7.8E-03	6.5E-03		3.5E-03	6.0E+00	5.4E+00		2.9E+00	
				7.0E-04	A					3.81	1	0.9	Yes	Chlorfenvinphos	470-90-6					1.4E+01	5.6E+01		1.1E+01	
				9.0E-02	O					2.50	1	1	Yes	Chlorimuron, Ethyl-	90982-32-4					1.8E+03	6.8E+04		1.8E+03	
				1.0E-01	I	1.5E-04	A	V		0.85	1	1	Yes	Chlorine	7782-50-5					2.0E+03	4.6E+05	3.0E-01	3.0E-01	
				3.0E-02	I	2.0E-04	I	V			1	1	Yes	Chlorine Dioxide	10049-04-4					6.0E+02	1.4E+05	4.2E-01	4.2E-01	
				3.0E-02	I						1	1	Yes	Chlorite (Sodium Salt)	7758-19-2					6.0E+02	1.4E+05		6.0E+02	1.0E+03
						5.0E+01	I	V		2.05	1	1	Yes	Chloro-1,1-difluoroethane, 1-	75-68-3							1.0E+05	1.0E+05	
		3.0E-04	I	2.0E-02	H	2.0E-02	I	V		2.53	1	1	Yes	Chloro-1,3-butadiene, 2-	126-99-8			1.9E-02	1.9E-02	4.0E+02	1.8E+03	4.2E+01	3.7E+01	
4.6E-01	H									2.27	1	1	Yes	Chloro-2-methylaniline HCl, 4-	3165-93-3	1.7E-01	5.1E+02		1.7E-01					
1.0E-01	P	7.7E-05	C	3.0E-03	X					2.27	1	1	Yes	Chloro-2-methylaniline, 4-	95-69-2	7.8E-01	6.6E+00		7.0E-01	6.0E+01	5.6E+02		5.4E+01	
2.7E-01	X							V		0.09	1	1	Yes	Chloroacetaldehyde, 2-	107-20-0	2.9E-01	4.6E+01		2.9E-01					
										0.22	1	1	Yes	Chloroacetic Acid	79-11-8									6.0E+01
						3.0E-05	I			1.93	1	1	Yes	Chloroacetophenone, 2-	532-27-4									
2.0E-01	P			4.0E-03	I					1.83	1	1	Yes	Chloroaniline, p-	106-47-8	3.9E-01	5.9E+00		3.7E-01	8.0E+01	1.3E+03		7.6E+01	
				2.0E-02	I	5.0E-02	P	V		2.84	1	1	Yes	Chlorobenzene	108-90-7					4.0E+02	1.3E+03	1.0E+02	7.8E+01	1.0E+02
				1.0E-01	X					-0.52	1	1	Yes	Chlorobenzene sulfonic acid, p-	98-66-8					2.0E+03	1.8E+06		2.0E+03	
1.1E-01	C	3.1E-05	C	2.0E-02	I					4.74	1	0.8	Yes	Chlorobenzilate	510-15-6	7.1E-01	5.6E-01		3.1E-01	4.0E+02	3.5E+02		1.9E+02	
				3.0E-02	X					2.65	1	1	Yes	Chlorobenzoic Acid, p-	74-11-3					6.0E+02	3.4E+03		5.1E+02	
				3.0E-03	P	3.0E-01	P	V		3.60	1	1	Yes	Chlorobenzotrifluoride, 4-	98-56-6					6.0E+01	9.3E+01	6.3E+02	3.5E+01	
				4.0E-02	P			V		2.64	1	1	Yes	Chlorobutane, 1-	109-69-3					8.0E+02	3.1E+03		6.4E+02	
						5.0E+01	I	V		1.08	1	1	Yes	Chlorodifluoromethane	75-45-6							1.0E+05	1.0E+05	
				2.0E-02	P			V		0.03	1	1	Yes	Chloroethanol, 2-	107-07-3					4.0E+02	7.7E+04		4.0E+02	
3.1E-02	C	2.3E-05	I	1.0E-02	I	9.8E-02	A	V		1.97	1	1	Yes	Chloroform	67-66-3	2.5E+00	2.9E+01	2.4E-01	2.2E-01	2.0E+02	2.5E+03	2.0E+02	9.7E+01	8.0E+01(F)
						9.0E-02	I	V		0.91	1	1	Yes	Chloromethane	74-87-3							1.9E+02	1.9E+02	
2.4E+00	C	6.9E-04	C					V		0.32	1	1	Yes	Chloromethyl Methyl Ether	107-30-2	3.2E-02	3.7E+00	8.1E-03	6.5E-03					
3.0E-01	P			3.0E-03	P	1.0E-05	X			2.24	1	1	Yes	Chloronitrobenzene, o-	88-73-3	2.6E-01	2.6E+00		2.4E-01	6.0E+01	6.4E+02		5.5E+01	
6.0E-02	P			7.0E-04	P	2.0E-03	P			2.39	1	1	Yes	Chloronitrobenzene, p-	100-00-5	1.3E+00	1.0E+01		1.2E+00	1.4E+01	1.2E+02		1.3E+01	
				5.0E-03	I			V		2.15	1	1	Yes	Chlorophenol, 2-	95-57-8					1.0E+02	1.0E+03		9.1E+01	
						4.0E-04	C	V		2.09	1	1	Yes	Chloropicrin	76-06-2							8.3E-01	8.3E-01	

TR=1E-06
HQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information															Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
3.1E-03	C	8.9E-07	C	1.5E-02	I					3.05	1	0.9	Yes	Chlorothalonil	1897-45-6	2.5E+01	1.6E+02		2.2E+01	3.0E+02	2.1E+03		2.6E+02	
				2.0E-02	I			V		3.42	1	1	Yes	Chlorotoluene, o-	95-49-8					4.0E+02	5.8E+02		2.4E+02	
				2.0E-02	X			V		3.33	1	1	Yes	Chlorotoluene, p-	106-43-4					4.0E+02	6.6E+02		2.5E+02	
2.4E+02	C	6.9E-02	C							-1.02	1	1	Yes	Chlorozotocin	54749-90-5	3.2E-04	1.0E+00		3.2E-04					
				5.0E-02	O					3.51	1	0.9	Yes	Chlorpropham	101-21-3					1.0E+03	2.5E+03		7.1E+02	
				1.0E-03	A					4.96	1	0.8	Yes	Chlorpyrifos	2921-88-2					2.0E+01	1.5E+01		8.4E+00	
				1.0E-02	H					4.31	1	0.9	Yes	Chlorpyrifos Methyl	5598-13-0					2.0E+02	2.9E+02		1.2E+02	
				5.0E-02	O					2.00	1	1	Yes	Chlorsulfuron	64902-72-3					1.0E+03	5.7E+04		9.9E+02	
				1.0E-02	I					4.28	1	0.9	Yes	Chlorthal-dimethyl	1861-32-1					2.0E+02	3.3E+02		1.2E+02	
				8.0E-04	H					5.80	1	0.8	Yes	Chlorthiophos	60238-56-4					1.6E+01	3.4E+00		2.8E+00	
				1.5E+00	I						0.013	1	Yes	Chromium(III), Insoluble Salts	16065-83-1					3.0E+04	8.9E+04		2.2E+04	
5.0E-01	C	8.4E-02	S	3.0E-03	I	1.0E-04	I		M		0.025	1	Yes	Chromium(VI)	18540-29-9	5.0E-02	1.2E-01		3.5E-02	6.0E+01	1.7E+02		4.4E+01	
											0.013	1	Yes	Chromium, Total	7440-47-3									1.0E+02
				1.3E-02	I					3.10	1	0.9	Yes	Clofentezine	74115-24-5					2.6E+02	2.1E+03		2.3E+02	
		9.0E-03	P	3.0E-04	P	6.0E-06	P				1	1	Yes	Cobalt	7440-48-4					6.0E+00	3.4E+03		6.0E+00	
		6.2E-04	I					V	M		1	0		Coke Oven Emissions	8007-45-2									
				4.0E-02	H						1	1	Yes	Copper	7440-50-8					8.0E+02	1.8E+05		8.0E+02	1.3E+03
				5.0E-02	I	6.0E-01	C			1.96	1	1	Yes	Cresol, m-	108-39-4					1.0E+03	1.2E+04		9.3E+02	
				5.0E-02	I	6.0E-01	C			1.95	1	1	Yes	Cresol, o-	95-48-7					1.0E+03	1.2E+04		9.3E+02	
				1.0E-01	A	6.0E-01	C			1.94	1	1	Yes	Cresol, p-	106-44-5					2.0E+03	2.5E+04		1.9E+03	
				1.0E-01	A					3.10	1	1	Yes	Cresol, p-chloro-m-	59-50-7					2.0E+03	5.2E+03		1.4E+03	
				1.0E-01	A	6.0E-01	C			1.95	1	0.9	Yes	Cresols	1319-77-3					2.0E+03	6.7E+03		1.5E+03	
1.9E+00	H			1.0E-03	P			V		0.60	1	1	Yes	Crotonaldehyde, trans-	123-73-9	4.1E-02	2.7E+00		4.0E-02	2.0E+01	1.5E+03		2.0E+01	
				1.0E-01	I	4.0E-01	I	V		3.66	1	1	Yes	Cumene	98-82-8					2.0E+03	1.9E+03	8.3E+02	4.5E+02	
2.2E-01	C	6.3E-05	C							-1.73	1	1	Yes	Cupferron	135-20-6	3.5E-01	1.3E+04		3.5E-01					
8.4E-01	H			2.0E-03	H					2.22	1	1	Yes	Cyanazine	21725-46-2	9.3E-02	1.6E+00		8.8E-02	4.0E+01	7.6E+02		3.8E+01	
														Cyanides										
				1.0E-03	I						1	1	Yes	~Calcium Cyanide	592-01-8					2.0E+01	4.6E+03		2.0E+01	
				5.0E-03	I						1	1	Yes	~Copper Cyanide	544-92-3					1.0E+02	2.3E+04		1.0E+02	
				6.0E-04	I	8.0E-04	S	V			1	1	Yes	~Cyanide (CN-)	57-12-5					1.2E+01	2.7E+03	1.7E+00	1.5E+00	2.0E+02
				1.0E-03	I			V		0.07	1	1	Yes	~Cyanogen	460-19-5					2.0E+01	5.1E+03		2.0E+01	
				9.0E-02	I			V			1	1	Yes	~Cyanogen Bromide	506-68-3					1.8E+03	1.6E+06		1.8E+03	
				5.0E-02	I			V			1	1	Yes	~Cyanogen Chloride	506-77-4					1.0E+03	5.8E+05		1.0E+03	
				6.0E-04	I	8.0E-04	I	V		-0.25	1	1	Yes	~Hydrogen Cyanide	74-90-8					1.2E+01	2.7E+03	1.7E+00	1.5E+00	
				2.0E-03	I						1	1	Yes	~Potassium Cyanide	151-50-8					4.0E+01	4.6E+03		4.0E+01	
				5.0E-03	I						0.04	1		~Potassium Silver Cyanide	506-61-6					1.0E+02	4.6E+02		8.2E+01	
				1.0E-01	I						0.04	1	Yes	~Silver Cyanide	506-64-9					2.0E+03	1.8E+04		1.8E+03	
				1.0E-03	I						1	1	Yes	~Sodium Cyanide	143-33-9					2.0E+01	4.6E+03		2.0E+01	2.0E+02
				2.0E-04	P						1	0	Yes	~Thiocyanates	E1790664					4.0E+00	9.1E+02		4.0E+00	
				2.0E-04	X			V		0.58	1	1	Yes	~Thiocyanic Acid	463-56-9					4.0E+00	9.1E+02		4.0E+00	
				5.0E-02	I						1	1	Yes	~Zinc Cyanide	557-21-1					1.0E+03	3.8E+05		1.0E+03	
						6.0E+00	I	V		3.44	1	1	Yes	Cyclohexane	110-82-7							1.3E+04	1.3E+04	
2.0E-02	X			2.0E-02	X					4.72	1	0.9	Yes	Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	3.9E+00	9.6E+00		2.8E+00	4.0E+02	1.1E+03		2.9E+02	
				5.0E+00	I	7.0E-01	P	V		0.81	1	1	Yes	Cyclohexanone	108-94-1					1.0E+05	6.5E+06	1.5E+03	1.4E+03	
				5.0E-03	P	1.0E+00	X	V		2.86	1	1	Yes	Cyclohexene	110-83-8					1.0E+02	2.5E+02	2.1E+03	7.0E+01	
				2.0E-01	I			V		1.49	1	1	Yes	Cyclohexylamine	108-91-8					4.0E+03	9.3E+04		3.8E+03	
				2.5E-02	I					5.95	1	0.7	Yes	Cyfluthrin	68359-37-5					5.0E+02	1.6E+02		1.2E+02	
				1.0E-03	O					6.90	1	0.5	No	Cyhalothrin	68085-85-8					2.0E+01			2.0E+01	
				5.0E-01	O					-0.06	1	1	Yes	Cyromazine	66215-27-8					1.0E+04	8.0E+05		9.9E+03	
2.4E-01	I	6.9E-05	C	3.0E-05	X					6.02	1	0.8	Yes	DDD, p,p'- (DDD)	72-54-8	3.2E-01	3.5E-02		3.2E-02	6.0E-01	7.1E-02		6.3E-02	
3.4E-01	I	9.7E-05	C	3.0E-04	X			V		6.51	1	0.8	No	DDE, p,p'-	72-55-9	2.3E-01		5.8E-02	4.6E-02	6.0E+00			6.0E+00	
3.4E-01	I	9.7E-05	I	5.0E-04	I					6.91	1	0.7	No	DDT	50-29-3	2.3E-01			2.3E-01	1.0E+01			1.0E+01	
				3.0E-02	I					0.78	1	1	Yes	Dalapon	75-99-0					6.0E+02	5.5E+04		6.0E+02	2.0E+02
1.8E-02	C	5.1E-06	C	1.5E-01	I					-1.50	1	1	Yes	Daminozide	1596-84-5	4.3E+00	1.3E+04		4.3E+00	3.0E+03	1.0E+07		3.0E+03	
7.0E-04	I			7.0E-03	I					12.11	1	0	No	Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5	1.1E+02			1.1E+02	1.4E+02			1.4E+02	
				4.0E-05	I					3.21	1	0.8	Yes	Demeton	8065-48-3					8.0E-01	8.8E-01		4.2E-01	
1.2E-03	I			6.0E-01	I					6.11	1	0	Yes	Di(2-ethylhexyl)adipate	103-23-1	6.5E+01			6.5E+01	1.2E+04			1.2E+04	4.0E+02
6.1E-02	H									4.49	1	0.9	Yes	Diallate	2303-16-4	1.3E+00	9.2E-01		5.4E-01					
				7.0E-04	A					3.81	1	0.9	Yes	Diazinon	333-41-5					1.4E+01	3.9E+01		1.0E+01	
				1.0E-02	X			V		4.38	1	1	Yes	Dibenzothiophene	132-65-0					2.0E+02	9.6E+01		6.5E+01	
8.0E-01	P	6.0E-03	P	2.0E-04	P	2.0E-04	I	V	M	2.96	1	1	Yes	Dibromo-3-chloropropane, 1,2-	96-12-8	3.1E-02	1.7E-01	3.4E-04	3.3E-04	4.0E+00	2.4E+01	4.2E-01	3.7E-01	2.0E-01
				4.0E-04	X			V		3.75	1	0.9	Yes	Dibromobenzene, 1,3-	108-36-1					8.0E+00	1.6E+01		5.3E+00	
				1.0E-02	I			V		3.79	1	0.9	Yes	Dibromobenzene, 1,4-	106-37-6					2.0E+02	3.7E+02		1.3E+02	
8.4E-02	I			2.0E-02	I			V		2.16	1	1	Yes	Dibromochloromethane	124-48-1	9.3E-01	1.4E+01		8.7E-01	4.0E+02	6.7E+03		3.8E+02	8.0E+01(F)
2.0E+00	I	6.0E-04	I	9.0E-03	I	9.0E-03	I	V		1.96	1	1	Yes	Dibromoethane, 1,2-	106-93-4	3.9E-02	7.1E-01	9.4E-03	7.5E-03	1.8E+02	3.6E+03	1.9E+01	1.7E+01	5.0E-02
						4.0E-03	X	V		1.70	1	1	Yes	Dibromomethane (Methylene Bromide)	74-95-3							8.3E+00	8.3E+00	
				3.0E-04	P						1	0	No	Dibutyltin Compounds	E1790660					6.0E+00			6.0E+00	
				3.0E-02	I					2.21	1	1	Yes	Dicamba	1918-00-9					6.0E+02	1.0E+04		5.7E+02	
		4.2E-03	P					V		2.60	1	1	Yes	Dichloro-2-butene, 1,4-	764-41-0			1.3E-03	1.3E-03					
		4.2E-03	P					V		2.60	1	1	Yes	Dichloro-2-butene, cis-1,4-	1476-11-5			1.3E-03	1.3E-03					
		4.2E-03	P					V		2.60	1	1	Yes	Dichloro-2-butene, trans-1,4-	110-57-6			1.3E-03	1.3E-03					

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Toxicity and Chemical-specific Information															Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
5.0E-02	I			4.0E-03	I					0.92	1	1	Yes	Dichloroacetic Acid	79-43-6	1.6E+00	9.6E+01		1.5E+00	8.0E+01	5.4E+03		7.9E+01	6.0E+01
				9.0E-02	I	2.0E-01	H	V		3.43	1	1	Yes	Dichlorobenzene, 1,2-	95-50-1					1.8E+03	2.9E+03	4.2E+02	3.0E+02	6.0E+02
5.4E-03	C	1.1E-05	C	7.0E-02	A	8.0E-01	I	V		3.44	1	1	Yes	Dichlorobenzene, 1,4-	106-46-7	1.4E+01	2.1E+01	5.1E-01	4.8E-01	1.4E+03	2.2E+03	1.7E+03	5.7E+02	7.5E+01
4.5E-01	I	3.4E-04	C							3.51	1	1	Yes	Dichlorobenzidine, 3,3'-	91-94-1	1.7E-01	4.5E-01		1.3E-01					
				9.0E-03	X					4.44	1	0.9	Yes	Dichlorobenzophenone, 4,4'-	90-98-2					1.8E+02	1.4E+02		7.8E+01	
				2.0E-01	I	1.0E-01	X	V		2.16	1	1	Yes	Dichlorodifluoromethane	75-71-8					4.0E+03	3.8E+04	2.1E+02	2.0E+02	
5.7E-03	C	1.6E-06	C	2.0E-01	P			V		1.79	1	1	Yes	Dichloroethane, 1,1-	75-34-3	1.4E+01	1.8E+02	3.5E+00	2.8E+00	4.0E+03	5.8E+04		3.8E+03	
9.1E-02	I	2.6E-05	I	6.0E-03	X	7.0E-03	P	V		1.48	1	1	Yes	Dichloroethane, 1,2-	107-06-2	8.6E-01	1.8E+01	2.2E-01	1.7E-01	1.2E+02	2.8E+03	1.5E+01	1.3E+01	5.0E+00
				5.0E-02	I	2.0E-01	I	V		2.13	1	1	Yes	Dichloroethylene, 1,1-	75-35-4					1.0E+03	8.5E+03	4.2E+02	2.8E+02	7.0E+00
				2.0E-03	I			V		1.86	1	1	Yes	Dichloroethylene, 1,2-cis-	156-59-2					4.0E+01	3.6E+02		3.6E+01	7.0E+01
				2.0E-02	I			V		2.09	1	1	Yes	Dichloroethylene, 1,2-trans-	156-60-5					4.0E+02	3.6E+03		3.6E+02	1.0E+02
				3.0E-03	I					3.06	1	1	Yes	Dichlorophenol, 2,4-	120-83-2					6.0E+01	1.9E+02		4.6E+01	
				1.0E-02	I					2.81	1	1	Yes	Dichlorophenoxy Acetic Acid, 2,4-	94-75-7					2.0E+02	1.4E+03		1.7E+02	7.0E+01
3.7E-02	P	3.7E-06	P	4.0E-02	P	4.0E-03	I	V		1.98	1	1	Yes	Dichloropropane, 1,2-	78-87-5	2.1E+00	2.3E+01	1.5E+00	8.5E-01	8.0E+02	9.6E+03	8.3E+00	8.2E+00	5.0E+00
				2.0E-02	P			V		2.00	1	1	Yes	Dichloropropane, 1,3-	142-28-9					4.0E+02	4.6E+03		3.7E+02	
				3.0E-03	I					0.78	1	1	Yes	Dichloropropanol, 2,3-	616-23-9					6.0E+01	5.0E+03		5.9E+01	
1.0E-01	I	4.0E-06	I	3.0E-02	I	2.0E-02	I	V		2.04	1	1	Yes	Dichloropropene, 1,3-	542-75-6	7.8E-01	7.8E+00	1.4E+00	4.7E-01	6.0E+02	6.6E+03	4.2E+01	3.9E+01	
2.9E-01	I	8.3E-05	C	5.0E-04	I	5.0E-04	I			1.43	1	1	Yes	Dichlorvos	62-73-7	2.7E-01	1.4E+01		2.6E-01	1.0E+01	5.6E+02		9.9E+00	
				3.0E-05	O					0.00	1	1	Yes	Dicrotophos	141-66-2					6.0E-01	3.3E+02		6.0E-01	
				8.0E-02	P	3.0E-04	X	V		3.16	1	1	Yes	Dicyclopentadiene	77-73-6					1.6E+03	3.5E+03	6.3E-01	6.3E-01	
1.6E+01	I	4.6E-03	I	5.0E-05	I					5.40	1	0.8	Yes	Dieldrin	60-57-1	4.9E-03	2.7E-03		1.8E-03	1.0E+00	6.1E-01		3.8E-01	
		3.0E-04	C			5.0E-03	I				1	0		Diesel Engine Exhaust	E17136615									
				2.0E-03	P	2.0E-04	P			-1.43	1	1	Yes	Diethanolamine	111-42-2					4.0E+01	8.4E+04		4.0E+01	
				3.0E-02	P	1.0E-04	P			0.56	1	1	Yes	Diethylene Glycol Monobutyl Ether	112-34-5					6.0E+02	8.7E+04		6.0E+02	
				6.0E-02	P	3.0E-04	P			-0.54	1	1	Yes	Diethylene Glycol Monoethyl Ether	111-90-0					1.2E+03	7.8E+05		1.2E+03	
				1.0E-03	P			V		0.05	1	1	Yes	Diethylformamide	617-84-5					2.0E+01	4.3E+03		2.0E+01	
3.5E+02	C	1.0E-01	C							5.07	1	0.9	Yes	Diethylstilbestrol	56-53-1	2.2E-04	6.6E-05		5.1E-05					
				8.3E-02	O					0.65	1	1	Yes	Difenzoquat	43222-48-6					1.7E+03	7.5E+05		1.7E+03	
				2.0E-02	I					3.88	1	0.9	Yes	Diflubenzuron	35367-38-5					4.0E+02	1.0E+03		2.9E+02	
						4.0E+01	I	V		0.75	1	1	Yes	Difluoroethane, 1,1-	75-37-6							8.3E+04	8.3E+04	
						3.0E+01	X	V		2.29	1	1	Yes	Difluoropropane, 2,2-	420-45-1							6.3E+04	6.3E+04	
4.4E-02	C	1.3E-05	C					V		3.58	1	1	Yes	Dihydrosafrole	94-58-6	1.8E+00	2.3E+00	4.3E-01	3.0E-01					
						7.0E-01	P	V		1.52	1	1	Yes	Diisopropyl Ether	108-20-3							1.5E+03	1.5E+03	
				8.0E-02	I			V		1.03	1	1	Yes	Diisopropyl Methylphosphonate	1445-75-6					1.6E+03	1.3E+05		1.6E+03	
				2.2E-02	O					-0.17	1	1	Yes	Dimethipin	55290-64-7					4.4E+02	2.6E+05		4.4E+02	
				2.2E-03	O					0.78	1	1	Yes	Dimethoate	60-51-5					4.4E+01	7.0E+03		4.4E+01	
1.6E+00	P									1.81	1	1	Yes	Dimethoxybenzidine, 3,3'-	119-90-4	4.9E-02	1.6E+00		4.7E-02					
1.7E-03	P			6.0E-02	P					-0.61	1	1	Yes	Dimethyl methylphosphonate	756-79-6	4.6E+01	2.8E+04		4.6E+01	1.2E+03	8.1E+05		1.2E+03	
4.6E+00	C	1.3E-03	C							4.58	1	1	Yes	Dimethylamino azobenzene [p-]	60-11-7	1.7E-02	7.2E-03		5.0E-03					
5.8E-01	H									2.17	1	1	Yes	Dimethylaniline HCl, 2,4-	21436-96-4	1.3E-01	5.2E+02		1.3E-01					
2.0E-01	P			2.0E-03	X					1.68	1	1	Yes	Dimethylaniline, 2,4-	95-68-1	3.9E-01	7.1E+00		3.7E-01	4.0E+01	8.0E+02		3.8E+01	
2.7E-02	P			2.0E-03	I			V		2.31	1	1	Yes	Dimethylaniline, N,N-	121-69-7	2.9E+00	2.0E+01		2.5E+00	4.0E+01	3.1E+02		3.5E+01	
1.1E+01	P									2.34	1	1	Yes	Dimethylbenzidine, 3,3'-	119-93-7	7.1E-03	8.5E-02		6.5E-03					
				1.0E-01	P	3.0E-02	I	V		-1.01	1	1	Yes	Dimethylformamide	68-12-2					2.0E+03	1.8E+06	6.3E+01	6.1E+01	
				1.0E-04	X	2.0E-06	X	V		-1.19	1	1	Yes	Dimethylhydrazine, 1,1-	57-14-7					2.0E+00	3.5E+03	4.2E-03	4.2E-03	
5.5E+02	C	1.6E-01	C					V		-0.54	1	1	Yes	Dimethylhydrazine, 1,2-	540-73-8	1.4E-04	5.0E-02	3.5E-05	2.8E-05					
				2.0E-02	I					2.30	1	1	Yes	Dimethylphenol, 2,4-	105-67-9					4.0E+02	3.1E+03		3.6E+02	
				6.0E-04	I					2.36	1	1	Yes	Dimethylphenol, 2,6-	576-26-1					1.2E+01	8.5E+01		1.1E+01	
				1.0E-03	I					2.23	1	1	Yes	Dimethylphenol, 3,4-	95-65-8					2.0E+01	1.7E+02		1.8E+01	
4.5E-02	C	1.3E-05	C					V		2.58	1	1	Yes	Dimethylvinylchloride	513-37-1	1.7E+00	6.5E+00	4.3E-01	3.3E-01					
				8.0E-05	X					2.13	1	1	Yes	Dinitro-o-cresol, 4,6-	534-52-1					1.6E+00	2.6E+01		1.5E+00	
				2.0E-03	I					4.12	1	0.9	Yes	Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5					4.0E+01	5.4E+01		2.3E+01	
				1.0E-04	P					1.69	1	1	Yes	Dinitrobenzene, 1,2-	528-29-0					2.0E+00	5.3E+01		1.9E+00	
				1.0E-04	I					1.49	1	1	Yes	Dinitrobenzene, 1,3-	99-65-0					2.0E+00	7.3E+01		2.0E+00	
				1.0E-04	P					1.46	1	1	Yes	Dinitrobenzene, 1,4-	100-25-4					2.0E+00	7.6E+01		2.0E+00	
				2.0E-03	I					1.67	1	1	Yes	Dinitrophenol, 2,4-	51-28-5					4.0E+01	1.2E+03		3.9E+01	
6.8E-01	I									2.18	1	1	Yes	Dinitrotoluene Mixture, 2,4/2,6-	E1615210	1.1E-01	1.5E+00		1.1E-01					
3.1E-01	C	8.9E-05	C	2.0E-03	I					1.98	1	1	Yes	Dinitrotoluene, 2,4-	121-14-2	2.5E-01	4.3E+00		2.4E-01	4.0E+01	7.5E+02		3.8E+01	
1.5E+00	P			3.0E-04	X					2.10	1	1	Yes	Dinitrotoluene, 2,6-	606-20-2	5.2E-02	7.4E-01		4.9E-02	6.0E+00	9.3E+01		5.7E+00	
				2.0E-03	S					1.84	1	1	Yes	Dinitrotoluene, 2-Amino-4,6-	35572-78-2					4.0E+01	1.0E+03		3.9E+01	
				2.0E-03	S					1.84	1	1	Yes	Dinitrotoluene, 4-Amino-2,6-	19406-51-0					4.0E+01	1.0E+03		3.9E+01	
4.5E-01	X			9.0E-04	X					2.18	1	0.8	Yes	Dinitrotoluene, Technical grade	25321-14-6	1.7E-01	2.6E-01		1.0E-01	1.8E+01	3.0E+01		1.1E+01	
				1.0E-03	I					3.56	1	0.9	Yes	Dinoseb	88-85-7					2.0E+01	5.4E+01		1.5E+01	7.0E+00
1.0E-01	I	5.0E-06	I	3.0E-02	I	3.0E-02	I	V		-0.27	1	1	Yes	Dioxane, 1,4-	123-91-1	7.8E-01	2.3E+02	1.1E+00	4.6E-01	6.0E+02	1.9E+05	6.3E+01	5.7E+01	
														Dioxins										
6.2E+03	I	1.3E+00	I							8.21	1	0	No	~Hexachlorodibenzo-p-dioxin, Mixture		1.3E-05			1.3E-05					
1.3E+05	C	3.8E+01	C	7.0E-10	I	4.0E-08	C	V		6.80	1	0.5	No	~TCDD, 2,3,7,8-	1746-01-6	6.0E-07		1.5E-07	1.2E-07	1.4E-05		8.3E-05	1.2E-05	3.0E-05
				3.0E-02	I					2.17	1	1	Yes	Diphenamid	957-51-7					6.0E+02	4.2E+03		5.3E+02	
						4.0E-04	X	V		4.21	1	1	Yes	Diphenyl Ether	101-84-8							8.3E-01	8.3E-01	
				8.0E-04	X					2.40	1	1	Yes	Diphenyl Sulfone	127-63-9					1.6E+01	2.0E+02		1.5E+01	
				1.0E-01	O					3.50	1	1	Yes	Diphenylamine	122-39-4					2.0E+03	3.4E+03		1.3E+03	

TR=1E-06
HQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
8.0E-01	I	2.2E-04	I							2.94	1	1	Yes	Diphenylhydrazine, 1,2-	122-66-7	9.7E-02	3.9E-01		7.8E-02					
				2.2E-03	I					-4.60	1	1	No	Diquat	85-00-7					4.4E+01			4.4E+01	2.0E+01
7.1E+00	C	1.4E-01	C							4.90	1	1	No	Direct Black 38	1937-37-7	1.1E-02			1.1E-02					
7.4E+00	C	1.4E-01	C							2.60	1	1	No	Direct Blue 6	2602-46-2	1.1E-02			1.1E-02					
6.7E+00	C	1.4E-01	C							-6.53	1	1	No	Direct Brown 95	16071-86-6	1.2E-02			1.2E-02					
				4.0E-05	I					4.02	1	0.9	Yes	Disulfoton	298-04-4					8.0E-01	1.3E+00		5.0E-01	
				1.0E-02	I			V		0.77	1	1	Yes	Dithiane, 1,4-	505-29-3					2.0E+02	1.6E+04		2.0E+02	
				2.0E-03	I					2.68	1	1	Yes	Diuron	330-54-1					4.0E+01	3.6E+02		3.6E+01	
				2.0E-02	O					1.15	1	1	Yes	Dodine	2439-10-3					4.0E+02	5.3E+04		4.0E+02	
				5.0E-02	O			V		3.21	1	1	Yes	EPTC	759-94-4					1.0E+03	3.0E+03		7.5E+02	
				6.0E-03	I			V		3.83	1	0.9	Yes	Endosulfan	115-29-7					1.2E+02	6.3E+02		1.0E+02	
				2.0E-02	I					1.91	1	1	Yes	Endothall	145-73-3					4.0E+02	8.5E+03		3.8E+02	1.0E+02
				3.0E-04	I					5.20	1	0.8	Yes	Endrin	72-20-8					6.0E+00	3.7E+00		2.3E+00	2.0E+00
9.9E-03	I	1.2E-06	I	6.0E-03	P	1.0E-03	I	V		0.45	1	1	Yes	Epichlorohydrin	106-89-8	7.9E+00	7.9E+02	4.7E+00	2.9E+00	1.2E+02	1.3E+04	2.1E+00	2.0E+00	
						2.0E-02	I	V		0.86	1	1	Yes	Epoxybutane, 1,2-	106-88-7							4.2E+01	4.2E+01	
				4.0E-02	P					-1.18	1	1	Yes	Ethanol, 2-(2-methoxyethoxy)-	111-77-3					8.0E+02	3.9E+05		8.0E+02	
				5.0E-03	I					-0.22	1	1	Yes	Ethephon	16672-87-0					1.0E+02	4.2E+04		1.0E+02	
				5.0E-04	I					5.07	1	0.8	Yes	Ethion	563-12-2					1.0E+01	7.7E+00		4.3E+00	
				1.0E-01	P	6.0E-02	P	V		0.59	1	1	Yes	Ethoxyethanol Acetate, 2-	111-15-9					2.0E+03	2.3E+05	1.3E+02	1.2E+02	
				9.0E-02	P	2.0E-01	I	V		-0.32	1	1	Yes	Ethoxyethanol, 2-	110-80-5					1.8E+03	6.3E+05	4.2E+02	3.4E+02	
				9.0E-01	I	7.0E-02	P	V		0.73	1	1	Yes	Ethyl Acetate	141-78-6					1.8E+04	1.2E+06	1.5E+02	1.4E+02	
				5.0E-03	P	8.0E-03	P	V		1.32	1	1	Yes	Ethyl Acrylate	140-88-5					1.0E+02	3.0E+03	1.7E+01	1.4E+01	
						1.0E+01	I	V		1.43	1	1	Yes	Ethyl Chloride (Chloroethane)	75-00-3							2.1E+04	2.1E+04	
				2.0E-01	I			V		0.89	1	1	Yes	Ethyl Ether	60-29-7					4.0E+03	2.0E+05		3.9E+03	
						3.0E-01	P	V		1.94	1	1	Yes	Ethyl Methacrylate	97-63-2							6.3E+02	6.3E+02	
				1.0E-05	I					4.78	1	0.8	Yes	Ethyl-p-nitrophenyl Phosphonate	2104-64-5					2.0E-01	1.6E-01		8.9E-02	
1.1E-02	C	2.5E-06	C	1.0E-01	I	1.0E+00	I	V		3.15	1	1	Yes	Ethylbenzene	100-41-4	7.1E+00	1.2E+01	2.2E+00	1.5E+00	2.0E+03	3.8E+03	2.1E+03	8.1E+02	7.0E+02
				7.0E-02	P					-0.94	1	1	Yes	Ethylene Cyanohydrin	109-78-4					1.4E+03	1.1E+06		1.4E+03	
				9.0E-02	P			V		-2.04	1	1	No	Ethylene Diamine	107-15-3					1.8E+03			1.8E+03	
				2.0E+00	I	4.0E-01	C			-1.36	1	1	Yes	Ethylene Glycol	107-21-1					4.0E+04	5.7E+07		4.0E+04	
				1.0E-01	I	1.6E+00	I			0.83	1	1	Yes	Ethylene Glycol Monobutyl Ether	111-76-2					2.0E+03	1.4E+05		2.0E+03	
3.1E-01	C	3.0E-03	I			3.0E-02	C	V	M	-0.30	1	1	Yes	Ethylene Oxide	75-21-8	8.1E-02	1.7E+01	6.8E-04	6.7E-04			6.3E+01	6.3E+01	
4.5E-02	C	1.3E-05	C	8.0E-05	I					-0.66	1	1	Yes	Ethylene Thiourea	96-45-7	1.7E+00	1.0E+03		1.7E+00	1.6E+00	1.0E+03		1.6E+00	
6.5E+01	C	1.9E-02	C					V		-0.28	1	1	Yes	Ethylenimine	151-56-4	1.2E-03	2.5E-01	3.0E-04	2.4E-04					
				3.0E+00	I					2.19	1	1	Yes	Ethylphthalyl Ethyl Glycolate	84-72-0					6.0E+04	1.5E+06		5.8E+04	
				2.5E-04	I					3.23	1	0.9	Yes	Fenamiphos	22224-92-6					5.0E+00	3.4E+01		4.4E+00	
				2.5E-02	I					5.70	1	0.8	Yes	Fenpropathrin	39515-41-8					5.0E+02	7.3E+01		6.4E+01	
				2.5E-02	I					6.20	1	0.7	No	Fenvalerate	51630-58-1					5.0E+02			5.0E+02	
				1.3E-02	I					2.42	1	1	Yes	Fluometuron	2164-17-2					2.6E+02	3.4E+03		2.4E+02	
				4.0E-02	C	1.3E-02	C				1	1	Yes	Fluoride	16984-48-8					8.0E+02	1.8E+05		8.0E+02	4.0E+03
				6.0E-02	I	1.3E-02	C				1	1	Yes	Fluorine (Soluble Fluoride)	7782-41-4					1.2E+03	2.7E+05		1.2E+03	4.0E+03
				8.0E-02	I					3.16	1	0.9	Yes	Fluridone	59756-60-4					1.6E+03	1.4E+04		1.4E+03	
				4.0E-02	O					3.34	1	0.9	Yes	Flurprimidol	56425-91-3					8.0E+02	4.8E+03		6.9E+02	
				2.0E-03	O					3.70	1	0.9	Yes	Flusilazole	85509-19-9					4.0E+01	1.4E+02		3.1E+01	
				5.0E-01	O					3.70	1	0.9	Yes	Flutolanil	66332-96-5					1.0E+04	3.7E+04		7.9E+03	
				1.0E-02	I					6.81	1	0.6	No	Fluvalinate	69409-94-5					2.0E+02			2.0E+02	
				9.0E-02	O					2.85	1	1	Yes	Folpet	133-07-3					1.8E+03	1.9E+04		1.6E+03	
				2.5E-03	O					2.90	1	1	Yes	Fomesafen	72178-02-0					5.0E+01	1.2E+03		4.8E+01	
				2.0E-03	I					3.94	1	0.9	Yes	Fonofos	944-22-9					4.0E+01	6.3E+01		2.4E+01	
		1.3E-05	I	2.0E-01	I	9.8E-03	A	V		0.35	1	1	Yes	Formaldehyde	50-00-0			4.3E-01	4.3E-01	4.0E+03	3.2E+05	2.0E+01	2.0E+01	
				9.0E-01	P	3.0E-04	X	V		-0.54	1	1	Yes	Formic Acid	64-18-6					1.8E+04	6.4E+06	6.3E-01	6.3E-01	
				2.5E+00	O					-2.40	1	1	No	Fosetyl-AL	39148-24-8					5.0E+04			5.0E+04	
														Furans										
				1.0E-03	X			V		4.12	1	1	Yes	~Dibenzofuran	132-64-9					2.0E+01	1.3E+01		7.9E+00	
				1.0E-03	I			V		1.34	1	1	Yes	~Furan	110-00-9					2.0E+01	4.8E+02		1.9E+01	
				9.0E-01	I	2.0E+00	I	V		0.46	1	1	Yes	~Tetrahydrofuran	109-99-9					1.8E+04	1.7E+06	4.2E+03	3.4E+03	
3.8E+00	H									-0.04	1	1	Yes	Furazolidone	67-45-8	2.1E-02	1.0E+01		2.0E-02					
				3.0E-03	I	5.0E-02	H	V		0.41	1	1	Yes	Furfural	98-01-1					6.0E+01	7.1E+03	1.0E+02	3.8E+01	
1.5E+00	C	4.3E-04	C							1.80	1	1	Yes	Furium	531-82-8	5.2E-02	1.9E+00		5.1E-02					
3.0E-02	I	8.6E-06	C							4.38	1	0.9	Yes	Furmecyclox	60568-05-0	2.6E+00	2.0E+00		1.1E+00					
				6.0E-03	O					-4.81	1	1	No	Glufosinate, Ammonium	77182-82-2					1.2E+02			1.2E+02	
				1.0E-01	A	8.0E-05	C			-0.33	1	1	Yes	Glutaraldehyde	111-30-8					2.0E+03	6.0E+05		2.0E+03	
				4.0E-04	I	1.0E-03	H	V		-0.12	1	1	Yes	Glycidyl	765-34-4					8.0E+00	1.8E+03	2.1E+00	1.7E+00	
				1.0E-01	I					-3.40	1	1	No	Glyphosate	1071-83-6					2.0E+03			2.0E+03	7.0E+02
				1.0E-02	X			V		-1.63	1	1	Yes	Guanidine	113-00-8					2.0E+02	4.2E+05		2.0E+02	
				2.0E-02	P					-3.56	1	1	No	Guanidine Chloride	50-01-1					4.0E+02			4.0E+02	
				3.0E-02	X					-8.35	1	1	No	Guanidine Nitrate	506-93-4					6.0E+02			6.0E+02	
				5.0E-05	I					4.07	1	0.9	Yes	Haloxyfop, Methyl	69806-40-2					1.0E+00	3.1E+00		7.6E-01	
4.5E+00	I	1.3E-03	I	5.0E-04	I			V		6.10	1	0.8	Yes	Heptachlor	76-44-8	1.7E-02	2.3E-03	4.3E-03	1.4E-03	1.0E+01	1.5E+00		1.3E+00	4.0E-01
9.1E+00	I	2.6E-03	I	1.3E-05	I			V		4.98	1	0.8	Yes	Heptachlor Epoxide	1024-57-3	8.6E-03	7.1E-03	2.2E-03	1.4E-03	2.6E-01	2.4E-01		1.2E-01	2.0E-01
						3.0E-03	X	V		2.29	1	1	Yes	Heptanal, n-	111-71-7							6.3E+00	6.3E+00	

TR=1E-06
HQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD$_o$ (mg/kg-day)	key	RfC$_i$ (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
				3.0E-04	X	4.0E-01	P	V		4.66	1	1	No	Heptane, N-	142-82-5					6.0E+00		8.3E+02	6.0E+00	
				2.0E-03	I			V		6.07	1	0.7	No	Hexabromobenzene	87-82-1					4.0E+01			4.0E+01	
				2.0E-04	I						1	0	No	Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2					4.0E+00			4.0E+00	
1.6E+00	I	4.6E-04	I	8.0E-04	I			V		5.73	1	0.9	No	Hexachlorobenzene	118-74-1	4.9E-02		1.2E-02	9.8E-03	1.6E+01			1.6E+01	1.0E+00
7.8E-02	I	2.2E-05	I	1.0E-03	P			V		4.78	1	0.9	Yes	Hexachlorobutadiene	87-68-3	1.0E+00	4.4E-01	2.6E-01	1.4E-01	2.0E+01	9.5E+00		6.5E+00	
6.3E+00	I	1.8E-03	I	8.0E-03	A					3.80	1	0.9	Yes	Hexachlorocyclohexane, Alpha-	319-84-6	1.2E-02	1.8E-02		7.2E-03	1.6E+02	2.5E+02		9.7E+01	
1.8E+00	I	5.3E-04	I							3.78	1	0.9	Yes	Hexachlorocyclohexane, Beta-	319-85-7	4.3E-02	6.1E-02		2.5E-02					
1.1E+00	C	3.1E-04	C	3.0E-04	I					3.72	1	0.9	Yes	Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	7.1E-02	1.0E-01		4.2E-02	6.0E+00	9.3E+00		3.6E+00	2.0E-01
1.8E+00	I	5.1E-04	I							4.14	1	0.9	Yes	Hexachlorocyclohexane, Technical	608-73-1	4.3E-02	6.1E-02		2.5E-02					
				6.0E-03	I	2.0E-04	I	V		5.04	1	0.9	Yes	Hexachlorocyclopentadiene	77-47-4					1.2E+02	4.2E+01	4.2E-01	4.1E-01	5.0E+01
4.0E-02	I	1.1E-05	C	7.0E-04	I	3.0E-02	I	V		4.14	1	1	Yes	Hexachloroethane	67-72-1	1.9E+00	1.7E+00	5.1E-01	3.3E-01	1.4E+01	1.4E+01	6.3E+01	6.2E+00	
				3.0E-04	I					7.54	1	0	No	Hexachlorophene	70-30-4					6.0E+00			6.0E+00	
1.1E-01	I			3.0E-03	I					0.87	1	1	Yes	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	7.1E-01	8.6E+01		7.0E-01	6.0E+01	8.0E+03		6.0E+01	
						1.0E-05	I	V		3.20	1	1	Yes	Hexamethylene Diisocyanate, 1,6-	822-06-0							2.1E-02	2.1E-02	
				4.0E-04	P					0.28	1	1	Yes	Hexamethylphosphoramide	680-31-9					8.0E+00	2.0E+03		8.0E+00	
						7.0E-01	I	V		3.90	1	1	Yes	Hexane, N-	110-54-3							1.5E+03	1.5E+03	
				2.0E+00	P					0.08	1	1	Yes	Hexanedioic Acid	124-04-9					4.0E+04	1.1E+07		4.0E+04	
				5.0E-03	I	3.0E-02	I	V		1.38	1	1	Yes	Hexanone, 2-	591-78-6					1.0E+02	2.8E+03	6.3E+01	3.8E+01	
				3.3E-02	I					1.85	1	1	Yes	Hexazinone	51235-04-2					6.6E+02	2.4E+04		6.4E+02	
				2.5E-02	I					5.57	1	0.8	Yes	Hexythiazox	78587-05-0					5.0E+02	1.4E+02		1.1E+02	
				1.7E-02	O					2.31	1	1	Yes	Hydramethylnon	67485-29-4					3.4E+02	2.9E+04		3.4E+02	
3.0E+00	I	4.9E-03	I			3.0E-05	P	V		-2.07	1	1	Yes	Hydrazine	302-01-2	2.6E-02	1.1E+02	1.1E-03	1.1E-03			6.3E-02	6.3E-02	
3.0E+00	I	4.9E-03	I								1	1	Yes	Hydrazine Sulfate	10034-93-2	2.6E-02	4.9E+00		2.6E-02					
						2.0E-02	I	V			1	1	Yes	Hydrogen Chloride	7647-01-0							4.2E+01	4.2E+01	
				4.0E-02	C	1.4E-02	C	V		0.23	1	1	Yes	Hydrogen Fluoride	7664-39-3					8.0E+02	1.8E+05	2.9E+01	2.8E+01	
						2.0E-03	I	V		0.23	1	1	Yes	Hydrogen Sulfide	7783-06-4							4.2E+00	4.2E+00	
6.0E-02	P			4.0E-02	P					0.59	1	1	Yes	Hydroquinone	123-31-9	1.3E+00	1.2E+02		1.3E+00	8.0E+02	7.9E+04		7.9E+02	
6.1E-02	O			2.5E-03	O					3.82	1	0.9	Yes	Imazalil	35554-44-0	1.3E+00	3.1E+00		9.0E-01	5.0E+01	1.3E+02		3.6E+01	
				2.5E-01	I					1.86	1	1	Yes	Imazaquin	81335-37-7					5.0E+03	2.6E+05		4.9E+03	
				2.5E+00	O					1.49	1	1	Yes	Imazethapyr	81335-77-5					5.0E+04	7.2E+05		4.7E+04	
				1.0E-02	A					2.49	1	1	Yes	Iodine	7553-56-2					2.0E+02	4.6E+04		2.0E+02	
				4.0E-02	I					3.00	1	0.9	Yes	Iprodione	36734-19-7					8.0E+02	9.1E+03		7.4E+02	
				7.0E-01	P						1	1	Yes	Iron	7439-89-6					1.4E+04	3.2E+06		1.4E+04	
				3.0E-01	I			V		0.76	1	1	Yes	Isobutyl Alcohol	78-83-1					6.0E+03	3.6E+05		5.9E+03	
9.5E-04	I			2.0E-01	I	2.0E+00	C			1.70	1	1	Yes	Isophorone	78-59-1	8.2E+01	1.6E+03		7.8E+01	4.0E+03	8.6E+04		3.8E+03	
				1.5E-02	I			V		5.80	1	0.8	Yes	Isopropalin	33820-53-0					3.0E+02	4.6E+01		4.0E+01	
				2.0E+00	P	2.0E-01	P	V		0.05	1	1	Yes	Isopropanol	67-63-0					4.0E+04	6.5E+06	4.2E+02	4.1E+02	
				1.0E-01	I					0.27	1	1	Yes	Isopropyl Methyl Phosphonic Acid	1832-54-8					2.0E+03	3.9E+05		2.0E+03	
				5.0E-02	I					3.94	1	0.9	Yes	Isoxaben	82558-50-7					1.0E+03	2.7E+03		7.3E+02	
						3.0E-01	A	V		8.00	1	0	No	JP-7	E1737665							6.3E+02	6.3E+02	
				8.0E-03	O					4.81	1	0.9	Yes	Lactofen	77501-63-4					1.6E+02	2.7E+02		1.0E+02	
				2.0E-04	X					-0.94	1	1	Yes	Lactonitrile	78-97-7					4.0E+00	3.2E+03		4.0E+00	
														Lead Compounds										
8.5E-03	C	1.2E-05	C								1	0.8	Yes	~Lead Phosphate	7446-27-7	9.2E+00	1.7E+03		9.1E+00					
8.5E-03	C	1.2E-05	C							-0.08	1	1	Yes	~Lead acetate	301-04-2	9.2E+00	9.1E+03		9.2E+00					
											1	1	Yes	~Lead and Compounds	7439-92-1								1.5E+01	1.5E+01
8.5E-03	C	1.2E-05	C							-4.00	1	1	No	~Lead subacetate	1335-32-6	9.2E+00			9.2E+00					
				1.0E-07	I			V		4.15	1	0.9	Yes	~Tetraethyl Lead	78-00-2					2.0E-03	3.8E-03		1.3E-03	
				5.0E-06	P			V		2.56	1	1	Yes	Lewisite	541-25-3					1.0E-01	9.1E-01		9.0E-02	
				7.7E-03	O					3.20	1	0.9	Yes	Linuron	330-55-2					1.5E+02	7.6E+02		1.3E+02	
				2.0E-03	P						1	1	Yes	Lithium	7439-93-2					4.0E+01	9.1E+03		4.0E+01	
				5.0E-04	I					3.25	1	1	Yes	MCPA	94-74-6					1.0E+01	3.0E+01		7.5E+00	
				4.4E-03	O					2.79	1	0.9	Yes	MCPB	94-81-5					8.8E+01	2.4E+02		6.5E+01	
				1.0E-03	I					3.13	1	1	Yes	MCPP	93-65-2					2.0E+01	7.1E+01		1.6E+01	
				2.0E-02	I					2.36	1	1	Yes	Malathion	121-75-5					4.0E+02	1.1E+04		3.9E+02	
				1.0E-01	I	7.0E-04	C			1.62	1	1	Yes	Maleic Anhydride	108-31-6					2.0E+03	3.8E+04		1.9E+03	
				5.0E-01	I					-0.84	1	1	Yes	Maleic Hydrazide	123-33-1					1.0E+04	8.9E+06		1.0E+04	
				1.0E-04	P					-0.60	1	1	Yes	Malononitrile	109-77-3					2.0E+00	9.2E+02		2.0E+00	
				3.0E-02	H					1.33	1	0.9	Yes	Mancozeb	8018-01-7					6.0E+02	4.9E+03		5.4E+02	
				5.0E-03	I					0.62	1	1	Yes	Maneb	12427-38-2					1.0E+02	3.6E+03		9.8E+01	
				1.4E-01	I	5.0E-05	I				1	1		Manganese (Diet)	7439-96-5									
				2.4E-02	S	5.0E-05	I				0.04	1	Yes	Manganese (Non-diet)	7439-96-5					4.8E+02	4.4E+03		4.3E+02	
				9.0E-05	H					1.04	1	1	Yes	Mephosfolan	950-10-7					1.8E+00	2.5E+02		1.8E+00	
				3.0E-02	I					-2.82	1	1	No	Mepiquat Chloride	24307-26-4					6.0E+02			6.0E+02	
1.1E-02	P			4.0E-03	P					2.42	1	1	Yes	Mercaptobenzothiazole, 2-	149-30-4	7.1E+00	5.6E+01		6.3E+00	8.0E+01	6.9E+02		7.2E+01	
														Mercury Compounds										
				3.0E-04	I	3.0E-04	S			-0.22	0.07	1	Yes	~Mercuric Chloride (and other Mercury salts)	7487-94-7					6.0E+00	9.6E+01		5.7E+00	2.0E+00
						3.0E-04	I	V		0.62	1	1	Yes	~Mercury (elemental)	7439-97-6							6.3E-01	6.3E-01	2.0E+00
				1.0E-04	I						1	1	Yes	~Methyl Mercury	22967-92-6					2.0E+00	4.6E+02		2.0E+00	
				8.0E-05	I					0.71	1	1	Yes	~Phenylmercuric Acetate	62-38-4					1.6E+00	5.7E+02		1.6E+00	
				3.0E-05	I			V		7.67	1	0.3	No	Merphos	150-50-5					6.0E-01			6.0E-01	

TR=1E-06
HQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information															Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD$_o$ (mg/kg-day)	key	RfC$_i$ (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
				1.0E-04	O					5.70	1	0.9	Yes	Merphos Oxide	78-48-8					2.0E+00	3.3E-01		2.8E-01	
				6.0E-02	I					1.65	1	1	Yes	Metalaxyl	57837-19-1					1.2E+03	6.4E+04		1.2E+03	
				1.0E-04	I	3.0E-02	P	V		0.68	1	1	Yes	Methacrylonitrile	126-98-7					2.0E+00	1.3E+02	6.3E+01	1.9E+00	
				5.0E-05	I					-0.80	1	1	Yes	Methamidophos	10265-92-6					1.0E+00	1.0E+03		1.0E+00	
				2.0E+00	I	2.0E+01	I	V		-0.77	1	1	Yes	Methanol	67-56-1					4.0E+04	1.8E+07	4.2E+04	2.0E+04	
				1.5E-03	O					2.20	1	1	Yes	Methidathion	950-37-8					3.0E+01	8.7E+02		2.9E+01	
				2.5E-02	I					0.60	1	1	Yes	Methomyl	16752-77-5					5.0E+02	6.8E+04		5.0E+02	
4.9E-02	C	1.4E-05	C							1.47	1	1	Yes	Methoxy-5-nitroaniline, 2-	99-59-2	1.6E+00	5.4E+01		1.5E+00					
				5.0E-03	I					5.08	1	0.8	Yes	Methoxychlor	72-43-5					1.0E+02	5.9E+01		3.7E+01	4.0E+01
				8.0E-03	P	1.0E-03	P	V		0.10	1	1	Yes	Methoxyethanol Acetate, 2-	110-49-6					1.6E+02	3.5E+04	2.1E+00	2.1E+00	
				5.0E-03	P	2.0E-02	I	V		-0.77	1	1	Yes	Methoxyethanol, 2-	109-86-4					1.0E+02	6.3E+04	4.2E+01	2.9E+01	
				1.0E+00	X			V		0.18	1	1	Yes	Methyl Acetate	79-20-9					2.0E+04	2.9E+06		2.0E+04	
						2.0E-02	P	V		0.80	1	1	Yes	Methyl Acrylate	96-33-3							4.2E+01	4.2E+01	
				6.0E-01	I	5.0E+00	I	V		0.29	1	1	Yes	Methyl Ethyl Ketone (2-Butanone)	78-93-3					1.2E+04	1.5E+06	1.0E+04	5.6E+03	
		1.0E-03	X	1.0E-03	P	2.0E-05	X	V		-1.05	1	1	Yes	Methyl Hydrazine	60-34-4			5.6E-03	5.6E-03	2.0E+01	1.5E+04	4.2E-02	4.2E-02	
						3.0E+00	I	V		1.31	1	1	Yes	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1							6.3E+03	6.3E+03	
						1.0E-03	C	V		0.79	1	1	Yes	Methyl Isocyanate	624-83-9							2.1E+00	2.1E+00	
				1.4E+00	I	7.0E-01	I	V		1.38	1	1	Yes	Methyl Methacrylate	80-62-6					2.8E+04	7.7E+05	1.5E+03	1.4E+03	
				2.5E-04	I					2.86	1	1	Yes	Methyl Parathion	298-00-0					5.0E+00	4.1E+01		4.5E+00	
				6.0E-02	X					-0.70	1	1	Yes	Methyl Phosphonic Acid	993-13-5					1.2E+03	1.2E+06		1.2E+03	
				6.0E-03	H	4.0E-02	H	V		3.44	1	0.8	Yes	Methyl Styrene (Mixed Isomers)	25013-15-4					1.2E+02	4.3E+01	8.3E+01	2.3E+01	
9.9E-02	C	2.8E-05	C							-0.66	1	1	Yes	Methyl methanesulfonate	66-27-3	7.9E-01	4.8E+02		7.9E-01					
1.8E-03	C	2.6E-07	C			3.0E+00	I	V		0.94	1	1	Yes	Methyl tert-Butyl Ether (MTBE)	1634-04-4	4.3E+01	2.0E+03	2.2E+01	1.4E+01			6.3E+03	6.3E+03	
				3.0E-04	X					-2.06	1	1	Yes	Methyl-1,4-benzenediamine dihydrochloride, 2-	615-45-2					6.0E+00	5.9E+04		6.0E+00	
						3.0E+00	X	V		1.43	1	1	Yes	Methyl-2-Pentanol, 4-	108-11-2							6.3E+03	6.3E+03	
9.0E-03	P			2.0E-02	X					1.87	1	1	Yes	Methyl-5-Nitroaniline, 2-	99-55-8	8.7E+00	1.4E+02		8.2E+00	4.0E+02	7.3E+03		3.8E+02	
8.3E+00	C	2.4E-03	C							-0.92	1	1	Yes	Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	9.4E-03	1.1E+01		9.4E-03					
1.3E-01	C	3.7E-05	C							1.62	1	1	Yes	Methylaniline Hydrochloride, 2-	636-21-5	6.0E-01	3.9E+03		6.0E-01					
				1.0E-02	A					-1.18	1	1	Yes	Methylarsonic acid	124-58-3					2.0E+02	3.6E+05		2.0E+02	
				2.0E-04	X						1	0	No	Methylbenzene,1-4-diamine monohydrochloride, 2-	74612-12-7					4.0E+00			4.0E+00	
1.0E-01	X			3.0E-04	X						1	0	No	Methylbenzene-1,4-diamine sulfate, 2-	615-50-9	7.8E-01			7.8E-01	6.0E+00			6.0E+00	
2.2E+01	C	6.3E-03	C						M	6.42	1	0.8	No	Methylcholanthrene, 3-	56-49-5	1.1E-03			1.1E-03					
2.0E-03	I	1.0E-08	I	6.0E-03	I	6.0E-01	I	V	M	1.25	1	1	Yes	Methylene Chloride	75-09-2	1.3E+01	3.5E+02	2.0E+02	1.1E+01	1.2E+02	3.7E+03	1.3E+03	1.1E+02	5.0E+00
1.0E-01	P	4.3E-04	C	2.0E-03	P				M	3.91	1	0.9	Yes	Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	2.5E-01	4.3E-01		1.6E-01	4.0E+01	7.5E+01		2.6E+01	
4.6E-02	I	1.3E-05	C							4.37	1	1	Yes	Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	1.7E+00	6.7E-01		4.8E-01					
1.6E+00	C	4.6E-04	C			2.0E-02	C			1.59	1	1	Yes	Methylenebisbenzenamine, 4,4'-	101-77-9	4.9E-02	1.7E+00		4.7E-02					
						6.0E-04	I			5.22	1	0.9	Yes	Methylenediphenyl Diisocyanate	101-68-8									
				7.0E-02	H			V		3.48	1	1	Yes	Methylstyrene, Alpha-	98-83-9					1.4E+03	1.7E+03		7.8E+02	
				1.5E-01	I					3.13	1	1	Yes	Metolachlor	51218-45-2					3.0E+03	2.6E+04		2.7E+03	
				2.5E-02	I					1.70	1	1	Yes	Metribuzin	21087-64-9					5.0E+02	1.8E+04		4.9E+02	
				2.5E-01	I					2.20	1	1	Yes	Metsulfuron-methyl	74223-64-6					5.0E+03	2.4E+05		4.9E+03	
				3.0E+00	P			V		6.10	1	1	No	Mineral oils	8012-95-1					6.0E+04			6.0E+04	
1.8E+01	C	5.1E-03	C	2.0E-04	I			V		6.89	1	0.5	No	Mirex	2385-85-5	4.3E-03		1.1E-03	8.8E-04	4.0E+00			4.0E+00	
				2.0E-03	I					3.21	1	1	Yes	Molinate	2212-67-1					4.0E+01	1.2E+02		3.0E+01	
				5.0E-03	I						1	1	Yes	Molybdenum	7439-98-7					1.0E+02	2.3E+04		1.0E+02	
				1.0E-01	I						1	1	Yes	Monochloramine	10599-90-3					2.0E+03	4.6E+05		2.0E+03	4.0E+03
				2.0E-03	P					1.66	1	1	Yes	Monomethylaniline	100-61-8					4.0E+01	7.5E+02		3.8E+01	
				2.5E-02	I					2.94	1	1	Yes	Myclobutanil	88671-89-0					5.0E+02	4.7E+03		4.5E+02	
				3.0E-04	X					4.04	1	0.9	Yes	N,N'-Diphenyl-1,4-benzenediamine	74-31-7					6.0E+00	8.9E+00		3.6E+00	
				2.0E-03	I			V		1.38	1	1	Yes	Naled	300-76-5					4.0E+01	6.8E+03		4.0E+01	
				3.0E-02	X	1.0E-01	P	V			1	0	No	Naphtha, High Flash Aromatic (HFAN)	64742-95-6					6.0E+02		2.1E+02	1.5E+02	
1.8E+00	C	0.0E+00	C							2.28	1	1	Yes	Naphthylamine, 2-	91-59-8	4.3E-02	3.6E-01		3.9E-02					
				1.2E-01	O					3.36	1	0.9	Yes	Napropamide	15299-99-7					2.4E+03	1.1E+04		2.0E+03	
		2.6E-04	C	1.1E-02	C	1.4E-05	C			-1.38	1	1	Yes	Nickel Acetate	373-02-4					2.2E+02	6.8E+05		2.2E+02	
		2.6E-04	C	1.1E-02	C	1.4E-05	C			-2.12	1	1	Yes	Nickel Carbonate	3333-67-3					2.2E+02	1.4E+06		2.2E+02	
		2.6E-04	C	1.1E-02	C	1.4E-05	C	V			1	0	Yes	Nickel Carbonyl	13463-39-3			2.2E-02	2.2E-02	2.2E+02		2.9E-02	2.9E-02	
		2.6E-04	C	1.1E-02	C	1.4E-05	C				0.04	1	Yes	Nickel Hydroxide	12054-48-7					2.2E+02	2.0E+03		2.0E+02	
		2.6E-04	C	1.1E-02	C	2.0E-05	C				0.04	1	Yes	Nickel Oxide	1313-99-1					2.2E+02	2.0E+03		2.0E+02	
		2.4E-04	I	1.1E-02	C	1.4E-05	C				0.04	0	Yes	Nickel Refinery Dust	E715532					2.2E+02	1.0E+04		2.2E+02	
		2.6E-04	C	2.0E-02	I	9.0E-05	A				0.04	1	Yes	Nickel Soluble Salts	7440-02-0					4.0E+02	1.8E+04		3.9E+02	
1.7E+00	C	4.8E-04	I	1.1E-02	C	1.4E-05	C				0.04	1	Yes	Nickel Subsulfide	12035-72-2	4.6E-02	1.7E+00		4.5E-02	2.2E+02	1.0E+04		2.2E+02	
		2.6E-04	C	1.1E-02	C	1.4E-05	C				1	0	Yes	Nickelocene	1271-28-9					2.2E+02			2.2E+02	
				1.6E+00	I						1	1	Yes	Nitrate	14797-55-8					3.2E+04	7.3E+06		3.2E+04	1.0E+04
											1	0	Yes	Nitrate + Nitrite (as N)	E701177									1.0E+04
				1.0E-01	I						1	1	Yes	Nitrite	14797-65-0					2.0E+03	4.6E+05		2.0E+03	1.0E+03
				1.0E-02	X	5.0E-05	X			1.85	1	1	Yes	Nitroaniline, 2-	88-74-4					2.0E+02	3.4E+03		1.9E+02	
2.0E-02	P			4.0E-03	P	6.0E-03	P			1.39	1	1	Yes	Nitroaniline, 4-	100-01-6	3.9E+00	1.2E+02		3.8E+00	8.0E+01	2.8E+03		7.8E+01	
		4.0E-05	I	2.0E-03	I	9.0E-03	I	V		1.85	1	1	Yes	Nitrobenzene	98-95-3			1.4E-01	1.4E-01	4.0E+01	6.2E+02	1.9E+01	1.3E+01	
				3.0E+03	P					-4.56	1	1	No	Nitrocellulose	9004-70-0					6.0E+07			6.0E+07	
				7.0E-02	H					-0.47	1	1	Yes	Nitrofurantoin	67-20-9					1.4E+03	1.6E+06		1.4E+03	
1.3E+00	C	3.7E-04	C							0.23	1	1	Yes	Nitrofurazone	59-87-0	6.0E-02	1.7E+01		6.0E-02					

TR=1E-06
HQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
1.7E-02	P			1.0E-04	P					1.62	1	1	Yes	Nitroglycerin	55-63-0	4.6E+00	1.8E+02		4.5E+00	2.0E+00	8.7E+01		2.0E+00	
				1.0E-01	I					-0.89	1	1	Yes	Nitroguanidine	556-88-7					2.0E+03	1.8E+06		2.0E+03	
		8.8E-06	P			5.0E-03	P	V		-0.35	1	1	Yes	Nitromethane	75-52-5			6.4E-01	6.4E-01			1.0E+01	1.0E+01	
		2.7E-03	H			2.0E-02	I	V		0.93	1	1	Yes	Nitropropane, 2-	79-46-9			2.1E-03	2.1E-03			4.2E+01	4.2E+01	
2.7E+01	C	7.7E-03	C						M	0.23	1	1	Yes	Nitroso-N-ethylurea, N-	759-73-9	9.3E-04	1.5E-01		9.2E-04					
1.2E+02	C	3.4E-02	C						M	-0.03	1	1	Yes	Nitroso-N-methylurea, N-	684-93-5	2.1E-04	4.6E-02		2.1E-04					
5.4E+00	I	1.6E-03	I					V		2.63	1	1	Yes	Nitroso-di-N-butylamine, N-	924-16-3	1.4E-02	7.9E-02	3.5E-03	2.7E-03					
7.0E+00	I	2.0E-03	C							1.36	1	1	Yes	Nitroso-di-N-propylamine, N-	621-64-7	1.1E-02	3.5E-01		1.1E-02					
2.8E+00	I	8.0E-04	C							-1.28	1	1	Yes	Nitrosodiethanolamine, N-	1116-54-7	2.8E-02	8.1E+01		2.8E-02					
1.5E+02	I	4.3E-02	I						M	0.48	1	1	Yes	Nitrosodiethylamine, N-	55-18-5	1.7E-04	1.7E-02		1.7E-04					
5.1E+01	I	1.4E-02	I	8.0E-06	P	4.0E-05	X	V	M	-0.57	1	1	Yes	Nitrosodimethylamine, N-	62-75-9	4.9E-04	2.0E-01	1.4E-04	1.1E-04	1.6E-01	7.4E+01	8.3E-02	5.5E-02	
4.9E-03	I	2.6E-06	C							3.13	1	1	Yes	Nitrosodiphenylamine, N-	86-30-6	1.6E+01	5.2E+01		1.2E+01					
2.2E+01	I	6.3E-03	C					V		0.04	1	1	Yes	Nitrosomethylethylamine, N-	10595-95-6	3.5E-03	6.4E-01	8.9E-04	7.1E-04					
6.7E+00	C	1.9E-03	C							-0.44	1	1	Yes	Nitrosomorpholine [N-]	59-89-2	1.2E-02	5.3E+00		1.2E-02					
9.4E+00	C	2.7E-03	C							0.36	1	1	Yes	Nitrosopiperidine [N-]	100-75-4	8.3E-03	1.1E+00		8.2E-03					
2.1E+00	I	6.1E-04	I							-0.19	1	1	Yes	Nitrosopyrrolidine, N-	930-55-2	3.7E-02	1.0E+01		3.7E-02					
				1.0E-04	X					2.45	1	1	Yes	Nitrotoluene, m-	99-08-1					2.0E+00	1.4E+01		1.7E+00	
2.2E-01	P			9.0E-04	P			V		2.30	1	1	Yes	Nitrotoluene, o-	88-72-2	3.5E-01	2.8E+00		3.1E-01	1.8E+01	1.5E+02		1.6E+01	
1.6E-02	P			4.0E-03	P					2.37	1	1	Yes	Nitrotoluene, p-	99-99-0	4.9E+00	3.4E+01		4.3E+00	8.0E+01	6.2E+02		7.1E+01	
				3.0E-04	X	2.0E-02	P	V		5.65	1	1	No	Nonane, n-	111-84-2					6.0E+00		4.2E+01	5.3E+00	
				1.5E-02	O					2.30	1	1	Yes	Norflurazon	27314-13-2					3.0E+02	7.5E+03		2.9E+02	
				3.0E-03	I					8.71	1	0.3	No	Octabromodiphenyl Ether	32536-52-0					6.0E+01			6.0E+01	
				5.0E-02	I					0.16	1	1	Yes	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0					1.0E+03	6.3E+05		1.0E+03	
				2.0E-03	H					-1.01	1	1	Yes	Octamethylpyrophosphoramide	152-16-9					4.0E+01	1.4E+05		4.0E+01	
7.8E-03	O			1.4E-01	O					3.73	1	0.9	Yes	Oryzalin	19044-88-3	1.0E+01	3.8E+01		7.9E+00	2.8E+03	1.2E+04		2.3E+03	
				5.0E-03	I					4.80	1	0.8	Yes	Oxadiazon	19666-30-9					1.0E+02	9.0E+01		4.7E+01	
				2.5E-02	I					-0.47	1	1	Yes	Oxamyl	23135-22-0					5.0E+02	5.1E+05		5.0E+02	2.0E+02
7.3E-02	O			3.0E-02	O					4.73	1	0.8	Yes	Oxyfluorfen	42874-03-3	1.1E+00	1.1E+00		5.4E-01	6.0E+02	6.7E+02		3.2E+02	
				1.3E-02	I					3.20	1	0.9	Yes	Paclobutrazol	76738-62-0					2.6E+02	1.7E+03		2.3E+02	
				4.5E-03	I					-4.50	1	1	No	Paraquat Dichloride	1910-42-5					9.0E+01			9.0E+01	
				6.0E-03	H					3.83	1	0.9	Yes	Parathion	56-38-2					1.2E+02	3.0E+02		8.6E+01	
				5.0E-02	H			V		3.83	1	1	Yes	Pebulate	1114-71-2					1.0E+03	1.3E+03		5.6E+02	
				3.0E-01	O					5.20	1	0.9	Yes	Pendimethalin	40487-42-1					6.0E+03	1.8E+03		1.4E+03	
				2.0E-03	I			V		6.84	1	0.6	No	Pentabromodiphenyl Ether	32534-81-9					4.0E+01			4.0E+01	
				1.0E-04	I					7.66	1	0.6	No	Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99)	60348-60-9					2.0E+00			2.0E+00	
				8.0E-04	I			V		5.17	1	0.9	Yes	Pentachlorobenzene	608-93-5					1.6E+01	3.9E+00		3.2E+00	
9.0E-02	P							V		3.22	1	1	Yes	Pentachloroethane	76-01-7	8.7E-01	2.5E+00		6.5E-01					
2.6E-01	H			3.0E-03	I			V		4.64	1	0.9	Yes	Pentachloronitrobenzene	82-68-8	3.0E-01	2.0E-01		1.2E-01	6.0E+01	4.4E+01		2.6E+01	
4.0E-01	I	5.1E-06	C	5.0E-03	I					5.12	1	0.9	Yes	Pentachlorophenol	87-86-5	1.9E-01	5.2E-02		4.1E-02	1.0E+02	2.9E+01		2.3E+01	1.0E+00
4.0E-03	X			2.0E-03	P					2.38	1	1	Yes	Pentaerythritol tetranitrate (PETN)	78-11-5	1.9E+01	4.3E+02		1.9E+01	4.0E+01	9.6E+02		3.9E+01	
						1.0E+00	P	V		3.39	1	1	Yes	Pentane, n-	109-66-0							2.1E+03	2.1E+03	
														Perchlorates										
				7.0E-04	I						1	1	Yes	~Ammonium Perchlorate	7790-98-9					1.4E+01	3.2E+03		1.4E+01	
				7.0E-04	I						1	1	Yes	~Lithium Perchlorate	7791-03-9					1.4E+01	3.2E+03		1.4E+01	
				7.0E-04	I						1	1	Yes	~Perchlorate and Perchlorate Salts	14797-73-0					1.4E+01	3.2E+03		1.4E+01	1.5E+01(F)
				7.0E-04	I						1	1	Yes	~Potassium Perchlorate	7778-74-7					1.4E+01	1.6E+03		1.4E+01	
				7.0E-04	I						1	1	Yes	~Sodium Perchlorate	7601-89-0					1.4E+01	3.2E+03		1.4E+01	
				2.0E-02	P						1	0	Yes	Perfluorobutane sulfonic acid (PFBS)	375-73-5					4.0E+02			4.0E+02	
				2.0E-02	P						1	0	Yes	Perfluorobutanesulfonate	45187-15-3					4.0E+02			4.0E+02	
				5.0E-02	I					6.50	1	0.6	No	Permethrin	52645-53-1					1.0E+03			1.0E+03	
2.2E-03	C	6.3E-07	C							1.58	1	1	Yes	Phenacetin	62-44-2	3.5E+01	1.1E+03		3.4E+01					
				2.4E-01	O					3.59	1	0.9	Yes	Phenmedipham	13684-63-4					4.8E+03	1.8E+04		3.8E+03	
				3.0E-01	I	2.0E-01	C			1.46	1	1	Yes	Phenol	108-95-2					6.0E+03	1.4E+05		5.8E+03	
				4.0E-03	I					1.52	1	1	Yes	Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1					8.0E+01	3.6E+03		7.8E+01	
				5.0E-04	X					4.15	1	1	Yes	Phenothiazine	92-84-2					1.0E+01	7.6E+00		4.3E+00	
				2.0E-04	X			V		3.28	1	1	Yes	Phenyl Isothiocyanate	103-72-0					4.0E+00	7.6E+00		2.6E+00	
				6.0E-03	I					-0.33	1	1	Yes	Phenylenediamine, m-	108-45-2					1.2E+02	4.8E+04		1.2E+02	
1.2E-01	P			4.0E-03	P					0.15	1	1	Yes	Phenylenediamine, o-	95-54-5	6.5E-01	1.1E+02		6.5E-01	8.0E+01	1.5E+04		8.0E+01	
				1.0E-03	X					-0.30	1	1	Yes	Phenylenediamine, p-	106-50-3					2.0E+01	7.6E+03		2.0E+01	
1.9E-03	H									3.09	1	1	Yes	Phenylphenol, 2-	90-43-7	4.0E+01	1.2E+02		3.0E+01					
				2.0E-04	H					3.56	1	0.9	Yes	Phorate	298-02-2					4.0E+00	1.2E+01		3.0E+00	
						3.0E-04	I	V		-0.71	1	1		Phosgene	75-44-5									
				2.0E-02	I					2.78	1	1	Yes	Phosmet	732-11-6					4.0E+02	5.3E+03		3.7E+02	
														Phosphates, Inorganic										
				4.9E+01	P						1	1	Yes	~Aluminum metaphosphate	13776-88-0					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	0	Yes	~Ammonium polyphosphate	68333-79-9					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Calcium pyrophosphate	7790-76-3					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Diammonium phosphate	7783-28-0					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Dicalcium phosphate	7757-93-9					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Dimagnesium phosphate	7782-75-4					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Dipotassium phosphate	7758-11-4					9.7E+05	2.2E+08		9.7E+05	

TR=1E-06
THQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD$_o$ (mg/kg-day)	key	RfC$_i$ (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
				4.9E+01	P						1	1	Yes	~Disodium phosphate	7558-79-4					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Monoaluminum phosphate	13530-50-2					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Monoammonium phosphate	7722-76-1					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Monocalcium phosphate	7758-23-8					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Monomagnesium phosphate	7757-86-0					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Monopotassium phosphate	7778-77-0					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Monosodium phosphate	7558-80-7					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Polyphosphoric acid	8017-16-1					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	0.9	Yes	~Potassium tripolyphosphate	13845-36-8					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Sodium acid pyrophosphate	7758-16-9					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Sodium aluminum phosphate (acidic)	7785-88-8					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	0	Yes	~Sodium aluminum phosphate (anhydrous)	10279-59-1					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	0.8	Yes	~Sodium aluminum phosphate (tetrahydrate)	10305-76-7					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	0.9	Yes	~Sodium hexametaphosphate	10124-56-8					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Sodium polyphosphate	68915-31-1					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Sodium trimetaphosphate	7785-84-4					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Sodium tripolyphosphate	7758-29-4					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Tetrapotassium phosphate	7320-34-5					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Tetrasodium pyrophosphate	7722-88-5					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	0.8	Yes	~Trialuminum sodium tetra decahydrogenoctaorthophosphate (dihydrate)	15136-87-5					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Tricalcium phosphate	7758-87-4					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Trimagnesium phosphate	7757-87-1					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Tripotassium phosphate	7778-53-2					9.7E+05	2.2E+08		9.7E+05	
				4.9E+01	P						1	1	Yes	~Trisodium phosphate	7601-54-9					9.7E+05	2.2E+08		9.7E+05	
				3.0E-04	I	3.0E-04	I	V		-0.27	1	1	Yes	Phosphine	7803-51-2					6.0E+00	1.4E+03	6.3E-01	5.7E-01	
				4.9E+01	P	1.0E-02	I				1	1	Yes	Phosphoric Acid	7664-38-2					9.7E+05	2.2E+08		9.7E+05	
				2.0E-05	I			V		3.08	1	1	Yes	Phosphorus, White	7723-14-0					4.0E-01	9.1E+01		4.0E-01	
1.4E-02	I	2.4E-06	C	2.0E-02	I					7.60	1	0.8	No	Phthalates ~Bis(2-ethylhexyl)phthalate	117-81-7	5.6E+00			5.6E+00	4.0E+02			4.0E+02	6.0E+00
1.9E-03	P			2.0E-01	I					4.73	1	0.9	Yes	~Butyl Benzyl Phthalate	85-68-7	4.1E+01	2.7E+01		1.6E+01	4.0E+03	2.9E+03		1.7E+03	
				1.0E+00	I					4.15	1	0.9	Yes	~Butylphthalyl Butylglycolate	85-70-1					2.0E+04	4.1E+04		1.3E+04	
				1.0E-01	I					4.50	1	0.9	Yes	~Dibutyl Phthalate	84-74-2					2.0E+03	1.6E+03		9.0E+02	
				8.0E-01	I					2.42	1	1	Yes	~Diethyl Phthalate	84-66-2					1.6E+04	2.0E+05		1.5E+04	
				1.0E-01	I			V		2.25	1	1	Yes	~Dimethylterephthalate	120-61-6					2.0E+03	2.7E+04		1.9E+03	
				1.0E-02	P					8.10	1	0	No	~Octyl Phthalate, di-N-	117-84-0					2.0E+02			2.0E+02	
				1.0E+00	H					2.00	1	1	Yes	~Phthalic Acid, P-	100-21-0					2.0E+04	3.3E+05		1.9E+04	
				2.0E+00	I	2.0E-02	C			1.60	1	1	Yes	~Phthalic Anhydride	85-44-9					4.0E+04	1.1E+06		3.9E+04	
				7.0E-02	I					1.90	1	1	Yes	Picloram	1918-02-1					1.4E+03	4.3E+04		1.4E+03	5.0E+02
				1.0E-04	X					0.93	1	1	Yes	Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3					2.0E+00	2.1E+02		2.0E+00	
				9.0E-04	X					1.44	1	1	Yes	Picric Acid (2,4,6-Trinitrophenol)	88-89-1					1.8E+01	1.2E+03		1.8E+01	
				7.0E-05	O					4.20	1	0.9	Yes	Pirimiphos, Methyl	29232-93-7					1.4E+00	2.2E+00		8.5E-01	
3.0E+01	C	8.6E-03	C	7.0E-06	H						1	0	No	Polybrominated Biphenyls	59536-65-1	2.6E-03			2.6E-03	1.4E-01			1.4E-01	
7.0E-02	S	2.0E-05	S	7.0E-05	I			V		5.69	1	0	No	Polychlorinated Biphenyls (PCBs) ~Aroclor 1016	12674-11-2	1.1E+00		2.8E-01	2.2E-01	1.4E+00			1.4E+00	
2.0E+00	S	5.7E-04	S					V		4.65	1	1	Yes	~Aroclor 1221	11104-28-2	3.9E-02	1.2E-02	9.8E-03	4.7E-03					
2.0E+00	S	5.7E-04	S					V		4.40	1	1	Yes	~Aroclor 1232	11141-16-5	3.9E-02	1.2E-02	9.8E-03	4.7E-03					
2.0E+00	S	5.7E-04	S					V		6.34	1	0.7	No	~Aroclor 1242	53469-21-9	3.9E-02		9.8E-03	7.8E-03					
2.0E+00	S	5.7E-04	S					V		6.20	1	0	No	~Aroclor 1248	12672-29-6	3.9E-02		9.8E-03	7.8E-03					
2.0E+00	S	5.7E-04	S	2.0E-05	I			V		6.50	1	0.5	No	~Aroclor 1254	11097-69-1	3.9E-02		9.8E-03	7.8E-03	4.0E-01			4.0E-01	
2.0E+00	S	5.7E-04	S					V		7.55	1	0	No	~Aroclor 1260	11096-82-5	3.9E-02		9.8E-03	7.8E-03					
				6.0E-04	X			V		6.34	1	0.7	No	~Aroclor 5460	11126-42-4					1.2E+01			1.2E+01	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		8.27	1	0	No	~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		7.50	1	0	No	~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		7.60	1	0	No	~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		7.60	1	0	No	~Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)	38380-08-4	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
3.9E+03	E	1.1E+00	E	2.3E-08	E	1.3E-06	E	V		7.41	1	0.1	No	~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	2.0E-05		4.9E-06	4.0E-06	4.7E-04		2.8E-03	4.0E-04	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		6.98	1	0.4	No	~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		7.12	1	0.3	No	~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		6.79	1	0.5	No	~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
3.9E+00	E	1.1E-03	E	2.3E-05	E	1.3E-03	E	V		6.98	1	0.4	No	~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	2.0E-02		4.9E-03	4.0E-03	4.7E-01		2.8E+00	4.0E-01	
1.3E+04	E	3.8E+00	E	7.0E-09	E	4.0E-07	E	V		6.98	1	0.4	No	~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	6.0E-06		1.5E-06	1.2E-06	1.4E-04		8.3E-04	1.2E-04	
2.0E+00	I	5.7E-04	I					V		7.10	1	0.7		~Polychlorinated Biphenyls (high risk)	1336-36-3									5.0E-01
4.0E-01	I	1.0E-04	I					V		7.10	1	0.7	No	~Polychlorinated Biphenyls (low risk)	1336-36-3	1.9E-01		5.6E-02	4.4E-02					5.0E-01
7.0E-02	I	2.0E-05	I					V		7.10	1	0.7		~Polychlorinated Biphenyls (lowest risk)	1336-36-3									5.0E-01
1.3E+01	E	3.8E-03	E	7.0E-06	E	4.0E-04	E			6.63	1	0.6	No	~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	6.0E-03			6.0E-03	1.4E-01			1.4E-01	
3.9E+01	E	1.1E-02	E	2.3E-06	E	1.3E-04	E	V		6.34	1	0.7	No	~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	2.0E-03		4.9E-04	4.0E-04	4.7E-02		2.8E-01	4.0E-02	
						6.0E-04	I			10.46	1	0	No	Polymeric Methylene Diphenyl Diisocyanate (PMDI) Polynuclear Aromatic Hydrocarbons (PAHs)	9016-87-9									
				6.0E-02	I			V		3.92	1	1	Yes	~Acenaphthene	83-32-9					1.2E+03	9.6E+02		5.3E+02	
				3.0E-01	I			V		4.45	1	1	Yes	~Anthracene	120-12-7					6.0E+03	2.5E+03		1.8E+03	
1.0E-01	E	6.0E-05	E					V	M	5.76	1	1	No	~Benz[a]anthracene	56-55-3	2.5E-01		3.4E-02	3.0E-02					

TR=1E-06
HQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR ($\mu g/m^3$)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	muta-gen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
1.2E+00	C	1.1E-04	C							6.11	1	0.9	No	~Benzo(j)fluoranthene	205-82-3	6.5E-02			6.5E-02					
1.0E+00	I	6.0E-04	I	3.0E-04	I	2.0E-06	I		M	6.13	1	1	No	~Benzo[a]pyrene	50-32-8	2.5E-02			2.5E-02	6.0E+00			6.0E+00	2.0E-01
1.0E-01	E	6.0E-05	E						M	5.78	1	1	No	~Benzo[b]fluoranthene	205-99-2	2.5E-01			2.5E-01					
1.0E-02	E	6.0E-06	E						M	6.11	1	0.9	No	~Benzo[k]fluoranthene	207-08-9	2.5E+00			2.5E+00					
				8.0E-02	I			V		3.90	1	1	Yes	~Chloronaphthalene, Beta-	91-58-7					1.6E+03	1.4E+03		7.5E+02	
1.0E-03	E	6.0E-07	E						M	5.81	1	1	No	~Chrysene	218-01-9	2.5E+01			2.5E+01					
1.0E+00	E	6.0E-04	E						M	6.75	1	0.6	No	~Dibenz[a,h]anthracene	53-70-3	2.5E-02			2.5E-02					
1.2E+01	C	1.1E-03	C							7.71	1	0.3	No	~Dibenzo(a,e)pyrene	192-65-4	6.5E-03			6.5E-03					
2.5E+02	C	7.1E-02	C						M	5.80	1	0.9	No	~Dimethylbenz(a)anthracene, 7,12-	57-97-6	1.0E-04			1.0E-04					
				4.0E-02	I					5.16	1	1	No	~Fluoranthene	206-44-0					8.0E+02			8.0E+02	
				4.0E-02	I			V		4.18	1	1	Yes	~Fluorene	86-73-7					8.0E+02	4.6E+02		2.9E+02	
1.0E-01	E	6.0E-05	E						M	6.70	1	0.6	No	~Indeno[1,2,3-cd]pyrene	193-39-5	2.5E-01			2.5E-01					
2.9E-02	P			7.0E-02	A			V		3.87	1	1	Yes	~Methylnaphthalene, 1-	90-12-0	2.7E+00	2.0E+00		1.1E+00	1.4E+03	1.1E+03		6.2E+02	
				4.0E-03	I			V		3.86	1	1	Yes	~Methylnaphthalene, 2-	91-57-6					8.0E+01	6.5E+01		3.6E+01	
		3.4E-05	C	2.0E-02	I	3.0E-03	I	V		3.30	1	1	Yes	~Naphthalene	91-20-3			1.7E-01	1.7E-01	4.0E+02	7.0E+02	6.3E+00	6.1E+00	
1.2E+00	C	1.1E-04	C							4.75	1	0.9	Yes	~Nitropyrene, 4-	57835-92-4	6.5E-02	2.7E-02		1.9E-02					
				3.0E-02	I			V		4.88	1	1	Yes	~Pyrene	129-00-0					6.0E+02	1.5E+02		1.2E+02	
				2.0E-02	P						1	0	Yes	Potassium Perfluorobutane Sulfonate	29420-49-3					4.0E+02			4.0E+02	
1.5E-01	I			9.0E-03	I					4.10	1	0.9	Yes	Prochloraz	67747-09-5	5.2E-01	1.4E+00		3.8E-01	1.8E+02	5.1E+02		1.3E+02	
				6.0E-03	H			V		5.58	1	0.8	Yes	Profluralin	26399-36-0					1.2E+02	3.3E+01		2.6E+01	
				1.5E-02	I					2.99	1	1	Yes	Prometon	1610-18-0					3.0E+02	1.6E+03		2.5E+02	
				4.0E-02	O					3.51	1	0.9	Yes	Prometryn	7287-19-6					8.0E+02	2.3E+03		6.0E+02	
				1.3E-02	I					2.18	1	1	Yes	Propachlor	1918-16-7					2.6E+02	4.3E+03		2.5E+02	
				5.0E-03	I					3.07	1	1	Yes	Propanil	709-98-8					1.0E+02	4.4E+02		8.2E+01	
1.9E-01	O			4.0E-02	O					5.00	1	0.8	Yes	Propargite	2312-35-8	4.1E-01	2.5E-01		1.6E-01	8.0E+02	5.5E+02		3.3E+02	
				2.0E-03	I			V		-0.38	1	1	Yes	Propargyl Alcohol	107-19-7					4.0E+01	1.2E+04		4.0E+01	
				2.0E-02	I					2.93	1	1	Yes	Propazine	139-40-2					4.0E+02	2.4E+03		3.4E+02	
				2.0E-02	I					2.60	1	1	Yes	Propham	122-42-9					4.0E+02	2.8E+03		3.5E+02	
				1.0E-01	O					3.72	1	0.9	Yes	Propiconazole	60207-90-1					2.0E+03	8.2E+03		1.6E+03	
						8.0E-03	I	V		0.59	1	1	Yes	Propionaldehyde	123-38-6							1.7E+01	1.7E+01	
				1.0E-01	X	1.0E+00	X	V		3.69	1	1	Yes	Propyl benzene	103-65-1					2.0E+03	1.8E+03	2.1E+03	6.6E+02	
						3.0E+00	C	V		1.77	1	1	Yes	Propylene	115-07-1							6.3E+03	6.3E+03	
				2.0E+01	P					-0.92	1	1	Yes	Propylene Glycol	57-55-6					4.0E+05	3.2E+08		4.0E+05	
						2.7E-04	A			1.83	1	1	Yes	Propylene Glycol Dinitrate	6423-43-4									
				7.0E-01	H	2.0E+00	I	V		-0.49	1	1	Yes	Propylene Glycol Monomethyl Ether	107-98-2					1.4E+04	3.9E+06	4.2E+03	3.2E+03	
2.4E-01	I	3.7E-06	I			3.0E-02	I	V		0.03	1	1	Yes	Propylene Oxide	75-56-9	3.2E-01	4.7E+01	1.5E+00	2.7E-01			6.3E+01	6.3E+01	
				7.5E-02	I					3.43	1	0.9	Yes	Propyzamide	23950-58-5					1.5E+03	5.5E+03		1.2E+03	
				1.0E-03	I			V		0.65	1	1	Yes	Pyridine	110-86-1					2.0E+01	1.5E+03		2.0E+01	
				5.0E-04	I					4.44	1	0.9	Yes	Quinalphos	13593-03-8					1.0E+01	1.0E+01		5.1E+00	
3.0E+00	I									2.03	1	1	Yes	Quinoline	91-22-5	2.6E-02	2.9E-01		2.4E-02					
				9.0E-03	I					4.28	1	0.9	Yes	Quizalofop-ethyl	76578-14-8					1.8E+02	3.8E+02		1.2E+02	
						3.0E-02	A				1	0	Yes	Refractory Ceramic Fibers	E715557									
				3.0E-02	I					6.14	1	0.7	Yes	Resmethrin	10453-86-8					6.0E+02	7.6E+01		6.7E+01	
				5.0E-02	H			V		4.88	1	0.8	Yes	Ronnel	299-84-3					1.0E+03	6.8E+02		4.1E+02	
				4.0E-03	I					4.10	1	0.9	Yes	Rotenone	83-79-4					8.0E+01	2.6E+02		6.1E+01	
2.2E-01	C	6.3E-05	C						M	3.45	1	1	Yes	Safrole	94-59-7	1.1E-01	6.0E-01		9.6E-02					
				5.0E-03	I						1	1	Yes	Selenious Acid	7783-00-8					1.0E+02	2.3E+04		1.0E+02	
				5.0E-03	I	2.0E-02	C				1	1	Yes	Selenium	7782-49-2					1.0E+02	2.3E+04		1.0E+02	5.0E+01
				5.0E-03	C	2.0E-02	C				1	1	Yes	Selenium Sulfide	7446-34-6					1.0E+02	2.3E+04		1.0E+02	
				1.4E-01	O					4.38	1	0.9	Yes	Selhoxydim	74051-80-2					2.8E+03	3.8E+03		1.6E+03	
						3.0E-03	C				1	1	Yes	Silica (crystalline, respirable)	7631-86-9									
				5.0E-03	I						0.04	1	Yes	Silver	7440-22-4					1.0E+02	1.5E+03		9.4E+01	
1.2E-01	H			5.0E-03	I					2.18	1	1	Yes	Simazine	122-34-9	6.5E-01	9.3E+00		6.1E-01	1.0E+02	1.6E+03		9.4E+01	4.0E+00
				1.3E-02	I					0.37	1	1	Yes	Sodium Acifluorfen	62476-59-9					2.6E+02	2.1E+05		2.6E+02	
				4.0E-03	I						1	1	Yes	Sodium Azide	26628-22-8					8.0E+01	1.8E+04		8.0E+01	
2.7E-01	H			3.0E-02	I					-1.43	1	1	Yes	Sodium Diethyldithiocarbamate	148-18-5	2.9E-01	8.5E+02		2.9E-01	6.0E+02	1.9E+06		6.0E+02	
				5.0E-02	A	1.3E-02	C				1	1	Yes	Sodium Fluoride	7681-49-4					1.0E+03	2.3E+05		1.0E+03	4.0E+03
				2.0E-05	I					-3.78	1	1	No	Sodium Fluoroacetate	62-74-8					4.0E-01			4.0E-01	
				1.0E-03	H						1	1	Yes	Sodium Metavanadate	13718-26-8					2.0E+01	4.6E+03		2.0E+01	
				8.0E-04	P						1	1	Yes	Sodium Tungstate	13472-45-2					1.6E+01	3.6E+03		1.6E+01	
				8.0E-04	P						1	1	Yes	Sodium Tungstate Dihydrate	10213-10-2					1.6E+01	3.6E+03		1.6E+01	
2.4E-02	H			3.0E-02	I					3.53	1	0.9	Yes	Stirofos (Tetrachlorovinphos)	961-11-5	3.2E+00	1.9E+01		2.8E+00	6.0E+02	3.8E+03		5.2E+02	
				6.0E-01	I						1	1	Yes	Strontium, Stable	7440-24-6					1.2E+04	2.7E+06		1.2E+04	
				3.0E-04	I					1.93	1	1	Yes	Strychnine	57-24-9					6.0E+00	3.2E+02		5.9E+00	
				2.0E-01	I	1.0E+00	I	V		2.95	1	1	Yes	Styrene	100-42-5					4.0E+03	1.0E+04	2.1E+03	1.2E+03	1.0E+02
				3.0E-03	P					3.10	1	1	Yes	Styrene-Acrylonitrile (SAN) Trimer						6.0E+01	2.4E+02		4.8E+01	
				1.0E-03	P	2.0E-03	X			-0.77	1	1	Yes	Sulfolane	126-33-0					2.0E+01	1.7E+04		2.0E+01	
				8.0E-04	P					3.90	1	0.9	Yes	Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9					1.6E+01	3.5E+01		1.1E+01	
						1.0E-03	C	V			1	1	Yes	Sulfur Trioxide	7446-11-9							2.1E+00	2.1E+00	
						1.0E-03	C				1	1	Yes	Sulfuric Acid	7664-93-9									
2.5E-02	I	7.1E-06	I	5.0E-02	H					4.82	1	0.8	Yes	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl	140-57-8	3.1E+00	2.3E+00		1.3E+00	1.0E+03	8.2E+02		4.5E+02	

TR=1E-06
THQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	volatile	mutagen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
				3.0E-02	H					3.30	1	0.9	Yes	TCMTB	21564-17-0					6.0E+02	2.4E+03		4.8E+02	
				7.0E-02	I					1.79	1	1	Yes	Tebuthiuron	34014-18-1					1.4E+03	4.7E+04		1.4E+03	
				2.0E-02	H					5.96	1	0.7	No	Temephos	3383-96-8					4.0E+02			4.0E+02	
				1.3E-02	I					1.89	1	1	Yes	Terbacil	5902-51-2					2.6E+02	7.0E+03		2.5E+02	
				2.5E-05	H			V		4.48	1	0.9	Yes	Terbufos	13071-79-9					5.0E-01	4.5E-01		2.4E-01	
				1.0E-03	I					3.74	1	0.9	Yes	Terbutryn	886-50-0					2.0E+01	4.1E+01		1.3E+01	
				1.0E-04	I					6.77	1	0.6	No	Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1					2.0E+00			2.0E+00	
				3.0E-04	I			V		4.64	1	1	Yes	Tetrachlorobenzene, 1,2,4,5-	95-94-3					6.0E+00	2.4E+00		1.7E+00	
2.6E-02	I	7.4E-06	I	3.0E-02	I			V		2.93	1	1	Yes	Tetrachloroethane, 1,1,1,2-	630-20-6	3.0E+00	1.1E+01	7.6E-01	5.7E-01	6.0E+02	2.4E+03		4.8E+02	
2.0E-01	I	5.8E-05	C	2.0E-02	I			V		2.39	1	1	Yes	Tetrachloroethane, 1,1,2,2-	79-34-5	3.9E-01	3.3E+00	9.7E-02	7.6E-02	4.0E+02	3.6E+03		3.6E+02	
2.1E-03	I	2.6E-07	I	6.0E-03	I	4.0E-02	I	V		3.40	1	1	Yes	Tetrachloroethylene	127-18-4	3.7E+01	6.5E+01	2.2E+01	1.1E+01	1.2E+02	2.3E+02	8.3E+01	4.1E+01	5.0E+00
				3.0E-02	I					4.45	1	0.9	Yes	Tetrachlorophenol, 2,3,4,6-	58-90-2					6.0E+02	3.9E+02		2.4E+02	
2.0E+01	H							V		4.54	1	0.9	Yes	Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1	3.9E-03	2.0E-03		1.3E-03					
				5.0E-04	I					3.99	1	0.9	Yes	Tetraethyl Dithiopyrophosphate	3689-24-5					1.0E+01	2.4E+01		7.1E+00	
						8.0E+01	I	V		1.68	1	1	Yes	Tetrafluoroethane, 1,1,1,2-	811-97-2							1.7E+05	1.7E+05	
				2.0E-03	P					1.64	1	1	Yes	Tetryl (Trinitrophenylmethylnitramine)	479-45-8					4.0E+01	2.5E+03		3.9E+01	
				2.0E-05	S						1	0.9	Yes	Thallic Oxide	1314-32-5					4.0E-01	9.1E+01		4.0E-01	
				1.0E-05	X						1	1	Yes	Thallium (I) Nitrate	10102-45-1					2.0E-01	4.6E+01		2.0E-01	
				1.0E-05	X						1	1	Yes	Thallium (Soluble Salts)	7440-28-0					2.0E-01	4.6E+01		2.0E-01	2.0E+00
				1.0E-05	X			V		-0.17	1	1	Yes	Thallium Acetate	563-68-8					2.0E-01	1.7E+02		2.0E-01	
				2.0E-05	X			V		-0.86	1	1	Yes	Thallium Carbonate	6533-73-9					4.0E-01	9.3E+04		4.0E-01	
				1.0E-05	X						1	1	Yes	Thallium Chloride	7791-12-0					2.0E-01	4.6E+01		2.0E-01	
				1.0E-05	S						1	1	Yes	Thallium Selenite	12039-52-0					2.0E-01	4.6E+01		2.0E-01	
				2.0E-05	X						1	0.9	Yes	Thallium Sulfate	7446-18-6					4.0E-01	9.1E+01		4.0E-01	
				4.3E-02	O					1.56	1	1	Yes	Thifensulfuron-methyl	79277-27-3					8.6E+02	1.2E+05		8.6E+02	
				1.0E-02	I					3.40	1	0.9	Yes	Thiobencarb	28249-77-6					2.0E+02	7.7E+02		1.6E+02	
				7.0E-02	X					-0.63	1	1	Yes	Thiodiglycol	111-48-8					1.4E+03	9.7E+05		1.4E+03	
				3.0E-04	H					2.16	1	1	Yes	Thiofanox	39196-18-4					6.0E+00	4.4E+01		5.3E+00	
1.2E-02	O			2.7E-02	O					1.40	1	1	Yes	Thiophanate, Methyl	23564-05-8	6.7E+00	7.9E+02		6.7E+00	5.4E+02	6.8E+04		5.3E+02	
				1.5E-02	O					1.73	1	1	Yes	Thiram	137-26-8					3.0E+02	1.2E+04		2.9E+02	
				6.0E-01	H						1	1	Yes	Tin	7440-31-5					1.2E+04	2.7E+06		1.2E+04	
						1.0E-04	A	V			1	1	Yes	Titanium Tetrachloride	7550-45-0							2.1E-01	2.1E-01	
				8.0E-02	I	5.0E+00	I	V		2.73	1	1	Yes	Toluene	108-88-3					1.6E+03	5.3E+03	1.0E+04	1.1E+03	1.0E+03
		1.1E-05	C			8.0E-06	C	V		3.74	1	1	Yes	Toluene-2,4-diisocyanate	584-84-9			5.1E-01	5.1E-01			1.7E-02	1.7E-02	
1.8E-01	X			2.0E-04	X					0.16	1	1	Yes	Toluene-2,5-diamine	95-70-5	4.3E-01	8.2E+01		4.3E-01	4.0E+00	8.3E+02		4.0E+00	
		1.1E-05	C			8.0E-06	C	V		3.74	1	1	Yes	Toluene-2,6-diisocyanate	91-08-7			5.1E-01	5.1E-01			1.7E-02	1.7E-02	
				5.0E-03	P					2.27	1	1	Yes	Toluic Acid, p-	99-94-5					1.0E+02	8.9E+02		9.0E+01	
1.6E-02	P	5.1E-05	C							1.32	1	1	Yes	Toluidine, o- (Methylaniline, 2-)	95-53-4	4.9E+00	1.4E+02		4.7E+00					
3.0E-02	P			4.0E-03	X					1.39	1	1	Yes	Toluidine, p-	106-49-0	2.6E+00	6.8E+01		2.5E+00	8.0E+01	2.3E+03		7.7E+01	
				3.0E+00	P			V		6.10	1	1	No	Total Petroleum Hydrocarbons (Aliphatic High)	E1790670					6.0E+04			6.0E+04	
						6.0E-01	P	V		3.90	1	1	Yes	Total Petroleum Hydrocarbons (Aliphatic Low)	E1790666							1.3E+03	1.3E+03	
				1.0E-02	X	1.0E-01	P	V		5.65	1	1	No	Total Petroleum Hydrocarbons (Aliphatic Medium)	E1790668					2.0E+02		2.1E+02	1.0E+02	
				4.0E-02	P					5.16	1	1	No	Total Petroleum Hydrocarbons (Aromatic High)	E1790676					8.0E+02			8.0E+02	
				4.0E-03	P	3.0E-02	P	V		2.13	1	1	Yes	Total Petroleum Hydrocarbons (Aromatic Low)	E1790672					8.0E+01	6.1E+02	6.3E+01	3.3E+01	
				4.0E-03	P	3.0E-03	P	V		3.58	1	1	Yes	Total Petroleum Hydrocarbons (Aromatic Medium)	E1790674					8.0E+01	9.0E+01	6.3E+00	5.5E+00	
1.1E+00	I	3.2E-04	I							5.90	1	0.8	No	Toxaphene	8001-35-2	7.1E-02			7.1E-02					3.0E+00
				7.5E-03	I					7.56	1	0.5	No	Tralomethrin	66841-25-6					1.5E+02			1.5E+02	
				3.0E-04	A			V		4.10	1	0.9	Yes	Tri-n-butyltin	688-73-3					6.0E+00	9.9E+00		3.7E+00	
				8.0E+01	X					0.25	1	1	Yes	Triacetin	102-76-1					1.6E+06	5.3E+08		1.6E+06	
				3.4E-02	O					2.77	1	1	Yes	Triadimefon	43121-43-3					6.8E+02	7.8E+03		6.3E+02	
7.2E-02	O			2.5E-02	O			V		4.60	1	0.9	Yes	Triallate	2303-17-5	1.1E+00	8.3E-01		4.7E-01	5.0E+02	4.2E+02		2.3E+02	
				1.0E-02	I					1.10	1	1	Yes	Triasulfuron	82097-50-5					2.0E+02	6.0E+04		2.0E+02	
				8.0E-03	I					0.78	1	1	Yes	Tribenuron-methyl	101200-48-0					1.6E+02	5.0E+03		1.6E+02	
				5.0E-03	I			V		4.66	1	0.9	Yes	Tribromobenzene, 1,2,4-	615-54-3					1.0E+02	8.1E+01		4.5E+01	
				9.0E-03	X					4.13	1	0.9	Yes	Tribromophenol, 2,4,6-	118-79-6					1.8E+02	3.7E+02		1.2E+02	
9.0E-03	P			1.0E-02	P					4.00	1	0.9	Yes	Tributyl Phosphate	126-73-8	8.7E+00	1.3E+01		5.2E+00	2.0E+02	3.3E+02		1.2E+02	
				3.0E-04	P						1	0	No	Tributyltin Compounds	E1790678					6.0E+00			6.0E+00	
				3.0E-04	I					4.05	1	1	Yes	Tributyltin Oxide	56-35-9					6.0E+00	9.5E+01		5.7E+00	
				3.0E+01	I	5.0E+00	P	V		3.16	1	1	Yes	Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1					6.0E+05	1.9E+06	1.0E+04	1.0E+04	
7.0E-02	I			2.0E-02	I					1.33	1	1	Yes	Trichloroacetic Acid	76-03-9	1.1E+00	4.6E+01		1.1E+00	4.0E+02	1.8E+04		3.9E+02	6.0E+01
2.9E-02	H									-0.67	1	1	Yes	Trichloroaniline HCl, 2,4,6-	33663-50-2	2.7E+00	3.7E+03		2.7E+00					
7.0E-03	X			3.0E-05	X					3.52	1	1	Yes	Trichloroaniline, 2,4,6-	634-93-5	1.1E+01	2.0E+01		7.1E+00	6.0E-01	1.2E+00		4.0E-01	
				8.0E-04	X			V		4.05	1	1	Yes	Trichlorobenzene, 1,2,3-	87-61-6					1.6E+01	1.3E+01		7.0E+00	
2.9E-02	P			1.0E-02	I	2.0E-03	P	V		4.02	1	1	Yes	Trichlorobenzene, 1,2,4-	120-82-1	2.7E+00	2.0E+00		1.2E+00	2.0E+02	1.6E+02	4.2E+00	4.0E+00	7.0E+01
				2.0E+00	I	5.0E+00	I	V		2.49	1	1	Yes	Trichloroethane, 1,1,1-	71-55-6					4.0E+04	2.5E+05	1.0E+04	8.0E+03	2.0E+02
5.7E-02	I	1.6E-05	I	4.0E-03	I	2.0E-04	X	V		1.89	1	1	Yes	Trichloroethane, 1,1,2-	79-00-5	1.4E+00	2.0E+01	3.5E-01	2.8E-01	8.0E+01	1.3E+03	4.2E-01	4.1E-01	5.0E+00
4.6E-02	I	4.1E-06	I	5.0E-04	I	2.0E-03	I	V	M	2.42	1	1	Yes	Trichloroethylene	79-01-6	1.2E+00	7.4E+00	9.6E-01	4.9E-01	1.0E+01	6.9E+01	4.2E+00	2.8E+00	5.0E+00
				3.0E-01	I			V		2.53	1	1	Yes	Trichlorofluoromethane	75-69-4					6.0E+03	3.6E+04		5.2E+03	
				1.0E-01	I					3.72	1	1	Yes	Trichlorophenol, 2,4,5-	95-95-4					2.0E+03	2.9E+03		1.2E+03	
1.1E-02	I	3.1E-06	I	1.0E-03	P					3.69	1	1	Yes	Trichlorophenol, 2,4,6-	88-06-2	7.1E+00	9.8E+00		4.1E+00	2.0E+01	3.0E+01		1.2E+01	
				1.0E-02	I					3.31	1	0.9	Yes	Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5					2.0E+02	8.7E+02		1.6E+02	

TR=1E-06
THQ=1.0

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide)

Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer CHILD Hazard Index (HI) = 1				
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	volatile	mutagen	LOGP	GIABS	FA	In EPD?	Analyte	CAS No.	Ingestion SL TR=1E-06 (ug/L)	Dermal SL TR=1E-06 (ug/L)	Inhalation SL TR=1E-06 (ug/L)	Carcinogenic SL TR=1E-06 (ug/L)	Ingestion SL Child THQ=1 (ug/L)	Dermal SL Child THQ=1 (ug/L)	Inhalation SL Child THQ=1 (ug/L)	Noncarcinogenic SL Child THI=1 (ug/L)	MCL (ug/L)
				8.0E-03	I					3.80	1	0.9	Yes	Trichlorophenoxypropionic acid, -2,4,5	93-72-1					1.6E+02	3.6E+02		1.1E+02	5.0E+01
				5.0E-03	I			V		2.43	1	1	Yes	Trichloropropane, 1,1,2-	598-77-6					1.0E+02	7.5E+02		8.8E+01	
3.0E+01	I			4.0E-03	I	3.0E-04	I	V	M	2.27	1	1	Yes	Trichloropropane, 1,2,3-	96-18-4	8.4E-04	7.3E-03		7.5E-04	8.0E+01	7.7E+02	6.3E-01	6.2E-01	
				3.0E-03	X	3.0E-04	P	V		2.78	1	1	Yes	Trichloropropene, 1,2,3-	96-19-5					6.0E+01	2.6E+02	6.3E-01	6.2E-01	
				2.0E-02	A					5.11	1	0.8	Yes	Tricresyl Phosphate (TCP)	1330-78-5					4.0E+02	2.6E+02		1.6E+02	
				3.0E-03	I					5.18	1	0.8	Yes	Tridiphane	58138-08-2					6.0E+01	2.6E+01		1.8E+01	
						7.0E-03	I	V		1.45	1	1	Yes	Triethylamine	121-44-8							1.5E+01	1.5E+01	
				2.0E+00	P					-1.75	1	1	Yes	Triethylene Glycol	112-27-6					4.0E+04	1.8E+08		4.0E+04	
						2.0E+01	P	V		1.74	1	1	Yes	Trifluoroethane, 1,1,1-	420-46-2							4.2E+04	4.2E+04	
7.7E-03	I			7.5E-03	I			V		5.34	1	0.8	Yes	Trifluralin	1582-09-8	1.0E+01	3.4E+00		2.6E+00	1.5E+02	5.5E+01		4.0E+01	
2.0E-02	P			1.0E-02	P					-0.65	1	1	Yes	Trimethyl Phosphate	512-56-1	3.9E+00	2.8E+03		3.9E+00	2.0E+02	1.6E+05		2.0E+02	
				1.0E-02	I	6.0E-02	I	V		3.66	1	1	Yes	Trimethylbenzene, 1,2,3-	526-73-8					2.0E+02	1.9E+02	1.3E+02	5.5E+01	
				1.0E-02	I	6.0E-02	I	V		3.63	1	1	Yes	Trimethylbenzene, 1,2,4-	95-63-6					2.0E+02	2.0E+02	1.3E+02	5.6E+01	
				1.0E-02	I	6.0E-02	I	V		3.42	1	1	Yes	Trimethylbenzene, 1,3,5-	108-67-8					2.0E+02	2.8E+02	1.3E+02	6.0E+01	
				1.0E-02	X			V		4.08	1	1	Yes	Trimethylpentene, 2,4,4-	25167-70-8					2.0E+02	9.6E+01		6.5E+01	
				3.0E-02	I					1.18	1	1	Yes	Trinitrobenzene, 1,3,5-	99-35-4					6.0E+02	4.7E+04		5.9E+02	
3.0E-02	I			5.0E-04	I					1.60	1	1	Yes	Trinitrotoluene, 2,4,6-	118-96-7	2.6E+00	1.1E+02		2.5E+00	1.0E+01	4.5E+02		9.8E+00	
				2.0E-02	P					2.83	1	1	Yes	Triphenylphosphine Oxide	791-28-6					4.0E+02	3.8E+03		3.6E+02	
				2.0E-02	A					3.65	1	0.9	Yes	Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8					4.0E+02	3.2E+03		3.6E+02	
				1.0E-02	X					2.59	1	1	Yes	Tris(1-chloro-2-propyl)phosphate	13674-84-5					2.0E+02	3.8E+03		1.9E+02	
2.3E+00	C	6.6E-04	C					V		4.29	1	1	No	Tris(2,3-dibromopropyl)phosphate	126-72-7	3.4E-02		8.5E-03	6.8E-03					
2.0E-02	P			7.0E-03	P					1.44	1	1	Yes	Tris(2-chloroethyl)phosphate	115-96-8	3.9E+00	3.0E+02		3.8E+00	1.4E+02	1.2E+04		1.4E+02	
3.2E-03	P			1.0E-01	P					9.49	1	0	No	Tris(2-ethylhexyl)phosphate	78-42-2	2.4E+01			2.4E+01	2.0E+03			2.0E+03	
				8.0E-04	P						1	1	Yes	Tungsten	7440-33-7					1.6E+01	3.6E+03		1.6E+01	
				2.0E-04	A	4.0E-05	A				1	1	Yes	Uranium (Soluble Salts)	E715565					4.0E+00	9.1E+02		4.0E+00	3.0E+01
1.0E+00	C	2.9E-04	C						M	-0.15	1	1	Yes	Urethane	51-79-6	2.5E-02	6.1E+00		2.5E-02					
		8.3E-03	P	9.0E-03	I	7.0E-06	P				0.026	1	Yes	Vanadium Pentoxide	1314-62-1					1.8E+02	1.1E+03		1.5E+02	
				5.0E-03	S	1.0E-04	A				0.026	1	Yes	Vanadium and Compounds	7440-62-2					1.0E+02	6.0E+02		8.6E+01	
				1.0E-03	I			V		3.84	1	1	Yes	Vernolate	1929-77-7					2.0E+01	2.5E+01		1.1E+01	
				1.2E-03	O					3.10	1	0.9	Yes	Vinclozolin	50471-44-8					2.4E+01	1.8E+02		2.1E+01	
				1.0E+00	H	2.0E-01	I	V		0.73	1	1	Yes	Vinyl Acetate	108-05-4					2.0E+04	1.4E+06	4.2E+02	4.1E+02	
		3.2E-05	H			3.0E-03	I	V		1.57	1	1	Yes	Vinyl Bromide	593-60-2			1.8E-01	1.8E-01			6.3E+00	6.3E+00	
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M	1.38	1	1	Yes	Vinyl Chloride	75-01-4	2.1E-02	2.8E-01	3.4E-01	1.9E-02	6.0E+01	8.9E+02	2.1E+02	4.4E+01	2.0E+00
				3.0E-04	I					2.70	1	1	Yes	Warfarin	81-81-2					6.0E+00	8.4E+01		5.6E+00	
				2.0E-01	S	1.0E-01	S	V		3.15	1	1	Yes	Xylene, P-	106-42-3					4.0E+03	7.6E+03	2.1E+02	1.9E+02	
				2.0E-01	S	1.0E-01	S	V		3.20	1	1	Yes	Xylene, m-	108-38-3					4.0E+03	7.1E+03	2.1E+02	1.9E+02	
				2.0E-01	S	1.0E-01	S	V		3.12	1	1	Yes	Xylene, o-	95-47-6					4.0E+03	8.0E+03	2.1E+02	1.9E+02	
				2.0E-01	I	1.0E-01	I	V		3.16	1	1	Yes	Xylenes	1330-20-7					4.0E+03	7.5E+03	2.1E+02	1.9E+02	1.0E+04
				3.0E-04	I						1	1	Yes	Zinc Phosphide	1314-84-7					6.0E+00	2.3E+03		6.0E+00	
				3.0E-01	I						1	1	Yes	Zinc and Compounds	7440-66-6					6.0E+03	2.3E+06		6.0E+03	
				5.0E-02	I					1.30	1	1	Yes	Zineb	12122-67-7					1.0E+03	9.7E+04		9.9E+02	
				8.0E-05	X						1	1	Yes	Zirconium	7440-67-7					1.6E+00	3.6E+02		1.6E+00	

TR=1E-06
HQ=1.0

APPENDIX D
SUMMARY OF EPA/NMED/RCRA ACTIVITY

Summary of EPA/NMED/RCRA Activity

January

- Submit annual RCRA Financial Assurance Cost Estimates to HWB.
- Completion of Investigation Report for SWMUs 4 and 5.
- NMED approval of revised Investigation Report for SWMUs 1 and 14

April

- Submission of Annual Facility-Wide Ground Water Monitoring Work Plan – updates for 2017

June

- Install additional boundary monitoring wells (BW-4A,BW-4B BW-5A, BW-5B, and BW-5C)
- Install new monitoring wells (OW-59 and OW-60) near SMW-2

September

- Approval of Class 3 Permit Modification
- Submission of 2016 Annual Facility-Wide Ground Water Monitoring Report

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APPENDIX E

SUMMARY OF ALL LEAKS, SPILLS AND RELEASES

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March 26, 2017 – Sour Naphtha Release

At approximately 10:00 am on March 26, 2017 the release was detected. An operator was making his rounds and smelled naphtha in the air. The operator located a saturated area in the middle of a service road where the sour naphtha was seeping to the surface. The sour naphtha flowed downhill in a westerly direction along the middle and sides of the service road for approximately 332 feet. The release collected at the base of the slope in two separate areas. The operator notified the Environmental Department and Kurtz Fire Department. Foam was applied to the release area to minimize vapors. The operator immediately isolated the line by blocking in valves. The release area was isolated and barricaded with tape. Maintenance was notified and installed earthen berms to control the flow of the release. No injuries or fires were reported.

The Sour Naphtha release occurred from a hole found in a 3-inch diameter underground carbon steel pipeline located four feet below ground level. The estimated volume of the Sour Naphtha release was less than five barrels.

Notification of the spill was provided to the NMED Hazardous Waste Bureau and the Oil Conservation Division on March 27, 2017 at 10:00. An initial written report (Form C-141) was completed on August 30, 2017.

The sour naphtha was observed to be seeping in the middle of the service road. The dimensions of the excavation was 20 feet long (parallel to the pipeline) x 4 feet wide x 4 feet deep. An underground 3-inch carbon steel pipe with a 1-inch hole was located and was determined to be the source of the release. Maintenance replaced the damaged section of the pipeline. The visibly impacted soil surrounding the area was excavated and placed inside 20-yard bins for disposal. All visibly impacted soil from the spill was cleaned up from the site and disposed off-site.

Six confirmation soil samples were collected. Based on analytical results, the soil (16 tons) was treated as a hazardous waste (D018 – soil with benzene) and sent offsite for disposal. The area was backfilled with clean soil and the service road was opened.

April 20, 2017 – Sodium Hydroxide Leak – API Caustic Pump Hose from Flare Knock Out Tank

At 2130 hours on April 20, 2017, during regular rounds, the operator noticed the hose to the sandpiper pump had ruptured. Caustic was spraying out of the hole in in the hose. An earlier inspection of the area by the operator at 1900 hours did not indicate a problem with the hose.

The operator who discovered the leak donned the proper PPE, turned off and block in the sandpiper pump. The shift foreman, refinery manager, and the Environmental Department were notified of the incident. Maintenance personnel pumped approximately 20 to 30 gallons of caustic into a vacuum truck. Initial estimates of the volume of the leak were less than 4 barrels. Maintenance personnel also sprayed water on the surrounding equipment in an attempt to remove the caustic. Pumping of the caustic was switched to the east caustic pump. The area was taped off with barricade tape to limit access.

After further investigation, the following morning, it became apparent that the volume of caustic that was released was larger than the initial estimate. Based on the initial mass balance calculation on the flare knock out drum tank, where the caustic came from, the estimated volume of caustic released was revised to 80 barrels. The caustic and cleaning water was somewhat confined to the caustic pump containment area. A portion of the released caustic spilled over a retaining wall to a bermed area north of the pump and knock out drum tank. A portion of the released caustic also sprayed surrounding equipment and out of the containment area to the surrounding ground surface.

Notification of the spill was provided to the NMED Hazardous Waste Bureau and the Oil Conservation Division on April 21, 2017 at 12:30. An initial written report (Form C-141) was completed on April 27, 2017.

May 7, 2017 – Gasoline Release – DGS Additive Tank – Rail Car Loading Area

At 8:00 am on May 7, 2017 an operator observed gasoline pooling underneath the pipe rack located on the west side of the rail car loading area. The operator observed that gasoline had pooled in and around the pipe rack area and was flowing into the sewer box located near the rail car loading area. The off-site supervisor, Kurtz Fire Department, the Maintenance Department and the Environmental Department were immediately notified.

The Maintenance Department responded to the release and began to vacuum out the sewer box. When the level in the sewer box was lowered it was observed that a 3/4-inch valve, which discharges into a sewer cup, was in the open position and was draining into the sewer cup. Valves were

immediately closed at the DGS 105 additive tank. The sewer cup overflowed onto a concrete pad located beneath the pipe rack and into a sewer drain. No personnel injuries were reported and no fires occurred from this release.

The overflow was contained inside a concrete berm underneath the pipe rack and then flowed in a south, south-easterly direction within the bermed containment towards a sewer box. The overflow was pumped out using a vacuum truck and approximately three truck loads were collected from the area as well as from the sump box located north of the pipe rack. A sample of the product was collected and analyzed by the refinery's onsite laboratory to verify the type of product. An estimated 8,900 gallons of gasoline was picked up via vacuum truck and placed back into the process at the slop tank. Clean-up activities beyond the containment areas were not conducted as the majority of the spill was contained inside a concrete pad.

Notification of the spill was provided to the NMED Hazardous Waste Bureau and the Oil Conservation Division via email on May 8, 2017 5:08 pm. An initial written report (Form C-141) was completed on August 30, 2017 for this release.

July 30, 2017 – Oily Water Release – Tank 35

The Gallup Refinery received heavy rainfall on July 29, 2017 and July 30, 2017. During this time frame a fire water line leak was in progress within the process area (Amine Unit). The Waste Water Treatment Plant was operating at the maximum flow rate of 260 gallons per minute and was not able to keep up with the volume of water going to Tank T-35 from the rainstorm and the fire water leak. The operator had switched rundown tanks to try to keep up with the influx of water filling up all of the storage tanks (Tank 27, Tank 28 and Tank 35). At approximately 1:30 am on July 30, 2017 Tank T-35 began to overfill with oily water. The oily water flowed through the vents at the top of the tank and onto the ground surface, pooling inside the tank dike. The overflow stopped at 2:45 am. The operator closed the rundown line to Tank T-35 to slow down the flow so the WWTP could process the excess flow and lower the fluid level on Tank T-35. The onsite Fire Department was notified and responded by applying a foam layer on the spill site to minimize vapor and fire hazards. No personnel injuries were reported and no fires occurred.

The overflow was contained inside the earthen berm (227 feet x 60 feet) with the deepest pooling inside the northern section of the bermed area. A thin, oily layer with a sheen was observed on the surface of the water. Clean up activities were not immediately initiated due to severe weather (lightning) and muddy conditions on July 30 and July 31, 2017. Clean up activities began on August

1, 2017 with the vacuuming of the oily water mixture from inside the berm. As of August 3, 2017 an estimated 18,000 gallons of the oily water mixture had been vacuumed from the area.

Notification of the spill was provided to the NMED Hazardous Waste Bureau and the Oil Conservation Division via email. An initial written report (Form C-141) was completed on July 30, 2017 and forwarded to NMED via letter.

The material released to the ground consisted of an oily water mixture. The volume of wastewater released was estimated at 542 barrels. A sample of the material was analyzed and reported to contain 112.9 ppm benzene.

The remediation of the oily water mixture released from Tank T-35 consisted of the initial spill response (removal of an estimated 18,000 gallons of oily water via vacuum truck) and one subsequent soil excavation event. On August 14, 2017, Advanced Chemical Transport (ACT) was contracted to remove the stained soil and clean the staining on the side of Tank T-35. ACT was issued an excavation permit to remove stained soil to a depth not greater than six inches. Some areas of the berm were affected and the stained soil was removed from these areas in addition to the floor of the containment. Field screening (e.g., visual and olfactory) was conducted during the excavation event to determine the extent of the remediation. The remediation activities were completed by August 18, 2017. ACT used cleaner to wipe the staining from the vents on Tank T-35. All contaminated personal protective equipment, rags and material were placed in one 55-gallon drum for disposal.

Five 20-yard bins were filled with stained soil and gravel. The areas where excavation was conducted were backfilled with clean soil and gravel to allow vacuum trucks and tanker trucks access to the wastewater tanks within the tank dike. On August 23, 2017 a composite sample of the stained soil was obtained from all five bins and submitted to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico for analysis.

After the stained soil was removed, six discrete soil samples, T-35-1 through T-35-6 were collected from six separate locations. Soil confirmation samples were collected on August 30, 2017 from 0 to 6” below the backfill using a trowel that was decontaminated between sample locations. The confirmation samples were collected at six locations chosen because they appeared to representative of the most impacted areas (highest degree of staining).

APPENDIX F

TEMPORARY LAND FARM ANALYTICAL RESULTS (ON ATTACHED CD)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 05, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1706F97

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 6/30/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:10:00 AM
Lab ID: 1706F97-001
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.011	0.020		mg/Kg	1	7/11/2017 9:21:00 AM	32629
Aroclor 1221	ND	0.020	0.020		mg/Kg	1	7/11/2017 9:21:00 AM	32629
Aroclor 1232	ND	0.020	0.020		mg/Kg	1	7/11/2017 9:21:00 AM	32629
Aroclor 1242	ND	0.020	0.020		mg/Kg	1	7/11/2017 9:21:00 AM	32629
Aroclor 1248	ND	0.020	0.020		mg/Kg	1	7/11/2017 9:21:00 AM	32629
Aroclor 1254	ND	0.020	0.020		mg/Kg	1	7/11/2017 9:21:00 AM	32629
Aroclor 1260	ND	0.0093	0.020		mg/Kg	1	7/11/2017 9:21:00 AM	32629
Surr: Decachlorobiphenyl	57.6	0	26.3-128		%Rec	1	7/11/2017 9:21:00 AM	32629
Surr: Tetrachloro-m-xylene	62.0	0	20.7-151		%Rec	1	7/11/2017 9:21:00 AM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.5	9.3		mg/Kg	1	7/5/2017 3:11:47 PM	32588
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	7/5/2017 3:11:47 PM	32588
Surr: DNOP	105	0	70-130		%Rec	1	7/5/2017 3:11:47 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.7		mg/Kg	1	7/5/2017 4:05:07 PM	32616
Surr: BFB	97.0	0	54-150		%Rec	1	7/5/2017 4:05:07 PM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.5	0.10	0.30		mg/Kg	1	7/13/2017 10:06:00 AM	32783
Chloride	1200	9.1	75		mg/Kg	50	7/18/2017 4:05:59 PM	32783
Nitrogen, Nitrate (As N)	18	1.9	6.0		mg/Kg	20	7/13/2017 10:43:14 AM	32783
Sulfate	1800	7.1	30		mg/Kg	20	7/13/2017 10:43:14 AM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	0.012	0.0066	0.032	J	mg/Kg	1	7/7/2017 12:18:48 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.3	12		mg/Kg	5	7/13/2017 11:31:39 AM	32636
Barium	230	0.35	0.49		mg/Kg	5	7/17/2017 11:10:30 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 11:31:39 AM	32636
Chromium	15	0.46	1.5		mg/Kg	5	7/13/2017 11:31:39 AM	32636
Copper	3.3	0.59	1.5		mg/Kg	5	7/17/2017 11:10:30 AM	32636
Iron	17000	74	240		mg/Kg	100	7/13/2017 11:29:56 AM	32636
Lead	2.9	0.85	1.2		mg/Kg	5	7/13/2017 11:31:39 AM	32636
Manganese	430	0.26	0.49		mg/Kg	5	7/17/2017 11:10:30 AM	32636
Selenium	ND	8.9	12		mg/Kg	5	7/13/2017 11:31:39 AM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 11:31:39 AM	32636
Uranium	ND	5.6	24		mg/Kg	5	7/13/2017 11:31:39 AM	32636
Zinc	19	1.7	12		mg/Kg	5	7/17/2017 11:10:30 AM	32636

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:10:00 AM
Lab ID: 1706F97-001 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Aniline	ND	0.11	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Anthracene	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Azobenzene	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Benzoic acid	ND	0.15	0.50		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Bis(2-ethylhexyl)phthalate	0.33	0.19	0.50	J	mg/Kg	1	7/8/2017 9:40:28 AM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Carbazole	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
4-Chloro-3-methylphenol	ND	0.18	0.50		mg/Kg	1	7/8/2017 9:40:28 AM	32653
4-Chloroaniline	ND	0.15	0.50		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Chrysene	ND	0.15	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Di-n-butyl phthalate	0.28	0.11	0.40	J	mg/Kg	1	7/8/2017 9:40:28 AM	32653
Di-n-octyl phthalate	ND	0.15	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Diethyl phthalate	0.23	0.17	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Dimethyl phthalate	ND	0.19	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2,4-Dichlorophenol	ND	0.16	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2,4-Dimethylphenol	ND	0.088	0.30		mg/Kg	1	7/8/2017 9:40:28 AM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2,4-Dinitrophenol	ND	0.12	0.50		mg/Kg	1	7/8/2017 9:40:28 AM	32653

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:10:00 AM
Lab ID: 1706F97-001
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	0.19	0.50		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2,6-Dinitrotoluene	ND	0.17	0.50		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Fluoranthene	ND	0.17	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Fluorene	ND	0.15	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Isophorone	ND	0.19	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2-Methylphenol	ND	0.15	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
N-Nitrosodi-n-propylamine	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Naphthalene	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
4-Nitroaniline	ND	0.17	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Nitrobenzene	ND	0.17	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Pentachlorophenol	ND	0.17	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Phenanthrene	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Phenol	ND	0.14	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Pyrene	ND	0.15	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Pyridine	ND	0.13	0.40		mg/Kg	1	7/8/2017 9:40:28 AM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	7/8/2017 9:40:28 AM	32653
Surr: 2-Fluorophenol	59.6	0	21.4-101		%Rec	1	7/8/2017 9:40:28 AM	32653
Surr: Phenol-d5	66.8	0	32-110		%Rec	1	7/8/2017 9:40:28 AM	32653
Surr: 2,4,6-Tribromophenol	67.6	0	38.7-115		%Rec	1	7/8/2017 9:40:28 AM	32653
Surr: Nitrobenzene-d5	73.5		26.2-120		%Rec	1	7/8/2017 9:40:28 AM	32653
Surr: 2-Fluorobiphenyl	76.6		36.2-124		%Rec	1	7/8/2017 9:40:28 AM	32653
Surr: 4-Terphenyl-d14	61.0		15-114		%Rec	1	7/8/2017 9:40:28 AM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0046	0.023		mg/Kg	1	7/5/2017 7:03:20 PM	32616

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:10:00 AM
Lab ID: 1706F97-001 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0038	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Ethylbenzene	ND	0.0033	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0072	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2,4-Trimethylbenzene	ND	0.0041	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,3,5-Trimethylbenzene	ND	0.0030	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2-Dichloroethane (EDC)	ND	0.0049	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2-Dibromoethane (EDB)	ND	0.0059	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Naphthalene	ND	0.0047	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1-Methylnaphthalene	ND	0.0033	0.19		mg/Kg	1	7/5/2017 7:03:20 PM	32616
2-Methylnaphthalene	ND	0.0038	0.19		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Acetone	ND	0.051	0.70		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Bromobenzene	ND	0.0034	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Bromodichloromethane	ND	0.0061	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Bromoform	ND	0.011	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Bromomethane	ND	0.0080	0.14		mg/Kg	1	7/5/2017 7:03:20 PM	32616
2-Butanone	0.16	0.028	0.47	J	mg/Kg	1	7/5/2017 7:03:20 PM	32616
Carbon disulfide	ND	0.0055	0.47		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Carbon tetrachloride	ND	0.0046	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Chlorobenzene	ND	0.0028	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Chloroethane	ND	0.015	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Chloroform	ND	0.0028	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Chloromethane	ND	0.0098	0.14		mg/Kg	1	7/5/2017 7:03:20 PM	32616
2-Chlorotoluene	ND	0.0036	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
4-Chlorotoluene	ND	0.0042	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
cis-1,2-DCE	ND	0.0060	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
cis-1,3-Dichloropropene	ND	0.0035	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2-Dibromo-3-chloropropane	ND	0.0064	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Dibromochloromethane	ND	0.0039	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Dibromomethane	ND	0.0023	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2-Dichlorobenzene	ND	0.0024	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,3-Dichlorobenzene	ND	0.0041	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,4-Dichlorobenzene	ND	0.0052	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Dichlorodifluoromethane	ND	0.019	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,1-Dichloroethane	ND	0.019	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,1-Dichloroethene	ND	0.019	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2-Dichloropropane	ND	0.0029	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,3-Dichloropropane	ND	0.012	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
2,2-Dichloropropane	ND	0.0053	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,1-Dichloropropene	ND	0.0053	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616

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Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:10:00 AM
Lab ID: 1706F97-001 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
2-Hexanone	ND	0.0091	0.47		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Isopropylbenzene	ND	0.0031	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
4-Isopropyltoluene	ND	0.0036	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
4-Methyl-2-pentanone	ND	0.010	0.47		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Methylene chloride	ND	0.019	0.14		mg/Kg	1	7/5/2017 7:03:20 PM	32616
n-Butylbenzene	ND	0.0042	0.14		mg/Kg	1	7/5/2017 7:03:20 PM	32616
n-Propylbenzene	ND	0.0029	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
sec-Butylbenzene	ND	0.0048	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Styrene	ND	0.0081	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
tert-Butylbenzene	ND	0.0038	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,1,1,2-Tetrachloroethane	ND	0.0053	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,1,2,2-Tetrachloroethane	ND	0.013	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Tetrachloroethene (PCE)	ND	0.0037	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
trans-1,2-DCE	ND	0.019	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
trans-1,3-Dichloropropene	ND	0.0056	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2,3-Trichlorobenzene	ND	0.0043	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2,4-Trichlorobenzene	ND	0.0047	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,1,1-Trichloroethane	ND	0.0061	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,1,2-Trichloroethane	ND	0.0050	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Trichloroethene (TCE)	ND	0.0056	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Trichlorofluoromethane	ND	0.0070	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
1,2,3-Trichloropropane	ND	0.023	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Vinyl chloride	ND	0.0039	0.047		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Xylenes, Total	ND	0.015	0.093		mg/Kg	1	7/5/2017 7:03:20 PM	32616
Surr: Dibromofluoromethane	103		70-130		%Rec	1	7/5/2017 7:03:20 PM	32616
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	7/5/2017 7:03:20 PM	32616
Surr: Toluene-d8	102		70-130		%Rec	1	7/5/2017 7:03:20 PM	32616
Surr: 4-Bromofluorobenzene	90.7		70-130		%Rec	1	7/5/2017 7:03:20 PM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	11	3.2	19	J	mg/Kg	1	7/10/2017	32597

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:30:00 AM
Lab ID: 1706F97-002
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 9:54:00 AM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 9:54:00 AM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 9:54:00 AM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 9:54:00 AM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 9:54:00 AM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 9:54:00 AM	32629
Aroclor 1260	ND	0.0090	0.019		mg/Kg	1	7/11/2017 9:54:00 AM	32629
Surr: Decachlorobiphenyl	104	0	26.3-128		%Rec	1	7/11/2017 9:54:00 AM	32629
Surr: Tetrachloro-m-xylene	117	0	20.7-151		%Rec	1	7/11/2017 9:54:00 AM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.6	9.9		mg/Kg	1	7/5/2017 4:18:27 PM	32588
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	7/5/2017 4:18:27 PM	32588
Surr: DNOP	106	0	70-130		%Rec	1	7/5/2017 4:18:27 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.8		mg/Kg	1	7/5/2017 4:29:16 PM	32616
Surr: BFB	97.9	0	54-150		%Rec	1	7/5/2017 4:29:16 PM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.4	0.10	0.30		mg/Kg	1	7/13/2017 10:55:38 AM	32783
Chloride	2600	18	150		mg/Kg	100	7/18/2017 4:18:24 PM	32783
Nitrogen, Nitrate (As N)	5.7	0.096	0.30		mg/Kg	1	7/13/2017 10:55:38 AM	32783
Sulfate	520	7.1	30		mg/Kg	20	7/13/2017 11:08:03 AM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	0.0082	0.0065	0.032	J	mg/Kg	1	7/7/2017 12:20:30 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.3	12		mg/Kg	5	7/13/2017 11:34:57 AM	32636
Barium	300	0.35	0.49		mg/Kg	5	7/17/2017 11:12:02 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 11:34:57 AM	32636
Chromium	19	0.46	1.5		mg/Kg	5	7/13/2017 11:34:57 AM	32636
Copper	4.0	0.59	1.5		mg/Kg	5	7/17/2017 11:12:02 AM	32636
Iron	21000	74	240		mg/Kg	100	7/13/2017 11:33:17 AM	32636
Lead	2.9	0.85	1.2		mg/Kg	5	7/13/2017 11:34:57 AM	32636
Manganese	310	0.26	0.49		mg/Kg	5	7/17/2017 11:12:02 AM	32636
Selenium	ND	8.9	12		mg/Kg	5	7/13/2017 11:34:57 AM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 11:34:57 AM	32636
Uranium	ND	5.6	24		mg/Kg	5	7/13/2017 11:34:57 AM	32636
Zinc	24	1.7	12		mg/Kg	5	7/17/2017 11:12:02 AM	32636

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:30:00 AM
Lab ID: 1706F97-002 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Aniline	ND	0.11	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Anthracene	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Azobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Benzoic acid	ND	0.15	0.50		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Bis(2-ethylhexyl)phthalate	0.36	0.19	0.50	J	mg/Kg	1	7/11/2017 2:33:55 PM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Carbazole	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
4-Chloro-3-methylphenol	ND	0.18	0.50		mg/Kg	1	7/11/2017 2:33:55 PM	32653
4-Chloroaniline	ND	0.15	0.50		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Chrysene	ND	0.15	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Di-n-butyl phthalate	0.31	0.11	0.40	J	mg/Kg	1	7/11/2017 2:33:55 PM	32653
Di-n-octyl phthalate	ND	0.15	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Diethyl phthalate	0.21	0.17	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Dimethyl phthalate	ND	0.19	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2,4-Dichlorophenol	ND	0.16	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2,4-Dimethylphenol	ND	0.088	0.30		mg/Kg	1	7/11/2017 2:33:55 PM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2,4-Dinitrophenol	ND	0.12	0.50		mg/Kg	1	7/11/2017 2:33:55 PM	32653

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:30:00 AM
Lab ID: 1706F97-002
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.18	0.50		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2,6-Dinitrotoluene	ND	0.17	0.50		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Fluoranthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Fluorene	ND	0.15	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Isophorone	ND	0.19	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2-Methylphenol	ND	0.15	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
N-Nitrosodi-n-propylamine	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Naphthalene	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
4-Nitroaniline	ND	0.17	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Nitrobenzene	ND	0.16	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Pentachlorophenol	ND	0.17	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Phenanthrene	ND	0.17	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Phenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Pyrene	ND	0.15	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Pyridine	ND	0.13	0.40		mg/Kg	1	7/11/2017 2:33:55 PM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	7/11/2017 2:33:55 PM	32653
Surr: 2-Fluorophenol	52.5	0	21.4-101		%Rec	1	7/11/2017 2:33:55 PM	32653
Surr: Phenol-d5	57.9	0	32-110		%Rec	1	7/11/2017 2:33:55 PM	32653
Surr: 2,4,6-Tribromophenol	64.3	0	38.7-115		%Rec	1	7/11/2017 2:33:55 PM	32653
Surr: Nitrobenzene-d5	66.8		26.2-120		%Rec	1	7/11/2017 2:33:55 PM	32653
Surr: 2-Fluorobiphenyl	68.6		36.2-124		%Rec	1	7/11/2017 2:33:55 PM	32653
Surr: 4-Terphenyl-d14	59.9		15-114		%Rec	1	7/11/2017 2:33:55 PM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0047	0.024		mg/Kg	1	7/5/2017 7:32:04 PM	32616

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:30:00 AM
Lab ID: 1706F97-002 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Ethylbenzene	ND	0.0033	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0073	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2,4-Trimethylbenzene	ND	0.0041	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,3,5-Trimethylbenzene	ND	0.0030	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2-Dichloroethane (EDC)	ND	0.0050	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2-Dibromoethane (EDB)	ND	0.0061	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Naphthalene	ND	0.0048	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1-Methylnaphthalene	ND	0.0034	0.19		mg/Kg	1	7/5/2017 7:32:04 PM	32616
2-Methylnaphthalene	ND	0.0039	0.19		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Acetone	ND	0.052	0.71		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Bromobenzene	ND	0.0035	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Bromodichloromethane	ND	0.0062	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Bromoform	ND	0.012	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Bromomethane	ND	0.0082	0.14		mg/Kg	1	7/5/2017 7:32:04 PM	32616
2-Butanone	0.15	0.028	0.48	J	mg/Kg	1	7/5/2017 7:32:04 PM	32616
Carbon disulfide	ND	0.0057	0.48		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Carbon tetrachloride	ND	0.0047	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Chlorobenzene	ND	0.0028	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Chloroethane	ND	0.016	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Chloroform	ND	0.0029	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Chloromethane	ND	0.010	0.14		mg/Kg	1	7/5/2017 7:32:04 PM	32616
2-Chlorotoluene	ND	0.0037	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
4-Chlorotoluene	ND	0.0043	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
cis-1,2-DCE	ND	0.0061	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
cis-1,3-Dichloropropene	ND	0.0036	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2-Dibromo-3-chloropropane	ND	0.0066	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Dibromochloromethane	ND	0.0040	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Dibromomethane	ND	0.0023	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2-Dichlorobenzene	ND	0.0024	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,4-Dichlorobenzene	ND	0.0053	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Dichlorodifluoromethane	ND	0.020	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,1-Dichloroethane	ND	0.019	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2-Dichloropropane	ND	0.0029	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,3-Dichloropropane	ND	0.012	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
2,2-Dichloropropane	ND	0.0054	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,1-Dichloropropene	ND	0.0054	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:30:00 AM
Lab ID: 1706F97-002
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
2-Hexanone	ND	0.0093	0.48		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Isopropylbenzene	ND	0.0032	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
4-Isopropyltoluene	ND	0.0036	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
4-Methyl-2-pentanone	ND	0.010	0.48		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Methylene chloride	ND	0.019	0.14		mg/Kg	1	7/5/2017 7:32:04 PM	32616
n-Butylbenzene	ND	0.0043	0.14		mg/Kg	1	7/5/2017 7:32:04 PM	32616
n-Propylbenzene	ND	0.0030	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
sec-Butylbenzene	ND	0.0049	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Styrene	ND	0.0083	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
tert-Butylbenzene	ND	0.0039	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,1,1,2-Tetrachloroethane	ND	0.0054	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Tetrachloroethene (PCE)	ND	0.0038	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
trans-1,2-DCE	ND	0.019	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
trans-1,3-Dichloropropene	ND	0.0057	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2,3-Trichlorobenzene	ND	0.0044	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2,4-Trichlorobenzene	ND	0.0048	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,1,1-Trichloroethane	ND	0.0062	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,1,2-Trichloroethane	ND	0.0051	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Trichloroethene (TCE)	ND	0.0058	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Trichlorofluoromethane	ND	0.0072	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
1,2,3-Trichloropropane	ND	0.024	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Vinyl chloride	ND	0.0040	0.048		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Xylenes, Total	ND	0.015	0.095		mg/Kg	1	7/5/2017 7:32:04 PM	32616
Surr: Dibromofluoromethane	104		70-130		%Rec	1	7/5/2017 7:32:04 PM	32616
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	7/5/2017 7:32:04 PM	32616
Surr: Toluene-d8	98.8		70-130		%Rec	1	7/5/2017 7:32:04 PM	32616
Surr: 4-Bromofluorobenzene	90.3		70-130		%Rec	1	7/5/2017 7:32:04 PM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	19	3.1	19		mg/Kg	1	7/10/2017	32597

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:50:00 AM
Lab ID: 1706F97-003 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 10:27:00 AM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 10:27:00 AM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 10:27:00 AM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 10:27:00 AM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 10:27:00 AM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 10:27:00 AM	32629
Aroclor 1260	ND	0.0090	0.019		mg/Kg	1	7/11/2017 10:27:00 AM	32629
Surr: Decachlorobiphenyl	116	0	26.3-128		%Rec	1	7/11/2017 10:27:00 AM	32629
Surr: Tetrachloro-m-xylene	132	0	20.7-151		%Rec	1	7/11/2017 10:27:00 AM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.5	9.4		mg/Kg	1	7/5/2017 4:40:57 PM	32588
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	7/5/2017 4:40:57 PM	32588
Surr: DNOP	108	0	70-130		%Rec	1	7/5/2017 4:40:57 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.9		mg/Kg	1	7/5/2017 4:53:22 PM	32616
Surr: BFB	96.3	0	54-150		%Rec	1	7/5/2017 4:53:22 PM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	4.8	0.10	0.30		mg/Kg	1	7/13/2017 11:45:16 AM	32783
Chloride	340	3.6	30		mg/Kg	20	7/13/2017 11:57:41 AM	32783
Nitrogen, Nitrate (As N)	2.0	0.096	0.30		mg/Kg	1	7/13/2017 11:45:16 AM	32783
Sulfate	810	7.1	30		mg/Kg	20	7/13/2017 11:57:41 AM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	0.033	0.0066	0.033		mg/Kg	1	7/7/2017 12:22:11 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.3	12		mg/Kg	5	7/13/2017 11:38:20 AM	32636
Barium	280	0.34	0.48		mg/Kg	5	7/17/2017 11:19:22 AM	32636
Cadmium	ND	0.31	0.48		mg/Kg	5	7/13/2017 11:38:20 AM	32636
Chromium	19	0.46	1.4		mg/Kg	5	7/13/2017 11:38:20 AM	32636
Copper	3.5	0.59	1.4		mg/Kg	5	7/17/2017 11:19:22 AM	32636
Iron	21000	73	240		mg/Kg	100	7/13/2017 11:36:37 AM	32636
Lead	1.7	0.84	1.2		mg/Kg	5	7/13/2017 11:38:20 AM	32636
Manganese	330	0.26	0.48		mg/Kg	5	7/17/2017 11:19:22 AM	32636
Selenium	ND	8.8	12		mg/Kg	5	7/13/2017 11:38:20 AM	32636
Silver	ND	0.30	1.2		mg/Kg	5	7/13/2017 11:38:20 AM	32636
Uranium	ND	5.5	24		mg/Kg	5	7/13/2017 11:38:20 AM	32636
Zinc	27	1.7	12		mg/Kg	5	7/17/2017 11:19:22 AM	32636

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:50:00 AM
Lab ID: 1706F97-003 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Aniline	ND	0.11	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Anthracene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Azobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Benzoic acid	ND	0.15	0.49		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Benzyl alcohol	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Bis(2-ethylhexyl)phthalate	0.30	0.19	0.49	J	mg/Kg	1	7/11/2017 3:02:13 PM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Carbazole	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
4-Chloro-3-methylphenol	ND	0.18	0.49		mg/Kg	1	7/11/2017 3:02:13 PM	32653
4-Chloroaniline	ND	0.15	0.49		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Chrysene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Di-n-butyl phthalate	0.26	0.11	0.40	J	mg/Kg	1	7/11/2017 3:02:13 PM	32653
Di-n-octyl phthalate	ND	0.15	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
3,3´-Dichlorobenzidine	ND	0.14	0.25		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Diethyl phthalate	0.22	0.17	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Dimethyl phthalate	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2,4-Dichlorophenol	ND	0.15	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2,4-Dimethylphenol	ND	0.087	0.30		mg/Kg	1	7/11/2017 3:02:13 PM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2,4-Dinitrophenol	ND	0.12	0.49		mg/Kg	1	7/11/2017 3:02:13 PM	32653

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:50:00 AM
Lab ID: 1706F97-003
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.18	0.49		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2,6-Dinitrotoluene	ND	0.17	0.49		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Fluoranthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Fluorene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Isophorone	ND	0.19	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2-Methylnaphthalene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2-Methylphenol	ND	0.15	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
N-Nitrosodi-n-propylamine	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Naphthalene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
4-Nitroaniline	ND	0.17	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Nitrobenzene	ND	0.16	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2-Nitrophenol	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Pentachlorophenol	ND	0.17	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Phenanthrene	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Phenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Pyrene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Pyridine	ND	0.13	0.40		mg/Kg	1	7/11/2017 3:02:13 PM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
2,4,6-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:02:13 PM	32653
Surr: 2-Fluorophenol	52.5	0	21.4-101		%Rec	1	7/11/2017 3:02:13 PM	32653
Surr: Phenol-d5	63.0	0	32-110		%Rec	1	7/11/2017 3:02:13 PM	32653
Surr: 2,4,6-Tribromophenol	65.5	0	38.7-115		%Rec	1	7/11/2017 3:02:13 PM	32653
Surr: Nitrobenzene-d5	69.0		26.2-120		%Rec	1	7/11/2017 3:02:13 PM	32653
Surr: 2-Fluorobiphenyl	74.5		36.2-124		%Rec	1	7/11/2017 3:02:13 PM	32653
Surr: 4-Terphenyl-d14	61.6		15-114		%Rec	1	7/11/2017 3:02:13 PM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0048	0.025		mg/Kg	1	7/5/2017 8:58:03 PM	32616

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:50:00 AM
Lab ID: 1706F97-003 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0040	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Ethylbenzene	ND	0.0034	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0075	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2,4-Trimethylbenzene	ND	0.0043	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,3,5-Trimethylbenzene	ND	0.0031	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2-Dichloroethane (EDC)	ND	0.0051	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2-Dibromoethane (EDB)	ND	0.0063	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Naphthalene	ND	0.0050	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1-Methylnaphthalene	ND	0.0035	0.20		mg/Kg	1	7/5/2017 8:58:03 PM	32616
2-Methylnaphthalene	ND	0.0040	0.20		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Acetone	ND	0.053	0.74		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Bromobenzene	ND	0.0036	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Bromodichloromethane	ND	0.0064	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Bromoform	ND	0.012	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Bromomethane	ND	0.0085	0.15		mg/Kg	1	7/5/2017 8:58:03 PM	32616
2-Butanone	0.18	0.029	0.49	J	mg/Kg	1	7/5/2017 8:58:03 PM	32616
Carbon disulfide	ND	0.0058	0.49		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Carbon tetrachloride	ND	0.0049	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Chlorobenzene	ND	0.0029	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Chloroethane	ND	0.016	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Chloroform	ND	0.0030	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Chloromethane	ND	0.010	0.15		mg/Kg	1	7/5/2017 8:58:03 PM	32616
2-Chlorotoluene	ND	0.0038	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
4-Chlorotoluene	ND	0.0044	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
cis-1,2-DCE	ND	0.0063	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
cis-1,3-Dichloropropene	ND	0.0037	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2-Dibromo-3-chloropropane	ND	0.0068	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Dibromochloromethane	ND	0.0041	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Dibromomethane	ND	0.0024	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2-Dichlorobenzene	ND	0.0025	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,3-Dichlorobenzene	ND	0.0043	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,4-Dichlorobenzene	ND	0.0055	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Dichlorodifluoromethane	ND	0.020	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,1-Dichloroethane	ND	0.020	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,1-Dichloroethene	ND	0.020	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2-Dichloropropane	ND	0.0030	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,3-Dichloropropane	ND	0.012	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
2,2-Dichloropropane	ND	0.0056	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,1-Dichloropropene	ND	0.0056	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 9:50:00 AM
Lab ID: 1706F97-003 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
2-Hexanone	ND	0.0096	0.49		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Isopropylbenzene	ND	0.0033	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
4-Isopropyltoluene	ND	0.0037	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
4-Methyl-2-pentanone	ND	0.010	0.49		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Methylene chloride	ND	0.020	0.15		mg/Kg	1	7/5/2017 8:58:03 PM	32616
n-Butylbenzene	ND	0.0044	0.15		mg/Kg	1	7/5/2017 8:58:03 PM	32616
n-Propylbenzene	ND	0.0031	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
sec-Butylbenzene	ND	0.0051	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Styrene	ND	0.0085	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
tert-Butylbenzene	ND	0.0040	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,1,1,2-Tetrachloroethane	ND	0.0055	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Tetrachloroethene (PCE)	ND	0.0039	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
trans-1,2-DCE	ND	0.020	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
trans-1,3-Dichloropropene	ND	0.0059	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2,3-Trichlorobenzene	ND	0.0045	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2,4-Trichlorobenzene	ND	0.0050	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,1,1-Trichloroethane	ND	0.0064	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,1,2-Trichloroethane	ND	0.0052	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Trichloroethene (TCE)	ND	0.0059	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Trichlorofluoromethane	ND	0.0074	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
1,2,3-Trichloropropane	ND	0.025	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Vinyl chloride	ND	0.0041	0.049		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Xylenes, Total	ND	0.015	0.098		mg/Kg	1	7/5/2017 8:58:03 PM	32616
Surr: Dibromofluoromethane	103		70-130		%Rec	1	7/5/2017 8:58:03 PM	32616
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	7/5/2017 8:58:03 PM	32616
Surr: Toluene-d8	99.4		70-130		%Rec	1	7/5/2017 8:58:03 PM	32616
Surr: 4-Bromofluorobenzene	89.0		70-130		%Rec	1	7/5/2017 8:58:03 PM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	59	3.3	20		mg/Kg	1	7/10/2017	32597

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706F97-004 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 11:00:00 AM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 11:00:00 AM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 11:00:00 AM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 11:00:00 AM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 11:00:00 AM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 11:00:00 AM	32629
Aroclor 1260	ND	0.0090	0.019		mg/Kg	1	7/11/2017 11:00:00 AM	32629
Surr: Decachlorobiphenyl	114	0	26.3-128		%Rec	1	7/11/2017 11:00:00 AM	32629
Surr: Tetrachloro-m-xylene	129	0	20.7-151		%Rec	1	7/11/2017 11:00:00 AM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.6	9.9		mg/Kg	1	7/5/2017 5:03:02 PM	32588
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	7/5/2017 5:03:02 PM	32588
Surr: DNOP	107	0	70-130		%Rec	1	7/5/2017 5:03:02 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.8		mg/Kg	1	7/5/2017 5:17:30 PM	32616
Surr: BFB	96.2	0	54-150		%Rec	1	7/5/2017 5:17:30 PM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	4.4	0.10	0.30		mg/Kg	1	7/13/2017 12:10:06 PM	32783
Chloride	300	3.6	30		mg/Kg	20	7/13/2017 12:22:31 PM	32783
Nitrogen, Nitrate (As N)	0.31	0.096	0.30		mg/Kg	1	7/13/2017 12:10:06 PM	32783
Sulfate	450	7.1	30		mg/Kg	20	7/13/2017 12:22:31 PM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	0.022	0.0063	0.031	J	mg/Kg	1	7/7/2017 12:23:54 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	7/13/2017 11:41:39 AM	32636
Barium	320	0.35	0.49		mg/Kg	5	7/17/2017 11:20:51 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 11:41:39 AM	32636
Chromium	21	0.47	1.5		mg/Kg	5	7/13/2017 11:41:39 AM	32636
Copper	4.2	0.60	1.5		mg/Kg	5	7/17/2017 11:20:51 AM	32636
Iron	22000	75	250		mg/Kg	100	7/13/2017 11:39:58 AM	32636
Lead	1.2	0.86	1.2	J	mg/Kg	5	7/13/2017 11:41:39 AM	32636
Manganese	380	0.26	0.49		mg/Kg	5	7/17/2017 11:20:51 AM	32636
Selenium	ND	9.0	12		mg/Kg	5	7/13/2017 11:41:39 AM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 11:41:39 AM	32636
Uranium	ND	5.7	25		mg/Kg	5	7/13/2017 11:41:39 AM	32636
Zinc	26	1.7	12		mg/Kg	5	7/17/2017 11:20:51 AM	32636

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706F97-004 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Aniline	ND	0.11	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Anthracene	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Azobenzene	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Benzoic acid	ND	0.15	0.50		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Bis(2-ethylhexyl)phthalate	0.26	0.19	0.50	J	mg/Kg	1	7/10/2017 5:42:45 PM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Carbazole	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
4-Chloro-3-methylphenol	ND	0.18	0.50		mg/Kg	1	7/10/2017 5:42:45 PM	32653
4-Chloroaniline	ND	0.15	0.50		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Chrysene	ND	0.15	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Di-n-butyl phthalate	0.16	0.11	0.40	J	mg/Kg	1	7/10/2017 5:42:45 PM	32653
Di-n-octyl phthalate	ND	0.15	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Diethyl phthalate	0.20	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Dimethyl phthalate	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2,4-Dichlorophenol	ND	0.16	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2,4-Dimethylphenol	ND	0.088	0.30		mg/Kg	1	7/10/2017 5:42:45 PM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2,4-Dinitrophenol	ND	0.12	0.50		mg/Kg	1	7/10/2017 5:42:45 PM	32653

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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706F97-004
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.18	0.50		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2,6-Dinitrotoluene	ND	0.17	0.50		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Fluoranthene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Fluorene	ND	0.15	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Isophorone	ND	0.19	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2-Methylphenol	ND	0.15	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
N-Nitrosodi-n-propylamine	ND	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Naphthalene	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
4-Nitroaniline	ND	0.17	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Nitrobenzene	ND	0.16	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Pentachlorophenol	ND	0.17	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Phenanthrene	ND	0.17	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Phenol	ND	0.14	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Pyrene	ND	0.15	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Pyridine	ND	0.13	0.40		mg/Kg	1	7/10/2017 5:42:45 PM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	7/10/2017 5:42:45 PM	32653
Surr: 2-Fluorophenol	49.9	0	21.4-101		%Rec	1	7/10/2017 5:42:45 PM	32653
Surr: Phenol-d5	56.3	0	32-110		%Rec	1	7/10/2017 5:42:45 PM	32653
Surr: 2,4,6-Tribromophenol	57.4	0	38.7-115		%Rec	1	7/10/2017 5:42:45 PM	32653
Surr: Nitrobenzene-d5	68.8		26.2-120		%Rec	1	7/10/2017 5:42:45 PM	32653
Surr: 2-Fluorobiphenyl	71.9		36.2-124		%Rec	1	7/10/2017 5:42:45 PM	32653
Surr: 4-Terphenyl-d14	63.3		15-114		%Rec	1	7/10/2017 5:42:45 PM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0047	0.024		mg/Kg	1	7/5/2017 10:52:09 PM	32616

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706F97-004 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0074	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2,4-Trimethylbenzene	ND	0.0042	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,3,5-Trimethylbenzene	ND	0.0031	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2-Dichloroethane (EDC)	ND	0.0050	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2-Dibromoethane (EDB)	ND	0.0061	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Naphthalene	ND	0.0049	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1-Methylnaphthalene	ND	0.0034	0.19		mg/Kg	1	7/5/2017 10:52:09 PM	32616
2-Methylnaphthalene	ND	0.0039	0.19		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Acetone	ND	0.052	0.72		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Bromobenzene	ND	0.0035	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Bromodichloromethane	ND	0.0063	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Bromoform	ND	0.012	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Bromomethane	ND	0.0083	0.14		mg/Kg	1	7/5/2017 10:52:09 PM	32616
2-Butanone	0.16	0.029	0.48	J	mg/Kg	1	7/5/2017 10:52:09 PM	32616
Carbon disulfide	ND	0.0057	0.48		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Carbon tetrachloride	ND	0.0048	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Chlorobenzene	ND	0.0029	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Chloroethane	ND	0.016	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Chloroform	ND	0.0029	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Chloromethane	ND	0.010	0.14		mg/Kg	1	7/5/2017 10:52:09 PM	32616
2-Chlorotoluene	ND	0.0038	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
4-Chlorotoluene	ND	0.0044	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
cis-1,2-DCE	ND	0.0062	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
cis-1,3-Dichloropropene	ND	0.0037	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2-Dibromo-3-chloropropane	ND	0.0066	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Dibromochloromethane	ND	0.0041	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Dibromomethane	ND	0.0024	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2-Dichlorobenzene	ND	0.0024	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,3-Dichlorobenzene	ND	0.0043	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,4-Dichlorobenzene	ND	0.0054	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Dichlorodifluoromethane	ND	0.020	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,1-Dichloroethane	ND	0.019	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2-Dichloropropane	ND	0.0030	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,3-Dichloropropane	ND	0.012	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
2,2-Dichloropropane	ND	0.0055	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,1-Dichloropropene	ND	0.0055	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706F97-004 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
2-Hexanone	ND	0.0094	0.48		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Isopropylbenzene	ND	0.0032	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
4-Isopropyltoluene	ND	0.0037	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
4-Methyl-2-pentanone	ND	0.010	0.48		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Methylene chloride	ND	0.019	0.14		mg/Kg	1	7/5/2017 10:52:09 PM	32616
n-Butylbenzene	ND	0.0043	0.14		mg/Kg	1	7/5/2017 10:52:09 PM	32616
n-Propylbenzene	ND	0.0030	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
sec-Butylbenzene	ND	0.0050	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Styrene	ND	0.0084	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
tert-Butylbenzene	ND	0.0039	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,1,1,2-Tetrachloroethane	ND	0.0054	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Tetrachloroethene (PCE)	ND	0.0039	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
trans-1,2-DCE	ND	0.019	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
trans-1,3-Dichloropropene	ND	0.0058	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2,3-Trichlorobenzene	ND	0.0044	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,1,1-Trichloroethane	ND	0.0063	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,1,2-Trichloroethane	ND	0.0051	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Trichloroethene (TCE)	ND	0.0058	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Trichlorofluoromethane	ND	0.0072	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
1,2,3-Trichloropropane	ND	0.024	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Vinyl chloride	ND	0.0040	0.048		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Xylenes, Total	ND	0.015	0.097		mg/Kg	1	7/5/2017 10:52:09 PM	32616
Surr: Dibromofluoromethane	104		70-130		%Rec	1	7/5/2017 10:52:09 PM	32616
Surr: 1,2-Dichloroethane-d4	103		70-130		%Rec	1	7/5/2017 10:52:09 PM	32616
Surr: Toluene-d8	100		70-130		%Rec	1	7/5/2017 10:52:09 PM	32616
Surr: 4-Bromofluorobenzene	89.3		70-130		%Rec	1	7/5/2017 10:52:09 PM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	41	3.1	19		mg/Kg	1	7/10/2017	32597

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:45:00 AM
Lab ID: 1706F97-005 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.011	0.020		mg/Kg	1	7/11/2017 11:33:00 AM	32629
Aroclor 1221	ND	0.020	0.020		mg/Kg	1	7/11/2017 11:33:00 AM	32629
Aroclor 1232	ND	0.020	0.020		mg/Kg	1	7/11/2017 11:33:00 AM	32629
Aroclor 1242	ND	0.020	0.020		mg/Kg	1	7/11/2017 11:33:00 AM	32629
Aroclor 1248	ND	0.020	0.020		mg/Kg	1	7/11/2017 11:33:00 AM	32629
Aroclor 1254	ND	0.020	0.020		mg/Kg	1	7/11/2017 11:33:00 AM	32629
Aroclor 1260	ND	0.0092	0.020		mg/Kg	1	7/11/2017 11:33:00 AM	32629
Surr: Decachlorobiphenyl	104	0	26.3-128		%Rec	1	7/11/2017 11:33:00 AM	32629
Surr: Tetrachloro-m-xylene	114	0	20.7-151		%Rec	1	7/11/2017 11:33:00 AM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.6	9.9		mg/Kg	1	7/5/2017 5:25:34 PM	32588
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	7/5/2017 5:25:34 PM	32588
Surr: DNOP	109	0	70-130		%Rec	1	7/5/2017 5:25:34 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.9		mg/Kg	1	7/6/2017 2:28:24 AM	32616
Surr: BFB	104	0	54-150		%Rec	1	7/6/2017 2:28:24 AM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.9	0.10	0.30		mg/Kg	1	7/13/2017 12:34:56 PM	32783
Chloride	120	3.6	30		mg/Kg	20	7/13/2017 12:47:20 PM	32783
Nitrogen, Nitrate (As N)	7.3	0.096	0.30		mg/Kg	1	7/13/2017 12:34:56 PM	32783
Sulfate	480	7.1	30		mg/Kg	20	7/13/2017 12:47:20 PM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	0.028	0.0065	0.032	J	mg/Kg	1	7/7/2017 12:25:36 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	7/13/2017 12:12:57 PM	32636
Barium	390	0.35	0.49		mg/Kg	5	7/17/2017 11:22:21 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 12:12:57 PM	32636
Chromium	15	0.47	1.5		mg/Kg	5	7/13/2017 12:12:57 PM	32636
Copper	4.2	0.60	1.5		mg/Kg	5	7/17/2017 11:22:21 AM	32636
Iron	17000	74	250		mg/Kg	100	7/13/2017 12:11:17 PM	32636
Lead	3.3	0.86	1.2		mg/Kg	5	7/13/2017 12:12:57 PM	32636
Manganese	400	0.26	0.49		mg/Kg	5	7/17/2017 11:22:21 AM	32636
Selenium	ND	9.0	12		mg/Kg	5	7/13/2017 12:12:57 PM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 12:12:57 PM	32636
Uranium	ND	5.7	25		mg/Kg	5	7/13/2017 12:12:57 PM	32636
Zinc	19	1.7	12		mg/Kg	5	7/17/2017 11:22:21 AM	32636

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:45:00 AM
Lab ID: 1706F97-005 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Acenaphthylene	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Aniline	ND	0.11	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Anthracene	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Azobenzene	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Benz(a)anthracene	ND	0.17	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Benzo(a)pyrene	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Benzo(b)fluoranthene	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Benzo(g,h,i)perylene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Benzo(k)fluoranthene	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Benzoic acid	ND	0.15	0.49		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Benzyl alcohol	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Bis(2-chloroethoxy)methane	ND	0.17	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Bis(2-chloroethyl)ether	ND	0.12	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Bis(2-chloroisopropyl)ether	ND	0.19	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Bis(2-ethylhexyl)phthalate	0.22	0.19	0.49	J	mg/Kg	1	7/11/2017 9:25:11 AM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Butyl benzyl phthalate	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Carbazole	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
4-Chloro-3-methylphenol	ND	0.18	0.49		mg/Kg	1	7/11/2017 9:25:11 AM	32653
4-Chloroaniline	ND	0.15	0.49		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2-Chloronaphthalene	ND	0.17	0.24		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2-Chlorophenol	ND	0.14	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Chrysene	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Di-n-butyl phthalate	0.16	0.11	0.39	J	mg/Kg	1	7/11/2017 9:25:11 AM	32653
Di-n-octyl phthalate	ND	0.14	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Dibenz(a,h)anthracene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Dibenzofuran	ND	0.17	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
1,2-Dichlorobenzene	ND	0.14	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
1,3-Dichlorobenzene	ND	0.13	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
1,4-Dichlorobenzene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
3,3´-Dichlorobenzidine	ND	0.14	0.24		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Diethyl phthalate	0.17	0.16	0.19	J	mg/Kg	1	7/11/2017 9:25:11 AM	32653
Dimethyl phthalate	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2,4-Dichlorophenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2,4-Dimethylphenol	ND	0.086	0.29		mg/Kg	1	7/11/2017 9:25:11 AM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2,4-Dinitrophenol	ND	0.11	0.49		mg/Kg	1	7/11/2017 9:25:11 AM	32653

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:45:00 AM
Lab ID: 1706F97-005
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.18	0.49		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2,6-Dinitrotoluene	ND	0.17	0.49		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Fluoranthene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Fluorene	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Hexachlorobenzene	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Hexachlorobutadiene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Hexachlorocyclopentadiene	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Hexachloroethane	ND	0.14	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Isophorone	ND	0.18	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
1-Methylnaphthalene	ND	0.19	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2-Methylnaphthalene	ND	0.16	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2-Methylphenol	ND	0.14	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
3+4-Methylphenol	ND	0.13	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
N-Nitrosodi-n-propylamine	ND	0.17	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
N-Nitrosodiphenylamine	ND	0.19	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Naphthalene	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2-Nitroaniline	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
3-Nitroaniline	ND	0.17	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
4-Nitroaniline	ND	0.16	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Nitrobenzene	ND	0.16	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2-Nitrophenol	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
4-Nitrophenol	ND	0.15	0.24		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Pentachlorophenol	ND	0.17	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Phenanthrene	ND	0.17	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Phenol	ND	0.13	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Pyrene	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Pyridine	ND	0.13	0.39		mg/Kg	1	7/11/2017 9:25:11 AM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2,4,5-Trichlorophenol	ND	0.14	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
2,4,6-Trichlorophenol	ND	0.15	0.19		mg/Kg	1	7/11/2017 9:25:11 AM	32653
Surr: 2-Fluorophenol	42.3	0	21.4-101		%Rec	1	7/11/2017 9:25:11 AM	32653
Surr: Phenol-d5	46.2	0	32-110		%Rec	1	7/11/2017 9:25:11 AM	32653
Surr: 2,4,6-Tribromophenol	49.6	0	38.7-115		%Rec	1	7/11/2017 9:25:11 AM	32653
Surr: Nitrobenzene-d5	54.5		26.2-120		%Rec	1	7/11/2017 9:25:11 AM	32653
Surr: 2-Fluorobiphenyl	54.3		36.2-124		%Rec	1	7/11/2017 9:25:11 AM	32653
Surr: 4-Terphenyl-d14	45.9		15-114		%Rec	1	7/11/2017 9:25:11 AM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0048	0.024		mg/Kg	1	7/5/2017 11:20:37 PM	32616

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:45:00 AM
Lab ID: 1706F97-005 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Ethylbenzene	ND	0.0034	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0075	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2,4-Trimethylbenzene	ND	0.0042	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,3,5-Trimethylbenzene	ND	0.0031	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2-Dichloroethane (EDC)	ND	0.0051	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2-Dibromoethane (EDB)	ND	0.0062	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Naphthalene	ND	0.0049	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1-Methylnaphthalene	ND	0.0034	0.19		mg/Kg	1	7/5/2017 11:20:37 PM	32616
2-Methylnaphthalene	ND	0.0039	0.19		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Acetone	ND	0.053	0.73		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Bromobenzene	ND	0.0036	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Bromodichloromethane	ND	0.0063	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Bromoform	ND	0.012	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Bromomethane	ND	0.0084	0.15		mg/Kg	1	7/5/2017 11:20:37 PM	32616
2-Butanone	0.17	0.029	0.49	J	mg/Kg	1	7/5/2017 11:20:37 PM	32616
Carbon disulfide	ND	0.0058	0.49		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Carbon tetrachloride	ND	0.0048	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Chlorobenzene	ND	0.0029	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Chloroethane	ND	0.016	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Chloroform	ND	0.0029	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Chloromethane	ND	0.010	0.15		mg/Kg	1	7/5/2017 11:20:37 PM	32616
2-Chlorotoluene	ND	0.0038	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
4-Chlorotoluene	ND	0.0044	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
cis-1,2-DCE	ND	0.0062	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
cis-1,3-Dichloropropene	ND	0.0037	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2-Dibromo-3-chloropropane	ND	0.0067	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Dibromochloromethane	ND	0.0041	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Dibromomethane	ND	0.0024	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2-Dichlorobenzene	ND	0.0025	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,3-Dichlorobenzene	ND	0.0043	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,4-Dichlorobenzene	ND	0.0054	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Dichlorodifluoromethane	ND	0.020	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,1-Dichloroethane	ND	0.019	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,1-Dichloroethene	ND	0.019	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2-Dichloropropane	ND	0.0030	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,3-Dichloropropane	ND	0.012	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
2,2-Dichloropropane	ND	0.0055	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,1-Dichloropropene	ND	0.0055	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616

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Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:45:00 AM
Lab ID: 1706F97-005 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
2-Hexanone	ND	0.0095	0.49		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Isopropylbenzene	ND	0.0033	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
4-Isopropyltoluene	ND	0.0037	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
4-Methyl-2-pentanone	ND	0.010	0.49		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Methylene chloride	ND	0.019	0.15		mg/Kg	1	7/5/2017 11:20:37 PM	32616
n-Butylbenzene	ND	0.0043	0.15		mg/Kg	1	7/5/2017 11:20:37 PM	32616
n-Propylbenzene	ND	0.0030	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
sec-Butylbenzene	ND	0.0050	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Styrene	ND	0.0084	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
tert-Butylbenzene	ND	0.0039	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,1,1,2-Tetrachloroethane	ND	0.0055	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Tetrachloroethene (PCE)	ND	0.0039	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
trans-1,2-DCE	ND	0.019	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
trans-1,3-Dichloropropene	ND	0.0058	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2,3-Trichlorobenzene	ND	0.0044	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2,4-Trichlorobenzene	ND	0.0049	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,1,1-Trichloroethane	ND	0.0063	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,1,2-Trichloroethane	ND	0.0052	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Trichloroethene (TCE)	ND	0.0059	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Trichlorofluoromethane	ND	0.0073	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
1,2,3-Trichloropropane	ND	0.024	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Vinyl chloride	ND	0.0041	0.049		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Xylenes, Total	ND	0.015	0.097		mg/Kg	1	7/5/2017 11:20:37 PM	32616
Surr: Dibromofluoromethane	103		70-130		%Rec	1	7/5/2017 11:20:37 PM	32616
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	7/5/2017 11:20:37 PM	32616
Surr: Toluene-d8	101		70-130		%Rec	1	7/5/2017 11:20:37 PM	32616
Surr: 4-Bromofluorobenzene	90.3		70-130		%Rec	1	7/5/2017 11:20:37 PM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	13	3.1	19	J	mg/Kg	1	7/10/2017	32597

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:50:00 AM
Lab ID: 1706F97-006
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 12:06:00 PM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 12:06:00 PM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 12:06:00 PM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 12:06:00 PM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 12:06:00 PM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 12:06:00 PM	32629
Aroclor 1260	ND	0.0090	0.019		mg/Kg	1	7/11/2017 12:06:00 PM	32629
Surr: Decachlorobiphenyl	71.6	0	26.3-128		%Rec	1	7/11/2017 12:06:00 PM	32629
Surr: Tetrachloro-m-xylene	82.0	0	20.7-151		%Rec	1	7/11/2017 12:06:00 PM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.5	9.2		mg/Kg	1	7/5/2017 5:47:52 PM	32588
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	7/5/2017 5:47:52 PM	32588
Surr: DNOP	104	0	70-130		%Rec	1	7/5/2017 5:47:52 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.0	4.6		mg/Kg	1	7/6/2017 2:52:17 AM	32616
Surr: BFB	102	0	54-150		%Rec	1	7/6/2017 2:52:17 AM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	4.2	0.10	0.30		mg/Kg	1	7/13/2017 12:59:45 PM	32783
Chloride	170	3.7	30		mg/Kg	20	7/13/2017 1:12:10 PM	32783
Nitrogen, Nitrate (As N)	26	0.096	0.30		mg/Kg	1	7/13/2017 12:59:45 PM	32783
Sulfate	550	7.1	30		mg/Kg	20	7/13/2017 1:12:10 PM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	ND	0.0066	0.033		mg/Kg	1	7/7/2017 12:27:21 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	7/13/2017 12:16:18 PM	32636
Barium	310	0.35	0.49		mg/Kg	5	7/17/2017 11:23:51 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 12:16:18 PM	32636
Chromium	16	0.46	1.5		mg/Kg	5	7/13/2017 12:16:18 PM	32636
Copper	3.7	0.60	1.5		mg/Kg	5	7/17/2017 11:23:51 AM	32636
Iron	19000	74	250		mg/Kg	100	7/13/2017 12:14:37 PM	32636
Lead	4.2	0.85	1.2		mg/Kg	5	7/13/2017 12:16:18 PM	32636
Manganese	370	0.26	0.49		mg/Kg	5	7/17/2017 11:23:51 AM	32636
Selenium	ND	8.9	12		mg/Kg	5	7/13/2017 12:16:18 PM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 12:16:18 PM	32636
Uranium	ND	5.6	25		mg/Kg	5	7/13/2017 12:16:18 PM	32636
Zinc	22	1.7	12		mg/Kg	5	7/17/2017 11:23:51 AM	32636

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:50:00 AM
Lab ID: 1706F97-006
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Aniline	ND	0.11	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Anthracene	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Azobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Benzo(a)pyrene	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Benzoic acid	ND	0.15	0.49		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Benzyl alcohol	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Bis(2-chloroisopropyl)ether	ND	0.19	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Bis(2-ethylhexyl)phthalate	0.31	0.19	0.49	J	mg/Kg	1	7/11/2017 9:53:11 AM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Carbazole	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
4-Chloro-3-methylphenol	ND	0.18	0.49		mg/Kg	1	7/11/2017 9:53:11 AM	32653
4-Chloroaniline	ND	0.15	0.49		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2-Chloronaphthalene	ND	0.17	0.25		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Chrysene	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Di-n-butyl phthalate	0.35	0.11	0.39	J	mg/Kg	1	7/11/2017 9:53:11 AM	32653
Di-n-octyl phthalate	ND	0.15	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
3,3´-Dichlorobenzidine	ND	0.14	0.25		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Diethyl phthalate	0.18	0.17	0.20	J	mg/Kg	1	7/11/2017 9:53:11 AM	32653
Dimethyl phthalate	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2,4-Dichlorophenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2,4-Dimethylphenol	ND	0.087	0.29		mg/Kg	1	7/11/2017 9:53:11 AM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2,4-Dinitrophenol	ND	0.12	0.49		mg/Kg	1	7/11/2017 9:53:11 AM	32653

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Collection Date: 6/29/2017 10:50:00 AM
Lab ID: 1706F97-006
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.18	0.49		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2,6-Dinitrotoluene	ND	0.17	0.49		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Fluoranthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Fluorene	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Isophorone	ND	0.19	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2-Methylnaphthalene	ND	0.16	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2-Methylphenol	ND	0.14	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
N-Nitrosodi-n-propylamine	ND	0.17	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Naphthalene	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
3-Nitroaniline	ND	0.17	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
4-Nitroaniline	ND	0.17	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Nitrobenzene	ND	0.16	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2-Nitrophenol	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Pentachlorophenol	ND	0.17	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Phenanthrene	ND	0.17	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Phenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Pyrene	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Pyridine	ND	0.13	0.39		mg/Kg	1	7/11/2017 9:53:11 AM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2,4,5-Trichlorophenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
2,4,6-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/11/2017 9:53:11 AM	32653
Surr: 2-Fluorophenol	54.0	0	21.4-101		%Rec	1	7/11/2017 9:53:11 AM	32653
Surr: Phenol-d5	60.8	0	32-110		%Rec	1	7/11/2017 9:53:11 AM	32653
Surr: 2,4,6-Tribromophenol	56.4	0	38.7-115		%Rec	1	7/11/2017 9:53:11 AM	32653
Surr: Nitrobenzene-d5	72.0		26.2-120		%Rec	1	7/11/2017 9:53:11 AM	32653
Surr: 2-Fluorobiphenyl	68.5		36.2-124		%Rec	1	7/11/2017 9:53:11 AM	32653
Surr: 4-Terphenyl-d14	57.2		15-114		%Rec	1	7/11/2017 9:53:11 AM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0045	0.023		mg/Kg	1	7/5/2017 11:49:05 PM	32616

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:50:00 AM
Lab ID: 1706F97-006 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0037	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Ethylbenzene	ND	0.0032	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0070	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2,4-Trimethylbenzene	ND	0.0040	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,3,5-Trimethylbenzene	ND	0.0029	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2-Dichloroethane (EDC)	ND	0.0048	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2-Dibromoethane (EDB)	ND	0.0058	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Naphthalene	ND	0.0047	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1-Methylnaphthalene	ND	0.0033	0.18		mg/Kg	1	7/5/2017 11:49:05 PM	32616
2-Methylnaphthalene	ND	0.0037	0.18		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Acetone	ND	0.050	0.69		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Bromobenzene	ND	0.0034	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Bromodichloromethane	ND	0.0060	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Bromoform	ND	0.011	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Bromomethane	ND	0.0079	0.14		mg/Kg	1	7/5/2017 11:49:05 PM	32616
2-Butanone	0.15	0.027	0.46	J	mg/Kg	1	7/5/2017 11:49:05 PM	32616
Carbon disulfide	ND	0.0055	0.46		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Carbon tetrachloride	ND	0.0045	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Chlorobenzene	ND	0.0027	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Chloroethane	ND	0.015	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Chloroform	ND	0.0028	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Chloromethane	ND	0.0096	0.14		mg/Kg	1	7/5/2017 11:49:05 PM	32616
2-Chlorotoluene	ND	0.0036	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
4-Chlorotoluene	ND	0.0042	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
cis-1,2-DCE	ND	0.0059	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
cis-1,3-Dichloropropene	ND	0.0035	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2-Dibromo-3-chloropropane	ND	0.0063	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Dibromochloromethane	ND	0.0039	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Dibromomethane	ND	0.0022	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2-Dichlorobenzene	ND	0.0023	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,3-Dichlorobenzene	ND	0.0040	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,4-Dichlorobenzene	ND	0.0051	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Dichlorodifluoromethane	ND	0.019	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,1-Dichloroethane	ND	0.018	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,1-Dichloroethene	ND	0.018	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2-Dichloropropane	ND	0.0028	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,3-Dichloropropane	ND	0.011	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
2,2-Dichloropropane	ND	0.0052	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,1-Dichloropropene	ND	0.0052	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:50:00 AM
Lab ID: 1706F97-006
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.011	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
2-Hexanone	ND	0.0090	0.46		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Isopropylbenzene	ND	0.0031	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
4-Isopropyltoluene	ND	0.0035	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
4-Methyl-2-pentanone	ND	0.0098	0.46		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Methylene chloride	ND	0.018	0.14		mg/Kg	1	7/5/2017 11:49:05 PM	32616
n-Butylbenzene	ND	0.0041	0.14		mg/Kg	1	7/5/2017 11:49:05 PM	32616
n-Propylbenzene	ND	0.0029	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
sec-Butylbenzene	ND	0.0047	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Styrene	ND	0.0080	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
tert-Butylbenzene	ND	0.0037	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,1,1,2-Tetrachloroethane	ND	0.0052	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,1,2,2-Tetrachloroethane	ND	0.013	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Tetrachloroethene (PCE)	ND	0.0037	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
trans-1,2-DCE	ND	0.018	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
trans-1,3-Dichloropropene	ND	0.0055	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2,3-Trichlorobenzene	ND	0.0042	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2,4-Trichlorobenzene	ND	0.0047	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,1,1-Trichloroethane	ND	0.0060	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,1,2-Trichloroethane	ND	0.0049	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Trichloroethene (TCE)	ND	0.0056	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Trichlorofluoromethane	ND	0.0069	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
1,2,3-Trichloropropane	ND	0.023	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Vinyl chloride	ND	0.0038	0.046		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Xylenes, Total	ND	0.014	0.092		mg/Kg	1	7/5/2017 11:49:05 PM	32616
Surr: Dibromofluoromethane	107		70-130		%Rec	1	7/5/2017 11:49:05 PM	32616
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	7/5/2017 11:49:05 PM	32616
Surr: Toluene-d8	96.6		70-130		%Rec	1	7/5/2017 11:49:05 PM	32616
Surr: 4-Bromofluorobenzene	92.1		70-130		%Rec	1	7/5/2017 11:49:05 PM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	12	3.1	19	J	mg/Kg	1	7/10/2017	32597

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:10:00 AM
Lab ID: 1706F97-007 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 1:12:00 PM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:12:00 PM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:12:00 PM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:12:00 PM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:12:00 PM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:12:00 PM	32629
Aroclor 1260	ND	0.0091	0.019		mg/Kg	1	7/11/2017 1:12:00 PM	32629
Surr: Decachlorobiphenyl	136	0	26.3-128	S	%Rec	1	7/11/2017 1:12:00 PM	32629
Surr: Tetrachloro-m-xylene	154	0	20.7-151	S	%Rec	1	7/11/2017 1:12:00 PM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.5	9.6		mg/Kg	1	7/5/2017 6:10:17 PM	32588
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	7/5/2017 6:10:17 PM	32588
Surr: DNOP	107	0	70-130		%Rec	1	7/5/2017 6:10:17 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	5.0		mg/Kg	1	7/6/2017 3:16:17 AM	32616
Surr: BFB	100	0	54-150		%Rec	1	7/6/2017 3:16:17 AM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	3.3	0.10	0.30		mg/Kg	1	7/13/2017 1:24:34 PM	32783
Chloride	190	3.6	30		mg/Kg	20	7/13/2017 1:36:59 PM	32783
Nitrogen, Nitrate (As N)	20	0.095	0.30		mg/Kg	1	7/13/2017 1:24:34 PM	32783
Sulfate	450	7.1	30		mg/Kg	20	7/13/2017 1:36:59 PM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	ND	0.0062	0.031		mg/Kg	1	7/7/2017 12:32:39 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.3	12		mg/Kg	5	7/13/2017 12:19:38 PM	32636
Barium	320	0.35	0.49		mg/Kg	5	7/17/2017 11:25:20 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 12:19:38 PM	32636
Chromium	15	0.46	1.5		mg/Kg	5	7/13/2017 12:19:38 PM	32636
Copper	2.5	0.59	1.5		mg/Kg	5	7/17/2017 11:25:20 AM	32636
Iron	18000	73	240		mg/Kg	100	7/13/2017 12:17:56 PM	32636
Lead	4.1	0.85	1.2		mg/Kg	5	7/13/2017 12:19:38 PM	32636
Manganese	430	0.26	0.49		mg/Kg	5	7/17/2017 11:25:20 AM	32636
Selenium	ND	8.8	12		mg/Kg	5	7/13/2017 12:19:38 PM	32636
Silver	ND	0.30	1.2		mg/Kg	5	7/13/2017 12:19:38 PM	32636
Uranium	ND	5.6	24		mg/Kg	5	7/13/2017 12:19:38 PM	32636
Zinc	20	1.7	12		mg/Kg	5	7/17/2017 11:25:20 AM	32636

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:10:00 AM
Lab ID: 1706F97-007
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Aniline	ND	0.11	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Anthracene	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Azobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Benzo(a)pyrene	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Benzo(b)fluoranthene	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Benzoic acid	ND	0.15	0.49		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Benzyl alcohol	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Bis(2-chloroisopropyl)ether	ND	0.19	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Bis(2-ethylhexyl)phthalate	0.37	0.19	0.49	J	mg/Kg	1	7/11/2017 10:21:22 AM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Carbazole	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
4-Chloro-3-methylphenol	ND	0.18	0.49		mg/Kg	1	7/11/2017 10:21:22 AM	32653
4-Chloroaniline	ND	0.15	0.49		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2-Chloronaphthalene	ND	0.17	0.24		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Chrysene	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Di-n-butyl phthalate	0.27	0.11	0.39	J	mg/Kg	1	7/11/2017 10:21:22 AM	32653
Di-n-octyl phthalate	ND	0.15	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
1,3-Dichlorobenzene	ND	0.13	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
3,3´-Dichlorobenzidine	ND	0.14	0.24		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Diethyl phthalate	0.21	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Dimethyl phthalate	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2,4-Dichlorophenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2,4-Dimethylphenol	ND	0.086	0.29		mg/Kg	1	7/11/2017 10:21:22 AM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2,4-Dinitrophenol	ND	0.12	0.49		mg/Kg	1	7/11/2017 10:21:22 AM	32653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:10:00 AM
Lab ID: 1706F97-007
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.18	0.49		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2,6-Dinitrotoluene	ND	0.17	0.49		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Fluoranthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Fluorene	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Hexachlorocyclopentadiene	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Isophorone	ND	0.19	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2-Methylnaphthalene	ND	0.16	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2-Methylphenol	ND	0.14	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
N-Nitrosodi-n-propylamine	ND	0.17	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Naphthalene	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
3-Nitroaniline	ND	0.17	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
4-Nitroaniline	ND	0.16	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Nitrobenzene	ND	0.16	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2-Nitrophenol	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
4-Nitrophenol	ND	0.15	0.24		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Pentachlorophenol	ND	0.17	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Phenanthrene	ND	0.17	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Phenol	ND	0.13	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Pyrene	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Pyridine	ND	0.13	0.39		mg/Kg	1	7/11/2017 10:21:22 AM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2,4,5-Trichlorophenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
2,4,6-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/11/2017 10:21:22 AM	32653
Surr: 2-Fluorophenol	66.7	0	21.4-101		%Rec	1	7/11/2017 10:21:22 AM	32653
Surr: Phenol-d5	74.1	0	32-110		%Rec	1	7/11/2017 10:21:22 AM	32653
Surr: 2,4,6-Tribromophenol	69.9	0	38.7-115		%Rec	1	7/11/2017 10:21:22 AM	32653
Surr: Nitrobenzene-d5	82.9		26.2-120		%Rec	1	7/11/2017 10:21:22 AM	32653
Surr: 2-Fluorobiphenyl	80.0		36.2-124		%Rec	1	7/11/2017 10:21:22 AM	32653
Surr: 4-Terphenyl-d14	67.0		15-114		%Rec	1	7/11/2017 10:21:22 AM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0049	0.025		mg/Kg	1	7/6/2017 12:17:27 AM	32616

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:10:00 AM
Lab ID: 1706F97-007
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0040	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Ethylbenzene	ND	0.0035	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0076	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2,4-Trimethylbenzene	ND	0.0043	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,3,5-Trimethylbenzene	ND	0.0031	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2-Dichloroethane (EDC)	ND	0.0052	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2-Dibromoethane (EDB)	ND	0.0063	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Naphthalene	ND	0.0050	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1-Methylnaphthalene	ND	0.0035	0.20		mg/Kg	1	7/6/2017 12:17:27 AM	32616
2-Methylnaphthalene	ND	0.0040	0.20		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Acetone	ND	0.054	0.74		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Bromobenzene	ND	0.0036	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Bromodichloromethane	ND	0.0065	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Bromoform	ND	0.012	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Bromomethane	ND	0.0086	0.15		mg/Kg	1	7/6/2017 12:17:27 AM	32616
2-Butanone	0.18	0.029	0.50	J	mg/Kg	1	7/6/2017 12:17:27 AM	32616
Carbon disulfide	ND	0.0059	0.50		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Carbon tetrachloride	ND	0.0049	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Chlorobenzene	ND	0.0030	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Chloroethane	ND	0.016	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Chloroform	ND	0.0030	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Chloromethane	ND	0.010	0.15		mg/Kg	1	7/6/2017 12:17:27 AM	32616
2-Chlorotoluene	ND	0.0039	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
4-Chlorotoluene	ND	0.0045	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
cis-1,2-DCE	ND	0.0063	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
cis-1,3-Dichloropropene	ND	0.0038	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2-Dibromo-3-chloropropane	ND	0.0068	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Dibromochloromethane	ND	0.0042	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Dibromomethane	ND	0.0024	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2-Dichlorobenzene	ND	0.0025	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,3-Dichlorobenzene	ND	0.0044	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,4-Dichlorobenzene	ND	0.0055	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Dichlorodifluoromethane	ND	0.020	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,1-Dichloroethane	ND	0.020	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2-Dichloropropane	ND	0.0031	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,3-Dichloropropane	ND	0.012	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
2,2-Dichloropropane	ND	0.0056	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,1-Dichloropropene	ND	0.0056	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:10:00 AM
Lab ID: 1706F97-007
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
2-Hexanone	ND	0.0097	0.50		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Isopropylbenzene	ND	0.0033	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
4-Isopropyltoluene	ND	0.0038	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
4-Methyl-2-pentanone	ND	0.011	0.50		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Methylene chloride	ND	0.020	0.15		mg/Kg	1	7/6/2017 12:17:27 AM	32616
n-Butylbenzene	ND	0.0044	0.15		mg/Kg	1	7/6/2017 12:17:27 AM	32616
n-Propylbenzene	ND	0.0031	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
sec-Butylbenzene	ND	0.0051	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Styrene	ND	0.0086	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
tert-Butylbenzene	ND	0.0040	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,1,1,2-Tetrachloroethane	ND	0.0056	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
trans-1,2-DCE	ND	0.020	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
trans-1,3-Dichloropropene	ND	0.0059	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2,3-Trichlorobenzene	ND	0.0045	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2,4-Trichlorobenzene	ND	0.0050	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,1,1-Trichloroethane	ND	0.0064	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,1,2-Trichloroethane	ND	0.0053	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Trichloroethene (TCE)	ND	0.0060	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Trichlorofluoromethane	ND	0.0074	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
1,2,3-Trichloropropane	ND	0.025	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Vinyl chloride	ND	0.0041	0.050		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Xylenes, Total	ND	0.015	0.099		mg/Kg	1	7/6/2017 12:17:27 AM	32616
Surr: Dibromofluoromethane	103		70-130		%Rec	1	7/6/2017 12:17:27 AM	32616
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	1	7/6/2017 12:17:27 AM	32616
Surr: Toluene-d8	100		70-130		%Rec	1	7/6/2017 12:17:27 AM	32616
Surr: 4-Bromofluorobenzene	87.2		70-130		%Rec	1	7/6/2017 12:17:27 AM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	13	3.2	20	J	mg/Kg	1	7/10/2017	32597

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:20:00 AM
Lab ID: 1706F97-008 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 1:45:00 PM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:45:00 PM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:45:00 PM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:45:00 PM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:45:00 PM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 1:45:00 PM	32629
Aroclor 1260	ND	0.0090	0.019		mg/Kg	1	7/11/2017 1:45:00 PM	32629
Surr: Decachlorobiphenyl	139	0	26.3-128	S	%Rec	1	7/11/2017 1:45:00 PM	32629
Surr: Tetrachloro-m-xylene	157	0	20.7-151	S	%Rec	1	7/11/2017 1:45:00 PM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.5	9.4		mg/Kg	1	7/5/2017 6:32:51 PM	32588
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	7/5/2017 6:32:51 PM	32588
Surr: DNOP	105	0	70-130		%Rec	1	7/5/2017 6:32:51 PM	32588
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.7		mg/Kg	1	7/6/2017 3:40:21 AM	32616
Surr: BFB	101	0	54-150		%Rec	1	7/6/2017 3:40:21 AM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.9	0.10	0.30		mg/Kg	1	7/13/2017 2:14:13 PM	32783
Chloride	200	3.6	30		mg/Kg	20	7/13/2017 2:26:37 PM	32783
Nitrogen, Nitrate (As N)	25	0.095	0.30		mg/Kg	1	7/13/2017 2:14:13 PM	32783
Sulfate	400	7.1	30		mg/Kg	20	7/13/2017 2:26:37 PM	32783
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	ND	0.0065	0.032		mg/Kg	1	7/7/2017 12:34:23 PM	32673
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	7/13/2017 12:22:58 PM	32636
Barium	250	0.35	0.49		mg/Kg	5	7/17/2017 11:26:49 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 12:22:58 PM	32636
Chromium	18	0.47	1.5		mg/Kg	5	7/13/2017 12:22:58 PM	32636
Copper	4.2	0.60	1.5		mg/Kg	5	7/17/2017 11:26:49 AM	32636
Iron	21000	75	250		mg/Kg	100	7/13/2017 12:21:17 PM	32636
Lead	3.4	0.86	1.2		mg/Kg	5	7/13/2017 12:22:58 PM	32636
Manganese	420	0.26	0.49		mg/Kg	5	7/17/2017 11:26:49 AM	32636
Selenium	ND	9.0	12		mg/Kg	5	7/13/2017 12:22:58 PM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 12:22:58 PM	32636
Uranium	ND	5.7	25		mg/Kg	5	7/13/2017 12:22:58 PM	32636
Zinc	23	1.7	12		mg/Kg	5	7/17/2017 11:26:49 AM	32636

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:20:00 AM
Lab ID: 1706F97-008
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Acenaphthylene	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Aniline	ND	0.11	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Anthracene	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Azobenzene	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Benz(a)anthracene	ND	0.17	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Benzo(a)pyrene	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Benzo(b)fluoranthene	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Benzo(g,h,i)perylene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Benzo(k)fluoranthene	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Benzoic acid	ND	0.15	0.49		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Benzyl alcohol	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Bis(2-chloroethoxy)methane	ND	0.17	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Bis(2-chloroethyl)ether	ND	0.12	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Bis(2-chloroisopropyl)ether	ND	0.19	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Bis(2-ethylhexyl)phthalate	0.20	0.19	0.49	J	mg/Kg	1	7/11/2017 10:49:18 AM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Butyl benzyl phthalate	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Carbazole	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
4-Chloro-3-methylphenol	ND	0.18	0.49		mg/Kg	1	7/11/2017 10:49:18 AM	32653
4-Chloroaniline	ND	0.15	0.49		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2-Chloronaphthalene	ND	0.17	0.24		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2-Chlorophenol	ND	0.14	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Chrysene	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Di-n-butyl phthalate	0.20	0.11	0.39	J	mg/Kg	1	7/11/2017 10:49:18 AM	32653
Di-n-octyl phthalate	ND	0.14	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Dibenz(a,h)anthracene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Dibenzofuran	ND	0.17	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
1,2-Dichlorobenzene	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
1,3-Dichlorobenzene	ND	0.13	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
1,4-Dichlorobenzene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
3,3´-Dichlorobenzidine	ND	0.14	0.24		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Diethyl phthalate	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Dimethyl phthalate	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2,4-Dichlorophenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2,4-Dimethylphenol	ND	0.086	0.29		mg/Kg	1	7/11/2017 10:49:18 AM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2,4-Dinitrophenol	ND	0.11	0.49		mg/Kg	1	7/11/2017 10:49:18 AM	32653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:20:00 AM
Lab ID: 1706F97-008
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.18	0.49		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2,6-Dinitrotoluene	ND	0.17	0.49		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Fluoranthene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Fluorene	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Hexachlorobenzene	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Hexachlorobutadiene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Hexachlorocyclopentadiene	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Hexachloroethane	ND	0.14	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Isophorone	ND	0.18	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
1-Methylnaphthalene	ND	0.19	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2-Methylnaphthalene	ND	0.16	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2-Methylphenol	ND	0.14	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
3+4-Methylphenol	ND	0.13	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
N-Nitrosodi-n-propylamine	ND	0.17	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
N-Nitrosodiphenylamine	ND	0.19	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Naphthalene	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2-Nitroaniline	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
3-Nitroaniline	ND	0.17	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
4-Nitroaniline	ND	0.16	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Nitrobenzene	ND	0.16	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2-Nitrophenol	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
4-Nitrophenol	ND	0.15	0.24		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Pentachlorophenol	ND	0.17	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Phenanthrene	ND	0.17	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Phenol	ND	0.13	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Pyrene	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Pyridine	ND	0.13	0.39		mg/Kg	1	7/11/2017 10:49:18 AM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2,4,5-Trichlorophenol	ND	0.14	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
2,4,6-Trichlorophenol	ND	0.15	0.19		mg/Kg	1	7/11/2017 10:49:18 AM	32653
Surr: 2-Fluorophenol	38.2	0	21.4-101		%Rec	1	7/11/2017 10:49:18 AM	32653
Surr: Phenol-d5	44.4	0	32-110		%Rec	1	7/11/2017 10:49:18 AM	32653
Surr: 2,4,6-Tribromophenol	47.2	0	38.7-115		%Rec	1	7/11/2017 10:49:18 AM	32653
Surr: Nitrobenzene-d5	50.7		26.2-120		%Rec	1	7/11/2017 10:49:18 AM	32653
Surr: 2-Fluorobiphenyl	49.5		36.2-124		%Rec	1	7/11/2017 10:49:18 AM	32653
Surr: 4-Terphenyl-d14	45.6		15-114		%Rec	1	7/11/2017 10:49:18 AM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0046	0.024		mg/Kg	1	7/6/2017 12:45:47 AM	32616

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:20:00 AM
Lab ID: 1706F97-008 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0038	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Ethylbenzene	ND	0.0033	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0072	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2,4-Trimethylbenzene	ND	0.0041	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,3,5-Trimethylbenzene	ND	0.0030	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2-Dichloroethane (EDC)	ND	0.0049	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2-Dibromoethane (EDB)	ND	0.0060	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Naphthalene	ND	0.0048	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1-Methylnaphthalene	ND	0.0033	0.19		mg/Kg	1	7/6/2017 12:45:47 AM	32616
2-Methylnaphthalene	ND	0.0038	0.19		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Acetone	ND	0.051	0.71		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Bromobenzene	ND	0.0035	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Bromodichloromethane	ND	0.0061	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Bromoform	ND	0.012	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Bromomethane	ND	0.0081	0.14		mg/Kg	1	7/6/2017 12:45:47 AM	32616
2-Butanone	0.15	0.028	0.47	J	mg/Kg	1	7/6/2017 12:45:47 AM	32616
Carbon disulfide	ND	0.0056	0.47		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Carbon tetrachloride	ND	0.0047	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Chlorobenzene	ND	0.0028	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Chloroethane	ND	0.015	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Chloroform	ND	0.0028	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Chloromethane	ND	0.0099	0.14		mg/Kg	1	7/6/2017 12:45:47 AM	32616
2-Chlorotoluene	ND	0.0037	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
4-Chlorotoluene	ND	0.0043	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
cis-1,2-DCE	ND	0.0060	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
cis-1,3-Dichloropropene	ND	0.0036	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2-Dibromo-3-chloropropane	ND	0.0065	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Dibromochloromethane	ND	0.0040	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Dibromomethane	ND	0.0023	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2-Dichlorobenzene	ND	0.0024	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,3-Dichlorobenzene	ND	0.0041	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,4-Dichlorobenzene	ND	0.0052	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Dichlorodifluoromethane	ND	0.019	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,1-Dichloroethane	ND	0.019	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,1-Dichloroethene	ND	0.019	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2-Dichloropropane	ND	0.0029	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,3-Dichloropropane	ND	0.012	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
2,2-Dichloropropane	ND	0.0054	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,1-Dichloropropene	ND	0.0053	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:20:00 AM
Lab ID: 1706F97-008
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
2-Hexanone	ND	0.0092	0.47		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Isopropylbenzene	ND	0.0032	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
4-Isopropyltoluene	ND	0.0036	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
4-Methyl-2-pentanone	ND	0.010	0.47		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Methylene chloride	ND	0.019	0.14		mg/Kg	1	7/6/2017 12:45:47 AM	32616
n-Butylbenzene	ND	0.0042	0.14		mg/Kg	1	7/6/2017 12:45:47 AM	32616
n-Propylbenzene	ND	0.0029	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
sec-Butylbenzene	ND	0.0049	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Styrene	ND	0.0082	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
tert-Butylbenzene	ND	0.0038	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,1,1,2-Tetrachloroethane	ND	0.0053	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Tetrachloroethene (PCE)	ND	0.0038	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
trans-1,2-DCE	ND	0.019	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
trans-1,3-Dichloropropene	ND	0.0056	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2,3-Trichlorobenzene	ND	0.0043	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2,4-Trichlorobenzene	ND	0.0048	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,1,1-Trichloroethane	ND	0.0061	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,1,2-Trichloroethane	ND	0.0050	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Trichloroethene (TCE)	ND	0.0057	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Trichlorofluoromethane	ND	0.0071	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
1,2,3-Trichloropropane	ND	0.024	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Vinyl chloride	ND	0.0039	0.047		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Xylenes, Total	ND	0.015	0.094		mg/Kg	1	7/6/2017 12:45:47 AM	32616
Surr: Dibromofluoromethane	103		70-130		%Rec	1	7/6/2017 12:45:47 AM	32616
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	7/6/2017 12:45:47 AM	32616
Surr: Toluene-d8	99.2		70-130		%Rec	1	7/6/2017 12:45:47 AM	32616
Surr: 4-Bromofluorobenzene	89.5		70-130		%Rec	1	7/6/2017 12:45:47 AM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	17	3.3	20	J	mg/Kg	1	7/10/2017	32597

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1706F97-009
Matrix: AQUEOUS
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **RAA**	
Benzene	ND	0.062	1.0		µg/L	1	7/5/2017 2:33:00 PM	SL4401
Toluene	ND	0.064	1.0		µg/L	1	7/5/2017 2:33:00 PM	SL4401
Ethylbenzene	ND	0.093	1.0		µg/L	1	7/5/2017 2:33:00 PM	SL4401
Xylenes, Total	ND	0.32	1.5		µg/L	1	7/5/2017 2:33:00 PM	SL4401
Surr: 1,2-Dichloroethane-d4	113	0	70-130		%Rec	1	7/5/2017 2:33:00 PM	SL4401
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	7/5/2017 2:33:00 PM	SL4401
Surr: Dibromofluoromethane	116	0	70-130		%Rec	1	7/5/2017 2:33:00 PM	SL4401
Surr: Toluene-d8	103	0	70-130		%Rec	1	7/5/2017 2:33:00 PM	SL4401

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/07/2017 17:34	WG996634

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	07/07/2017 17:38	WG996634

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/07/2017 17:39	WG996634

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/07/2017 17:40	WG996634

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/07/2017 17:41	WG996634

Cp
1 Tc
2 Ss
3 Cn
4 Sr
5 Qc
6 Gl
7 Al
8 Sc

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	[illegible]	WG996634

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/07/2017 17:43	WG996634

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/07/2017 17:44	WG996634

Method Blank (MB)

(MB) R3231754-1 07/07/17 17:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.039	0.250

L920659-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920659-01 07/07/17 17:34 • (DUP) R3231754-4 07/07/17 17:37

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0		20

L920668-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920668-01 07/07/17 17:45 • (DUP) R3231754-5 07/07/17 17:46

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3231754-2 07/07/17 17:26 • (LCSD) R3231754-3 07/07/17 17:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.63	2.43	105	97	50-150			8	20

L920668-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920668-02 07/07/17 17:49 • (MS) R3231754-6 07/07/17 17:50 • (MSD) R3231754-7 07/07/17 17:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	3.33	ND	1.50	1.49	45	45	1	75-125	J6	J6	1	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1706F97
Pace Project No.: 30223577

Sample: 1706F97-001D Central OCD LF TZ **Lab ID: 30223577001** Collected: 06/29/17 09:10 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**10.362 ± 3.098 (2.023) C:NA T:NA**	pCi/g	08/01/17 09:24	13966-00-2	
Radium-226	EPA 901.1	**1.750 ± 0.355 (0.167) C:NA T:NA**	pCi/g	08/01/17 09:24	13982-63-3	Ra
Radium-228	EPA 901.1	**2.205 ± 0.537 (0.365) C:NA T:NA**	pCi/g	08/01/17 09:24	15262-20-1	

Sample: 1706F97-002D Central OCD LF VZ **Lab ID: 30223577002** Collected: 06/29/17 09:30 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**11.421 ± 2.363 (0.880) C:NA T:NA**	pCi/g	08/01/17 09:41	13966-00-2	
Radium-226	EPA 901.1	**1.485 ± 0.350 (0.196) C:NA T:NA**	pCi/g	08/01/17 09:41	13982-63-3	Ra
Radium-228	EPA 901.1	**2.506 ± 0.509 (0.241) C:NA T:NA**	pCi/g	08/01/17 09:41	15262-20-1	

Sample: 1706F97-003D Central OCD LF TZ **Lab ID: 30223577003** Collected: 06/29/17 09:50 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**14.001 ± 3.266 (1.325) C:NA T:NA**	pCi/g	08/01/17 09:42	13966-00-2	
Radium-226	EPA 901.1	**1.510 ± 0.372 (0.295) C:NA T:NA**	pCi/g	08/01/17 09:42	13982-63-3	Ra
Radium-228	EPA 901.1	**2.046 ± 0.515 (0.362) C:NA T:NA**	pCi/g	08/01/17 09:42	15262-20-1	

Sample: 1706F97-004D Central OCD LF VZ **Lab ID: 30223577004** Collected: 06/29/17 10:15 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**13.439 ± 2.570 (0.792) C:NA T:NA**	pCi/g	08/01/17 09:57	13966-00-2	
Radium-226	EPA 901.1	**1.347 ± 0.306 (0.202) C:NA T:NA**	pCi/g	08/01/17 09:57	13982-63-3	Ra
Radium-228	EPA 901.1	**1.732 ± 0.394 (0.294) C:NA T:NA**	pCi/g	08/01/17 09:57	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1706F97
Pace Project No.: 30223577

Sample: 1706F97-005D Central OCD LF TZ **Lab ID: 30223577005** Collected: 06/29/17 10:45 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**13.267 ± 3.125 (1.290) C:NA T:NA**	pCi/g	08/01/17 09:58	13966-00-2	
Radium-226	EPA 901.1	**1.297 ± 0.304 (0.290) C:NA T:NA**	pCi/g	08/01/17 09:58	13982-63-3	Ra
Radium-228	EPA 901.1	**1.511 ± 0.525 (0.352) C:NA T:NA**	pCi/g	08/01/17 09:58	15262-20-1	

Sample: 1706F97-006D Central OCD LF VZ **Lab ID: 30223577006** Collected: 06/29/17 10:50 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**13.365 ± 2.662 (0.909) C:NA T:NA**	pCi/g	08/01/17 10:17	13966-00-2	
Radium-226	EPA 901.1	**1.465 ± 0.301 (0.283) C:NA T:NA**	pCi/g	08/01/17 10:17	13982-63-3	Ra
Radium-228	EPA 901.1	**2.138 ± 0.497 (0.249) C:NA T:NA**	pCi/g	08/01/17 10:17	15262-20-1	

Sample: 1706F97-007D Central OCD LF TZ **Lab ID: 30223577007** Collected: 06/29/17 11:10 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**12.719 ± 3.006 (1.248) C:NA T:NA**	pCi/g	08/01/17 10:17	13966-00-2	
Radium-226	EPA 901.1	**1.636 ± 0.342 (0.239) C:NA T:NA**	pCi/g	08/01/17 10:17	13982-63-3	Ra
Radium-228	EPA 901.1	**2.197 ± 0.509 (0.340) C:NA T:NA**	pCi/g	08/01/17 10:17	15262-20-1	

Sample: 1706F97-008D Central OCD LF VZ **Lab ID: 30223577008** Collected: 06/29/17 11:20 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**10.745 ± 2.493 (1.360) C:NA T:NA**	pCi/g	08/01/17 10:33	13966-00-2	
Radium-226	EPA 901.1	**1.222 ± 0.279 (0.203) C:NA T:NA**	pCi/g	08/01/17 10:33	13982-63-3	Ra
Radium-228	EPA 901.1	**1.607 ± 0.411 (0.294) C:NA T:NA**	pCi/g	08/01/17 10:33	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1706F97
Pace Project No.: 30223577

QC Batch: 265119 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30223577001, 30223577002, 30223577003, 30223577004, 30223577005, 30223577006, 30223577007, 30223577008

METHOD BLANK: 1306431 Matrix: Solid
Associated Lab Samples: 30223577001, 30223577002, 30223577003, 30223577004, 30223577005, 30223577006, 30223577007, 30223577008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Potassium-40	0.016 ± 0.332 (0.664) C:NA T:NA	pCi/g	08/01/17 09:06	
Radium-226	0.037 ± 0.049 (0.180) C:NA T:NA	pCi/g	08/01/17 09:06	Ra
Radium-228	0.016 ± 0.263 (0.312) C:NA T:NA	pCi/g	08/01/17 09:06	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: 1706F97
Pace Project No.: 30223577

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Ra	The reported Ra-226 results were determined by hermetically sealing the dried, processed sample in an appropriate-sized can. Each sample was stored for a minimum of 21 days to ensure that equilibrium between Ra-226 and daughters Bi-214 and Pb-214 was achieved. Reported Ra-226 results were inferred from gamma peaks attributable to Bi-214 and Pb-214.

REPORT OF LABORATORY ANALYSIS

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32783**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **32783**	RunNo: **44189**
Prep Date: **7/13/2017**	Analysis Date: **7/13/2017**	SeqNo: **1396388** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID **LCS-32783**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **32783**	RunNo: **44189**
Prep Date: **7/13/2017**	Analysis Date: **7/13/2017**	SeqNo: **1396389** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	104	90	110			
Chloride	15	1.5	15.00	0	97.4	90	110			
Nitrogen, Nitrate (As N)	7.8	0.30	7.500	0	104	90	110			
Sulfate	30	1.5	30.00	0	101	90	110			

Sample ID **1706F97-001AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF T**	Batch ID: **32783**	RunNo: **44189**
Prep Date: **7/13/2017**	Analysis Date: **7/13/2017**	SeqNo: **1396393** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.9	0.30	1.500	2.478	26.8	15	119			

Sample ID **1706F97-001AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF T**	Batch ID: **32783**	RunNo: **44189**
Prep Date: **7/13/2017**	Analysis Date: **7/13/2017**	SeqNo: **1396394** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.30	1.500	2.478	3.63	15	119	12.9	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32597**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **PBS**	Batch ID: **32597**	RunNo: **44086**							
Prep Date: **7/1/2017**	Analysis Date: **7/10/2017**	SeqNo: **1391064**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	8.5	20								J

Sample ID **LCS-32597**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **LCSS**	Batch ID: **32597**	RunNo: **44086**							
Prep Date: **7/1/2017**	Analysis Date: **7/10/2017**	SeqNo: **1391065**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	91	20	100.0	0	91.3	61.7	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32588**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **32588**	RunNo: **43983**
Prep Date: **6/30/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387024** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.9		10.00		99.3	70	130			

Sample ID **LCS-32588**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **32588**	RunNo: **43983**
Prep Date: **6/30/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.5	73.2	114			
Surr: DNOP	4.7		5.000		93.8	70	130			

Sample ID **1706F97-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CENTRAL OCD LF T**	Batch ID: **32588**	RunNo: **43982**
Prep Date: **6/30/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387555** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	49.95	0	94.0	55.8	122			
Surr: DNOP	5.0		4.995		100	70	130			

Sample ID **1706F97-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CENTRAL OCD LF T**	Batch ID: **32588**	RunNo: **43982**
Prep Date: **6/30/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387556** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	9.9	49.46	0	101	55.8	122	6.12	20	
Surr: DNOP	5.0		4.946		102	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32616**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **32616**	RunNo: **43994**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387418** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.8	54	150			

Sample ID **LCS-32616**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **32616**	RunNo: **43994**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387419** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.0	76.4	125			
Surr: BFB	1100		1000		108	54	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32629**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **32629**	RunNo: **44110**
Prep Date: **7/5/2017**	Analysis Date: **7/11/2017**	SeqNo: **1392041** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.068		0.06250		108	26.3	128			
Surr: Tetrachloro-m-xylene	0.083		0.06250		133	20.7	151			

Sample ID **LCS-32629**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **32629**	RunNo: **44110**
Prep Date: **7/5/2017**	Analysis Date: **7/11/2017**	SeqNo: **1392042** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.18	0.020	0.1250	0	140	15	195			
Aroclor 1260	0.14	0.020	0.1250	0	110	24	140			
Surr: Decachlorobiphenyl	0.056		0.06250		88.8	26.3	128			
Surr: Tetrachloro-m-xylene	0.066		0.06250		106	20.7	151			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32616**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387599** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	0.012	0.20								J
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	0.011	0.15								J
2-Butanone	0.19	0.50								J
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32616**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387599** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	0.042	0.50								J
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.51		0.5000		102	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.6	70	130			

Sample ID **lcs-32616**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387600** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	107	70	130			
Toluene	0.95	0.050	1.000	0	94.6	70	130			
Chlorobenzene	1.0	0.050	1.000	0	103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **lcs-32616**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387600** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.4	0.050	1.000	0	139	68.8	161			
Trichloroethene (TCE)	1.0	0.050	1.000	0	101	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.53		0.5000		106	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.6	70	130			

Sample ID **1706f97-002ams**	SampType: **MS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387603** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9881	0	110	61.9	146			
Toluene	1.0	0.049	0.9881	0	101	70	130			
Chlorobenzene	1.0	0.049	0.9881	0	105	70	130			
1,1-Dichloroethene	1.3	0.049	0.9881	0	127	37.1	170			
Trichloroethene (TCE)	1.1	0.049	0.9881	0	106	49.8	150			
Surr: Dibromofluoromethane	0.52		0.4941		105	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.4941		102	70	130			
Surr: Toluene-d8	0.50		0.4941		101	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.4941		90.1	70	130			

Sample ID **1706f97-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387604** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.023	0.9302	0	109	61.9	146	7.21	20	
Toluene	0.94	0.047	0.9302	0	101	70	130	6.57	20	
Chlorobenzene	0.97	0.047	0.9302	0	104	70	130	7.11	20	
1,1-Dichloroethene	1.2	0.047	0.9302	0	124	37.1	170	8.26	20	
Trichloroethene (TCE)	0.93	0.047	0.9302	0	100	49.8	150	12.0	20	
Surr: Dibromofluoromethane	0.49		0.4651		106	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.48		0.4651		103	70	130	0	0	
Surr: Toluene-d8	0.47		0.4651		102	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.42		0.4651		90.0	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **SL44015**	RunNo: **44015**
Prep Date:	Analysis Date: **7/5/2017**	SeqNo: **1387912** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **SL44015**	RunNo: **44015**
Prep Date:	Analysis Date: **7/5/2017**	SeqNo: **1387913** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		114	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32653**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390660** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	0.20	0.50								J
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.13	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32653**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390660** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	1.7		3.330		50.9	21.4	101			
Surr: Phenol-d5	1.9		3.330		55.9	32	110			
Surr: 2,4,6-Tribromophenol	1.7		3.330		51.1	38.7	115			
Surr: Nitrobenzene-d5	1.0		1.670		61.0	26.2	120			
Surr: 2-Fluorobiphenyl	1.0		1.670		61.8	36.2	124			
Surr: 4-Terphenyl-d14	0.84		1.670		50.2	15	114			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**lcs-32653**	SampType:	**LCS**	TestCode:	**EPA Method 8270C: Semivolatiles**					
Client ID:	**LCSS**	Batch ID:	**32653**	RunNo:	**44069**					
Prep Date:	**7/6/2017**	Analysis Date:	**7/8/2017**	SeqNo:	**1390661**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.670	0	67.2	39.4	110			
4-Chloro-3-methylphenol	2.2	0.50	3.330	0	66.9	41.6	108			
2-Chlorophenol	2.0	0.20	3.330	0	58.7	35	107			
1,4-Dichlorobenzene	1.0	0.20	1.670	0	62.2	31	105			
2,4-Dinitrotoluene	0.93	0.50	1.670	0	55.5	35.6	101			
N-Nitrosodi-n-propylamine	0.88	0.20	1.670	0	52.4	26	100			
4-Nitrophenol	2.0	0.25	3.330	0	61.1	34.1	106			
Pentachlorophenol	1.8	0.40	3.330	0	55.1	35.3	95.4			
Phenol	2.1	0.20	3.330	0	62.6	39.3	96.5			
Pyrene	1.3	0.20	1.670	0	80.5	47.8	95.7			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	73.0	36.6	117			
Surr: 2-Fluorophenol	1.9		3.330		55.6	21.4	101			
Surr: Phenol-d5	2.2		3.330		65.8	32	110			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.8	38.7	115			
Surr: Nitrobenzene-d5	1.2		1.670		74.0	26.2	120			
Surr: 2-Fluorobiphenyl	1.3		1.670		76.1	36.2	124			
Surr: 4-Terphenyl-d14	1.0		1.670		59.7	15	114			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-32673**	SampType:	**MBLK**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID:	**32673**	RunNo:	**44057**					
Prep Date:	**7/7/2017**	Analysis Date:	**7/7/2017**	SeqNo:	**1389728**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-32673**	SampType:	**LCS**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID:	**32673**	RunNo:	**44057**					
Prep Date:	**7/7/2017**	Analysis Date:	**7/7/2017**	SeqNo:	**1389729**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	98.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32636**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **32636**	RunNo: **44191**
Prep Date: **7/5/2017**	Analysis Date: **7/13/2017**	SeqNo: **1394937** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Iron	1.1	2.5								J
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								
Uranium	ND	5.0								

Sample ID **LCS-32636**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **32636**	RunNo: **44191**
Prep Date: **7/5/2017**	Analysis Date: **7/13/2017**	SeqNo: **1394938** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	99.7	80	120			
Cadmium	25	0.10	25.00	0	99.5	80	120			
Chromium	24	0.30	25.00	0	97.9	80	120			
Iron	27	2.5	25.00	0	107	80	120			
Lead	24	0.25	25.00	0	97.6	80	120			
Selenium	23	2.5	25.00	0	92.6	80	120			
Silver	5.2	0.25	5.000	0	103	80	120			
Uranium	22	5.0	25.00	0	87.6	80	120			

Sample ID **MB-32636**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **32636**	RunNo: **44254**
Prep Date: **7/5/2017**	Analysis Date: **7/17/2017**	SeqNo: **1397801** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.10								
Copper	ND	0.30								
Manganese	0.087	0.10								J
Zinc	ND	2.5								

Sample ID **LCS-32636**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **32636**	RunNo: **44254**
Prep Date: **7/5/2017**	Analysis Date: **7/17/2017**	SeqNo: **1397802** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	25	0.10	25.00	0	98.7	80	120			
Copper	25	0.30	25.00	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706F97**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**LCS-32636**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: Soil Metals**					
Client ID:	**LCSS**	Batch ID:	**32636**	RunNo:	**44254**					
Prep Date:	**7/5/2017**	Analysis Date:	**7/17/2017**	SeqNo:	**1397802**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	24	0.10	25.00	0	97.3	80	120			
Zinc	23	2.5	25.00	0	93.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1706F97 RcptNo: 1

Received By: Anne Thorne 6/30/2017 7:06:00 AM Anne Thorne
Completed By: Anne Thorne 6/30/2017 9:15:34 AM Anne Thorne
Reviewed By: ENM 7/3/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☒ KT 06/30/17	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? _____
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
2	1.0	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.

GALLUP REFINERY

Mailing Address: 92 GIANT CROSSING RD

GALLUP NM 87301

Phone #: 505-722-0231

email or Fax#: CHERYL.JOHNSON@WNR.COM

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☒ EDD (Type) EXCEL

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name: CENTRAL OCD LANDFARM

Project #: SEMIANNUAL SAMPLING

Project Manager: CHERYL JOHNSON

Sampler: TRACY FAYNE

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0 AT 13dC

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1606E97	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015 (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VADOSE ZONE LIST (SEE ATTACH.)	NMAC LIST (SEE ATTACHED)	BTEX		Air Bubbles (Y or N)
6/29/17	0910	SOIL	CENTRAL OCD LF TZ01	8 OZ-3 4 OZ-1	NONE	001			✓									✓	✓			
	0930		CENTRAL OCD LF VZ01			002												✓	✓			
	0950		CENTRAL OCD LF TZ02			003			✓									✓	✓			
	1015		CENTRAL OCD LF VZ02			004												✓	✓			
	1045		CENTRAL OCD LF TZ03			005			✓									✓	✓			
	1050		CENTRAL OCD LF VZ03			006												✓	✓			
	1110		CENTRAL OCD LF TZ04			007			✓									✓	✓			
	1120		CENTRAL OCD LF VZ04			008												✓	✓			
↓	—	WATER	TRIP BLANK	40 ML VOA-3	HCL	009														✓		

Date	Time	Relinquished by:	Received by:	Date	Time
6/29/17	1430			6/29/17	1430
6/30/17	0700			06/30/17	0706

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

VADOSE ZONE ANALYTES AND REPORTING LIMITS, CENTRAL OIL CONSERVATION DIVISION LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Chloride	E300	mg/kg	30
Benzene	SW8260B	mg/kg	0.050
Ethylbenzene	SW8260B	mg/kg	0.050
Toluene	SW8260B	mg/kg	0.050
Xylenes, Total	SW8260B	mg/kg	0.100
Petroleum Hydrocarbons, TR	E418.1	mg/kg	20

NMAC LIST ANALYTES AND REPORTING LIMITS, CONSTITUENTS LISTED IN SUBSECTIONS A AND B OF 20.6.2.3103 NMAC, CENTRAL OIL CONSERVATION DIVISION LANDFARM WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Fluoride	E300	mg/kg	0.3000
Nitrogen, Nitrate (As N)	E300	mg/kg	2.2000
Sulfate	E300	mg/kg	21.5000
*Radium-226	E901.1	pCi/g	1.3950
*Radium-228	E901.1	pCi/g	1.2500
*Radium-226+Radium-228	E901.1	pCi/g	2.6450
Arsenic	SW6010A	mg/kg	2.5000
Barium	SW6010A	mg/kg	1.0000
Cadmium	SW6010A	mg/kg	0.1000
Chromium	SW6010A	mg/kg	0.3000
Copper	SW6010A	mg/kg	0.6000
Iron	SW6010A	mg/kg	500.0000
Lead	SW6010A	mg/kg	0.2500
Manganese	SW6010A	mg/kg	1.0000
Selenium	SW6010A	mg/kg	2.5000
Silver	SW6010A	mg/kg	0.2500
Uranium	SW6010A	mg/kg	5.0000
Zinc	SW6010A	mg/kg	2.5000
Mercury	SW7471	mg/kg	0.0330
Aroclor 1016	SW8082	mg/kg	0.0200
Aroclor 1221	SW8082	mg/kg	0.0200
Aroclor 1232	SW8082	mg/kg	0.0200
Aroclor 1242	SW8082	mg/kg	0.0200
Aroclor 1248	SW8082	mg/kg	0.0200
Aroclor 1254	SW8082	mg/kg	0.0200
Aroclor 1260	SW8082	mg/kg	0.0200
1,1,1-Trichloroethane	SW8260B	mg/kg	0.0480
1,1,2-Trichloroethane	SW8260B	mg/kg	0.0480
1,1-Dichloroethane	SW8260B	mg/kg	0.0970
1,1-Dichloroethene	SW8260B	mg/kg	0.0480
1,2-Dichloroethane	SW8260B	mg/kg	0.0480
Carbon tetrachloride	SW8260B	mg/kg	0.0970
Chloroform	SW8260B	mg/kg	0.0480
Dibromomethane	SW8260B	mg/kg	0.1000
Methylene chloride	SW8260B	mg/kg	0.1500
Tetrachloroethene	SW8260B	mg/kg	0.0480
Trichloroethene	SW8260B	mg/kg	0.0480
Vinyl chloride	SW8260B	mg/kg	0.0480
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4-Dichlorophenol	SW8270C	mg/kg	0.4000
2,4-Dimethylphenol	SW8270C	mg/kg	0.3000
2,4-Dinitrophenol	SW8270C	mg/kg	0.4000
2-Chlorophenol	SW8270C	mg/kg	0.2000
2-Methylphenol	SW8270C	mg/kg	0.1000
2-Nitrophenol	SW8270C	mg/kg	0.1000
3+4-Methylphenol	SW8270C	mg/kg	0.1000
4,6-Dinitro-2-methylphenol	SW8270C	mg/kg	0.5000
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.1000
4-Nitrophenol	SW8270C	mg/kg	0.1000
Pentachlorophenol	SW8270C	mg/kg	0.4000
Phenol	SW8270C	mg/kg	0.2000
1-Methylnaphthalene	SW8260B	mg/kg	0.2000
2-Methylnaphthalene	SW8260B	mg/kg	0.2000
Acenaphthene	SW8270C	mg/kg	0.2000
Acenaphthylene	SW8270C	mg/kg	0.2000
Anthracene	SW8270C	mg/kg	0.2000
Benzo(a)anthracene	SW8270C	mg/kg	0.2000
Benzo(a)pyrene	SW8270C	mg/kg	0.2000
Benzo(b)fluoranthene	SW8270C	mg/kg	0.2000
Benzo(g,h,i)perylene	SW8270C	mg/kg	0.2000
Benzo(k)fluoranthene	SW8270C	mg/kg	0.2000
Chrysene	SW8270C	mg/kg	0.2000
Dibenz(a,h)anthracene	SW8270C	mg/kg	0.2000
Fluoranthene	SW8270C	mg/kg	0.2000
Fluorene	SW8270C	mg/kg	0.2000
Indeno(1,2,3-c,d)pyrene	SW8270C	mg/kg	0.2000
Naphthalene	SW8270C	mg/kg	0.2000
Phenanthrene	SW8270C	mg/kg	0.2000
Pyrene	SW8270C	mg/kg	0.2000
Cyanide	EPA 335.4	mg/kg	0.3000
Diesel Range Organics (DRO)	SW8015	mg/kg	12
Gasoline Range Organics (GRO)	SW8015	mg/kg	1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 05, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1706G44

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/30/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017
Lab ID: 1706G44-001
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 5:37:00 PM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 5:37:00 PM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 5:37:00 PM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 5:37:00 PM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 5:37:00 PM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 5:37:00 PM	32629
Aroclor 1260	ND	0.0089	0.019		mg/Kg	1	7/11/2017 5:37:00 PM	32629
Surr: Decachlorobiphenyl	132	0	26.3-128	S	%Rec	1	7/11/2017 5:37:00 PM	32629
Surr: Tetrachloro-m-xylene	129	0	20.7-151		%Rec	1	7/11/2017 5:37:00 PM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	3.0	1.6	9.6	J	mg/Kg	1	7/5/2017 11:07:33 AM	32609
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	7/5/2017 11:07:33 AM	32609
Surr: DNOP	114	0	70-130		%Rec	1	7/5/2017 11:07:33 AM	32609
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.8		mg/Kg	1	7/6/2017 4:04:23 AM	32616
Surr: BFB	102	0	54-150		%Rec	1	7/6/2017 4:04:23 AM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.6	0.10	0.30		mg/Kg	1	7/14/2017 11:19:02 AM	32801
Chloride	2700	18	150		mg/Kg	100	7/18/2017 4:30:49 PM	32801
Nitrogen, Nitrate (As N)	6.0	0.096	0.30		mg/Kg	1	7/14/2017 11:19:02 AM	32801
Sulfate	530	7.1	30		mg/Kg	20	7/14/2017 11:31:26 AM	32801
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	0.0073	0.0063	0.031	J	mg/Kg	1	7/18/2017 11:27:18 AM	32826
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	7/13/2017 12:49:56 PM	32636
Barium	310	0.35	0.50		mg/Kg	5	7/17/2017 11:47:48 AM	32636
Cadmium	ND	0.31	0.50		mg/Kg	5	7/13/2017 12:49:56 PM	32636
Chromium	18	0.47	1.5		mg/Kg	5	7/13/2017 12:49:56 PM	32636
Copper	4.1	0.60	1.5		mg/Kg	5	7/17/2017 11:47:48 AM	32636
Iron	20000	75	250		mg/Kg	100	7/19/2017 9:28:29 AM	32636
Lead	2.7	0.86	1.2		mg/Kg	5	7/13/2017 12:49:56 PM	32636
Manganese	400	0.27	0.50		mg/Kg	5	7/17/2017 11:47:48 AM	32636
Selenium	ND	9.0	12		mg/Kg	5	7/13/2017 12:49:56 PM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 12:49:56 PM	32636
Uranium	ND	5.7	25		mg/Kg	5	7/13/2017 12:49:56 PM	32636
Zinc	22	1.7	12		mg/Kg	5	7/17/2017 11:47:48 AM	32636

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017
Lab ID: 1706G44-001
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.32	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Acenaphthylene	ND	0.35	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Aniline	ND	0.22	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Anthracene	ND	0.35	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Azobenzene	ND	0.36	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Benz(a)anthracene	ND	0.33	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Benzo(a)pyrene	ND	0.30	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Benzo(b)fluoranthene	ND	0.37	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Benzo(g,h,i)perylene	ND	0.31	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Benzo(k)fluoranthene	ND	0.29	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Benzoic acid	ND	0.29	0.97	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Benzyl alcohol	ND	0.32	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Bis(2-chloroethoxy)methane	ND	0.35	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Bis(2-chloroethyl)ether	ND	0.25	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Bis(2-chloroisopropyl)ether	ND	0.38	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Bis(2-ethylhexyl)phthalate	0.37	0.37	0.97	JD	mg/Kg	1	7/11/2017 3:30:33 PM	32653
4-Bromophenyl phenyl ether	ND	0.31	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Butyl benzyl phthalate	ND	0.32	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Carbazole	ND	0.31	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
4-Chloro-3-methylphenol	ND	0.35	0.97	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
4-Chloroaniline	ND	0.30	0.97	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2-Chloronaphthalene	ND	0.35	0.48	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2-Chlorophenol	ND	0.28	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
4-Chlorophenyl phenyl ether	ND	0.30	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Chrysene	ND	0.29	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Di-n-butyl phthalate	0.46	0.22	0.78	JD	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Di-n-octyl phthalate	ND	0.29	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Dibenz(a,h)anthracene	ND	0.31	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Dibenzofuran	ND	0.33	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
1,2-Dichlorobenzene	ND	0.29	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
1,3-Dichlorobenzene	ND	0.27	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
1,4-Dichlorobenzene	ND	0.31	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
3,3´-Dichlorobenzidine	ND	0.28	0.48	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Diethyl phthalate	ND	0.33	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Dimethyl phthalate	ND	0.36	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2,4-Dichlorophenol	ND	0.30	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2,4-Dimethylphenol	ND	0.17	0.58	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
4,6-Dinitro-2-methylphenol	ND	0.29	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2,4-Dinitrophenol	ND	0.23	0.97	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017
Lab ID: 1706G44-001
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.36	0.97	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2,6-Dinitrotoluene	ND	0.34	0.97	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Fluoranthene	ND	0.32	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Fluorene	ND	0.29	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Hexachlorobenzene	ND	0.36	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Hexachlorobutadiene	ND	0.33	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Hexachlorocyclopentadiene	ND	0.31	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Hexachloroethane	ND	0.28	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Indeno(1,2,3-cd)pyrene	ND	0.32	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Isophorone	ND	0.37	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
1-Methylnaphthalene	ND	0.37	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2-Methylnaphthalene	ND	0.32	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2-Methylphenol	ND	0.29	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
3+4-Methylphenol	ND	0.26	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
N-Nitrosodi-n-propylamine	ND	0.34	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
N-Nitrosodiphenylamine	ND	0.37	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Naphthalene	ND	0.36	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2-Nitroaniline	ND	0.35	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
3-Nitroaniline	ND	0.34	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
4-Nitroaniline	ND	0.33	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Nitrobenzene	ND	0.32	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2-Nitrophenol	ND	0.36	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
4-Nitrophenol	ND	0.30	0.48	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Pentachlorophenol	ND	0.33	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Phenanthrene	ND	0.34	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Phenol	ND	0.27	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Pyrene	ND	0.29	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Pyridine	ND	0.26	0.78	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
1,2,4-Trichlorobenzene	ND	0.36	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2,4,5-Trichlorophenol	ND	0.29	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
2,4,6-Trichlorophenol	ND	0.30	0.39	D	mg/Kg	1	7/11/2017 3:30:33 PM	32653
Surr: 2-Fluorophenol	61.6	0	21.4-101	D	%Rec	1	7/11/2017 3:30:33 PM	32653
Surr: Phenol-d5	63.1	0	32-110	D	%Rec	1	7/11/2017 3:30:33 PM	32653
Surr: 2,4,6-Tribromophenol	66.0	0	38.7-115	D	%Rec	1	7/11/2017 3:30:33 PM	32653
Surr: Nitrobenzene-d5	75.3		26.2-120	D	%Rec	1	7/11/2017 3:30:33 PM	32653
Surr: 2-Fluorobiphenyl	73.5		36.2-124	D	%Rec	1	7/11/2017 3:30:33 PM	32653
Surr: 4-Terphenyl-d14	67.7		15-114	D	%Rec	1	7/11/2017 3:30:33 PM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0047	0.024		mg/Kg	1	7/6/2017 1:14:07 AM	32616

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017
Lab ID: 1706G44-001
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0074	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2,4-Trimethylbenzene	ND	0.0042	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,3,5-Trimethylbenzene	ND	0.0030	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2-Dichloroethane (EDC)	ND	0.0050	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2-Dibromoethane (EDB)	ND	0.0061	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Naphthalene	ND	0.0049	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1-Methylnaphthalene	ND	0.0034	0.19		mg/Kg	1	7/6/2017 1:14:07 AM	32616
2-Methylnaphthalene	ND	0.0039	0.19		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Acetone	ND	0.052	0.72		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Bromobenzene	ND	0.0035	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Bromodichloromethane	ND	0.0062	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Bromoform	ND	0.012	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Bromomethane	ND	0.0083	0.14		mg/Kg	1	7/6/2017 1:14:07 AM	32616
2-Butanone	0.16	0.028	0.48	J	mg/Kg	1	7/6/2017 1:14:07 AM	32616
Carbon disulfide	ND	0.0057	0.48		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Carbon tetrachloride	ND	0.0047	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Chlorobenzene	ND	0.0029	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Chloroethane	ND	0.016	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Chloroform	ND	0.0029	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Chloromethane	ND	0.010	0.14		mg/Kg	1	7/6/2017 1:14:07 AM	32616
2-Chlorotoluene	ND	0.0037	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
4-Chlorotoluene	ND	0.0043	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
cis-1,2-DCE	ND	0.0061	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
cis-1,3-Dichloropropene	ND	0.0036	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2-Dibromo-3-chloropropane	ND	0.0066	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Dibromochloromethane	ND	0.0040	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Dibromomethane	ND	0.0023	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2-Dichlorobenzene	ND	0.0024	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,4-Dichlorobenzene	ND	0.0053	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Dichlorodifluoromethane	ND	0.020	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,1-Dichloroethane	ND	0.019	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2-Dichloropropane	ND	0.0030	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,3-Dichloropropane	ND	0.012	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
2,2-Dichloropropane	ND	0.0054	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,1-Dichloropropene	ND	0.0054	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017
Lab ID: 1706G44-001
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
2-Hexanone	ND	0.0094	0.48		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Isopropylbenzene	ND	0.0032	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
4-Isopropyltoluene	ND	0.0037	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
4-Methyl-2-pentanone	ND	0.010	0.48		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Methylene chloride	ND	0.019	0.14		mg/Kg	1	7/6/2017 1:14:07 AM	32616
n-Butylbenzene	ND	0.0043	0.14		mg/Kg	1	7/6/2017 1:14:07 AM	32616
n-Propylbenzene	ND	0.0030	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
sec-Butylbenzene	ND	0.0049	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Styrene	ND	0.0083	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
tert-Butylbenzene	ND	0.0039	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,1,1,2-Tetrachloroethane	ND	0.0054	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Tetrachloroethene (PCE)	ND	0.0038	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
trans-1,2-DCE	ND	0.019	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
trans-1,3-Dichloropropene	ND	0.0057	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2,3-Trichlorobenzene	ND	0.0044	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,1,1-Trichloroethane	ND	0.0062	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,1,2-Trichloroethane	ND	0.0051	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Trichloroethene (TCE)	ND	0.0058	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Trichlorofluoromethane	ND	0.0072	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
1,2,3-Trichloropropane	ND	0.024	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Vinyl chloride	ND	0.0040	0.048		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Xylenes, Total	ND	0.015	0.096		mg/Kg	1	7/6/2017 1:14:07 AM	32616
Surr: Dibromofluoromethane	104		70-130		%Rec	1	7/6/2017 1:14:07 AM	32616
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	7/6/2017 1:14:07 AM	32616
Surr: Toluene-d8	100		70-130		%Rec	1	7/6/2017 1:14:07 AM	32616
Surr: 4-Bromofluorobenzene	90.7		70-130		%Rec	1	7/6/2017 1:14:07 AM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	18	3.1	19	J	mg/Kg	1	7/10/2017	32597

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706G44-002 **Matrix:** SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	7/11/2017 6:10:00 PM	32629
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	7/11/2017 6:10:00 PM	32629
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	7/11/2017 6:10:00 PM	32629
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	7/11/2017 6:10:00 PM	32629
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	7/11/2017 6:10:00 PM	32629
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	7/11/2017 6:10:00 PM	32629
Aroclor 1260	ND	0.0091	0.019		mg/Kg	1	7/11/2017 6:10:00 PM	32629
Surr: Decachlorobiphenyl	132	0	26.3-128	S	%Rec	1	7/11/2017 6:10:00 PM	32629
Surr: Tetrachloro-m-xylene	113	0	20.7-151		%Rec	1	7/11/2017 6:10:00 PM	32629
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.6	9.7		mg/Kg	1	7/5/2017 11:29:38 AM	32609
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	7/5/2017 11:29:38 AM	32609
Surr: DNOP	109	0	70-130		%Rec	1	7/5/2017 11:29:38 AM	32609
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.8		mg/Kg	1	7/6/2017 4:28:23 AM	32616
Surr: BFB	102	0	54-150		%Rec	1	7/6/2017 4:28:23 AM	32616
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	3.0	0.10	0.30		mg/Kg	1	7/14/2017 11:43:50 AM	32801
Chloride	320	3.7	30		mg/Kg	20	7/14/2017 11:56:15 AM	32801
Nitrogen, Nitrate (As N)	0.11	0.096	0.30	J	mg/Kg	1	7/14/2017 11:43:50 AM	32801
Sulfate	560	7.1	30		mg/Kg	20	7/14/2017 11:56:15 AM	32801
EPA METHOD 7471: MERCURY							Analyst: **ELS**	
Mercury	ND	0.0065	0.032		mg/Kg	1	7/18/2017 11:29:04 AM	32826
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	7/13/2017 12:57:53 PM	32636
Barium	320	0.35	0.49		mg/Kg	5	7/17/2017 11:49:17 AM	32636
Cadmium	ND	0.31	0.49		mg/Kg	5	7/13/2017 12:57:53 PM	32636
Chromium	18	0.47	1.5		mg/Kg	5	7/13/2017 12:57:53 PM	32636
Copper	4.6	0.60	1.5		mg/Kg	5	7/17/2017 11:49:17 AM	32636
Iron	20000	74	250		mg/Kg	100	7/19/2017 9:29:50 AM	32636
Lead	3.6	0.86	1.2		mg/Kg	5	7/13/2017 12:57:53 PM	32636
Manganese	370	0.26	0.49		mg/Kg	5	7/17/2017 11:49:17 AM	32636
Selenium	ND	9.0	12		mg/Kg	5	7/13/2017 12:57:53 PM	32636
Silver	ND	0.31	1.2		mg/Kg	5	7/13/2017 12:57:53 PM	32636
Uranium	ND	5.7	25		mg/Kg	5	7/13/2017 12:57:53 PM	32636
Zinc	22	1.7	12		mg/Kg	5	7/17/2017 11:49:17 AM	32636

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706G44-002
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Aniline	ND	0.11	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Anthracene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Azobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Benzoic acid	ND	0.15	0.50		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Bis(2-ethylhexyl)phthalate	0.27	0.19	0.50	J	mg/Kg	1	7/11/2017 3:58:51 PM	32653
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Carbazole	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
4-Chloro-3-methylphenol	ND	0.18	0.50		mg/Kg	1	7/11/2017 3:58:51 PM	32653
4-Chloroaniline	ND	0.15	0.50		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Chrysene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Di-n-butyl phthalate	0.15	0.11	0.40	J	mg/Kg	1	7/11/2017 3:58:51 PM	32653
Di-n-octyl phthalate	ND	0.15	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Diethyl phthalate	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Dimethyl phthalate	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2,4-Dichlorophenol	ND	0.16	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2,4-Dimethylphenol	ND	0.088	0.30		mg/Kg	1	7/11/2017 3:58:51 PM	32653
4,6-Dinitro-2-methylphenol	ND	0.15	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2,4-Dinitrophenol	ND	0.12	0.50		mg/Kg	1	7/11/2017 3:58:51 PM	32653

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706G44-002
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	0.19	0.50		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2,6-Dinitrotoluene	ND	0.17	0.50		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Fluoranthene	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Fluorene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Isophorone	ND	0.19	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2-Methylphenol	ND	0.15	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
N-Nitrosodi-n-propylamine	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Naphthalene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
4-Nitroaniline	ND	0.17	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Nitrobenzene	ND	0.17	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Pentachlorophenol	ND	0.17	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Phenanthrene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Phenol	ND	0.14	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Pyrene	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Pyridine	ND	0.13	0.40		mg/Kg	1	7/11/2017 3:58:51 PM	32653
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	7/11/2017 3:58:51 PM	32653
Surr: 2-Fluorophenol	33.2	0	21.4-101		%Rec	1	7/11/2017 3:58:51 PM	32653
Surr: Phenol-d5	32.2	0	32-110		%Rec	1	7/11/2017 3:58:51 PM	32653
Surr: 2,4,6-Tribromophenol	35.6	0	38.7-115	S	%Rec	1	7/11/2017 3:58:51 PM	32653
Surr: Nitrobenzene-d5	34.6		26.2-120		%Rec	1	7/11/2017 3:58:51 PM	32653
Surr: 2-Fluorobiphenyl	37.3		36.2-124		%Rec	1	7/11/2017 3:58:51 PM	32653
Surr: 4-Terphenyl-d14	50.6		15-114		%Rec	1	7/11/2017 3:58:51 PM	32653
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0048	0.024		mg/Kg	1	7/6/2017 1:42:34 AM	32616

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706G44-002
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Methyl tert-butyl ether (MTBE)	ND	0.0074	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2,4-Trimethylbenzene	ND	0.0042	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,3,5-Trimethylbenzene	ND	0.0031	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2-Dichloroethane (EDC)	ND	0.0051	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2-Dibromoethane (EDB)	ND	0.0062	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Naphthalene	ND	0.0049	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1-Methylnaphthalene	ND	0.0034	0.19		mg/Kg	1	7/6/2017 1:42:34 AM	32616
2-Methylnaphthalene	ND	0.0039	0.19		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Acetone	ND	0.053	0.73		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Bromobenzene	ND	0.0036	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Bromodichloromethane	ND	0.0063	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Bromoform	ND	0.012	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Bromomethane	ND	0.0084	0.15		mg/Kg	1	7/6/2017 1:42:34 AM	32616
2-Butanone	0.16	0.029	0.48	J	mg/Kg	1	7/6/2017 1:42:34 AM	32616
Carbon disulfide	ND	0.0058	0.48		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Carbon tetrachloride	ND	0.0048	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Chlorobenzene	ND	0.0029	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Chloroethane	ND	0.016	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Chloroform	ND	0.0029	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Chloromethane	ND	0.010	0.15		mg/Kg	1	7/6/2017 1:42:34 AM	32616
2-Chlorotoluene	ND	0.0038	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
4-Chlorotoluene	ND	0.0044	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
cis-1,2-DCE	ND	0.0062	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
cis-1,3-Dichloropropene	ND	0.0037	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2-Dibromo-3-chloropropane	ND	0.0067	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Dibromochloromethane	ND	0.0041	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Dibromomethane	ND	0.0024	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2-Dichlorobenzene	ND	0.0025	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,3-Dichlorobenzene	ND	0.0043	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,4-Dichlorobenzene	ND	0.0054	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Dichlorodifluoromethane	ND	0.020	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,1-Dichloroethane	ND	0.019	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2-Dichloropropane	ND	0.0030	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,3-Dichloropropane	ND	0.012	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
2,2-Dichloropropane	ND	0.0055	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,1-Dichloropropene	ND	0.0055	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 10:15:00 AM
Lab ID: 1706G44-002
Matrix: SOIL
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
2-Hexanone	ND	0.0095	0.48		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Isopropylbenzene	ND	0.0033	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
4-Isopropyltoluene	ND	0.0037	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
4-Methyl-2-pentanone	ND	0.010	0.48		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Methylene chloride	ND	0.019	0.15		mg/Kg	1	7/6/2017 1:42:34 AM	32616
n-Butylbenzene	ND	0.0043	0.15		mg/Kg	1	7/6/2017 1:42:34 AM	32616
n-Propylbenzene	ND	0.0030	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
sec-Butylbenzene	ND	0.0050	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Styrene	ND	0.0084	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
tert-Butylbenzene	ND	0.0039	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,1,1,2-Tetrachloroethane	ND	0.0055	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,1,2,2-Tetrachloroethane	ND	0.014	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Tetrachloroethene (PCE)	ND	0.0039	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
trans-1,2-DCE	ND	0.019	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
trans-1,3-Dichloropropene	ND	0.0058	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2,3-Trichlorobenzene	ND	0.0044	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,1,1-Trichloroethane	ND	0.0063	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,1,2-Trichloroethane	ND	0.0051	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Trichloroethene (TCE)	ND	0.0059	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Trichlorofluoromethane	ND	0.0073	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
1,2,3-Trichloropropane	ND	0.024	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Vinyl chloride	ND	0.0040	0.048		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Xylenes, Total	ND	0.015	0.097		mg/Kg	1	7/6/2017 1:42:34 AM	32616
Surr: Dibromofluoromethane	104		70-130		%Rec	1	7/6/2017 1:42:34 AM	32616
Surr: 1,2-Dichloroethane-d4	99.7		70-130		%Rec	1	7/6/2017 1:42:34 AM	32616
Surr: Toluene-d8	98.1		70-130		%Rec	1	7/6/2017 1:42:34 AM	32616
Surr: 4-Bromofluorobenzene	90.6		70-130		%Rec	1	7/6/2017 1:42:34 AM	32616
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	14	3.3	20	J	mg/Kg	1	7/10/2017	32597

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF FB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:35:00 AM
Lab ID: 1706G44-003
Matrix: AQUEOUS
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.070	0.062	1.0	J	µg/L	1	7/5/2017 4:59:00 PM	R44015
Toluene	0.13	0.064	1.0	J	µg/L	1	7/5/2017 4:59:00 PM	R44015
Ethylbenzene	ND	0.093	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,3,5-Trimethylbenzene	ND	0.087	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2-Dichloroethane (EDC)	ND	0.40	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Naphthalene	ND	0.11	2.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Acetone	7.7	0.82	10	J	µg/L	1	7/5/2017 4:59:00 PM	R44015
Bromobenzene	ND	0.14	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Bromodichloromethane	ND	0.18	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Bromoform	ND	0.21	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Bromomethane	ND	0.26	3.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
2-Butanone	ND	1.1	10		µg/L	1	7/5/2017 4:59:00 PM	R44015
Carbon disulfide	ND	0.40	10		µg/L	1	7/5/2017 4:59:00 PM	R44015
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Chlorobenzene	ND	0.11	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Chloroethane	ND	0.23	2.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Chloroform	ND	0.40	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Chloromethane	ND	0.29	3.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
cis-1,3-Dichloropropene	ND	0.082	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Dibromochloromethane	ND	0.072	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Dibromomethane	ND	0.091	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2-Dichlorobenzene	ND	0.090	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,3-Dichlorobenzene	ND	0.15	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Dichlorodifluoromethane	ND	1.0	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
2,2-Dichloropropane	ND	0.16	2.0		µg/L	1	7/5/2017 4:59:00 PM	R44015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF FB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:35:00 AM
Lab ID: 1706G44-003
Matrix: AQUEOUS
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,1-Dichloropropene	ND	0.093	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Hexachlorobutadiene	ND	0.80	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
2-Hexanone	ND	0.66	10		µg/L	1	7/5/2017 4:59:00 PM	R44015
Isopropylbenzene	ND	0.051	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
4-Isopropyltoluene	ND	0.096	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	7/5/2017 4:59:00 PM	R44015
Methylene Chloride	ND	0.11	3.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
n-Butylbenzene	ND	0.13	3.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
n-Propylbenzene	ND	0.074	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
sec-Butylbenzene	ND	0.11	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Styrene	ND	0.16	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,1,1,2-Tetrachloroethane	ND	0.10	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Tetrachloroethene (PCE)	ND	0.13	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
trans-1,3-Dichloropropene	ND	0.22	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2,3-Trichlorobenzene	ND	0.12	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2,4-Trichlorobenzene	ND	0.14	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Trichloroethene (TCE)	ND	0.11	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Vinyl chloride	ND	0.18	1.0		µg/L	1	7/5/2017 4:59:00 PM	R44015
Xylenes, Total	ND	0.32	1.5		µg/L	1	7/5/2017 4:59:00 PM	R44015
Surr: 1,2-Dichloroethane-d4	113	0	70-130		%Rec	1	7/5/2017 4:59:00 PM	R44015
Surr: 4-Bromofluorobenzene	108	0	70-130		%Rec	1	7/5/2017 4:59:00 PM	R44015
Surr: Dibromofluoromethane	115	0	70-130		%Rec	1	7/5/2017 4:59:00 PM	R44015
Surr: Toluene-d8	102	0	70-130		%Rec	1	7/5/2017 4:59:00 PM	R44015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF EB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:40:00 AM
Lab ID: 1706G44-004
Matrix: AQUEOUS
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.062	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Toluene	0.11	0.064	1.0	J	µg/L	1	7/5/2017 5:23:00 PM	R44015
Ethylbenzene	ND	0.093	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,3,5-Trimethylbenzene	ND	0.087	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2-Dichloroethane (EDC)	ND	0.40	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Naphthalene	ND	0.11	2.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Acetone	11	0.82	10		µg/L	1	7/5/2017 5:23:00 PM	R44015
Bromobenzene	ND	0.14	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Bromodichloromethane	ND	0.18	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Bromoform	ND	0.21	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Bromomethane	ND	0.26	3.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
2-Butanone	ND	1.1	10		µg/L	1	7/5/2017 5:23:00 PM	R44015
Carbon disulfide	ND	0.40	10		µg/L	1	7/5/2017 5:23:00 PM	R44015
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Chlorobenzene	ND	0.11	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Chloroethane	ND	0.23	2.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Chloroform	ND	0.40	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Chloromethane	ND	0.29	3.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
cis-1,3-Dichloropropene	ND	0.082	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Dibromochloromethane	ND	0.072	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Dibromomethane	ND	0.091	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2-Dichlorobenzene	ND	0.090	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,3-Dichlorobenzene	ND	0.15	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Dichlorodifluoromethane	ND	1.0	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
2,2-Dichloropropane	ND	0.16	2.0		µg/L	1	7/5/2017 5:23:00 PM	R44015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF EB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 6/29/2017 11:40:00 AM
Lab ID: 1706G44-004
Matrix: AQUEOUS
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,1-Dichloropropene	ND	0.093	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Hexachlorobutadiene	ND	0.80	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
2-Hexanone	ND	0.66	10		µg/L	1	7/5/2017 5:23:00 PM	R44015
Isopropylbenzene	ND	0.051	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
4-Isopropyltoluene	ND	0.096	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	7/5/2017 5:23:00 PM	R44015
Methylene Chloride	ND	0.11	3.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
n-Butylbenzene	ND	0.13	3.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
n-Propylbenzene	ND	0.074	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
sec-Butylbenzene	ND	0.11	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Styrene	ND	0.16	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,1,1,2-Tetrachloroethane	ND	0.10	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Tetrachloroethene (PCE)	ND	0.13	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
trans-1,3-Dichloropropene	ND	0.22	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2,3-Trichlorobenzene	ND	0.12	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2,4-Trichlorobenzene	ND	0.14	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Trichloroethene (TCE)	ND	0.11	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Vinyl chloride	ND	0.18	1.0		µg/L	1	7/5/2017 5:23:00 PM	R44015
Xylenes, Total	ND	0.32	1.5		µg/L	1	7/5/2017 5:23:00 PM	R44015
Surr: 1,2-Dichloroethane-d4	112	0	70-130		%Rec	1	7/5/2017 5:23:00 PM	R44015
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	7/5/2017 5:23:00 PM	R44015
Surr: Dibromofluoromethane	112	0	70-130		%Rec	1	7/5/2017 5:23:00 PM	R44015
Surr: Toluene-d8	104	0	70-130		%Rec	1	7/5/2017 5:23:00 PM	R44015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1706G44-005
Matrix: AQUEOUS
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.062	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Toluene	ND	0.064	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Ethylbenzene	ND	0.093	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,3,5-Trimethylbenzene	ND	0.087	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2-Dichloroethane (EDC)	ND	0.40	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Naphthalene	ND	0.11	2.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Acetone	1.8	0.82	10	J	µg/L	1	7/5/2017 5:47:00 PM	R44015
Bromobenzene	ND	0.14	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Bromodichloromethane	ND	0.18	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Bromoform	ND	0.21	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Bromomethane	ND	0.26	3.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
2-Butanone	ND	1.1	10		µg/L	1	7/5/2017 5:47:00 PM	R44015
Carbon disulfide	ND	0.40	10		µg/L	1	7/5/2017 5:47:00 PM	R44015
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Chlorobenzene	ND	0.11	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Chloroethane	ND	0.23	2.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Chloroform	ND	0.40	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Chloromethane	ND	0.29	3.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
cis-1,3-Dichloropropene	ND	0.082	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Dibromochloromethane	ND	0.072	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Dibromomethane	ND	0.091	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2-Dichlorobenzene	ND	0.090	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,3-Dichlorobenzene	ND	0.15	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Dichlorodifluoromethane	ND	1.0	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
2,2-Dichloropropane	ND	0.16	2.0		µg/L	1	7/5/2017 5:47:00 PM	R44015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1706G44-005
Matrix: AQUEOUS
Received Date: 6/30/2017 7:06:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,1-Dichloropropene	ND	0.093	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Hexachlorobutadiene	ND	0.80	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
2-Hexanone	ND	0.66	10		µg/L	1	7/5/2017 5:47:00 PM	R44015
Isopropylbenzene	ND	0.051	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
4-Isopropyltoluene	ND	0.096	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	7/5/2017 5:47:00 PM	R44015
Methylene Chloride	ND	0.11	3.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
n-Butylbenzene	ND	0.13	3.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
n-Propylbenzene	ND	0.074	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
sec-Butylbenzene	ND	0.11	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Styrene	ND	0.16	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,1,1,2-Tetrachloroethane	ND	0.10	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Tetrachloroethene (PCE)	ND	0.13	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
trans-1,3-Dichloropropene	ND	0.22	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2,3-Trichlorobenzene	ND	0.12	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2,4-Trichlorobenzene	ND	0.14	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Trichloroethene (TCE)	ND	0.11	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Vinyl chloride	ND	0.18	1.0		µg/L	1	7/5/2017 5:47:00 PM	R44015
Xylenes, Total	ND	0.32	1.5		µg/L	1	7/5/2017 5:47:00 PM	R44015
Surr: 1,2-Dichloroethane-d4	109	0	70-130		%Rec	1	7/5/2017 5:47:00 PM	R44015
Surr: 4-Bromofluorobenzene	107	0	70-130		%Rec	1	7/5/2017 5:47:00 PM	R44015
Surr: Dibromofluoromethane	111	0	70-130		%Rec	1	7/5/2017 5:47:00 PM	R44015
Surr: Toluene-d8	103	0	70-130		%Rec	1	7/5/2017 5:47:00 PM	R44015

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	07/07/2017 17:45	WG996634

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND	J6	0.250	1	07/07/2017 17:49	WG996634

Method Blank (MB)

(MB) R3231754-1 07/07/17 17:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Cyanide	U		0.039	0.250

L920659-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920659-01 07/07/17 17:34 • (DUP) R3231754-4 07/07/17 17:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Cyanide	ND	0.000	1	0		20

L920668-01 Original Sample (OS) • Duplicate (DUP)

(OS) L920668-01 07/07/17 17:45 • (DUP) R3231754-5 07/07/17 17:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Cyanide	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3231754-2 07/07/17 17:26 • (LCSD) R3231754-3 07/07/17 17:27

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Cyanide	2.50	2.63	2.43	105	97	90-150			8	20

L920668-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L920668-02 07/07/17 17:49 • (MS) R3231754-6 07/07/17 17:50 • (MSD) R3231754-7 07/07/17 17:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Cyanide	3.33	ND	1.50	1.49	45	45	1	75-125	J6	J6	1	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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1638 Roseytown Road - Suites 2,3,4
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(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1706G44
Pace Project No.: 30223578

Sample: 1706G44-001D Central OCD LF DU **Lab ID: 30223578001** Collected: 06/29/17 00:00 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**13.464 ± 3.112 (1.242) C:NA T:NA**	pCi/g	08/01/17 10:34	13966-00-2	
Radium-226	EPA 901.1	**1.411 ± 0.346 (0.155) C:NA T:NA**	pCi/g	08/01/17 10:34	13982-63-3	Ra
Radium-228	EPA 901.1	**2.069 ± 0.531 (0.339) C:NA T:NA**	pCi/g	08/01/17 10:34	15262-20-1	

Sample: 1706G44-002D Central OCD LF VZ **Lab ID: 30223578002** Collected: 06/29/17 10:15 Received: 07/07/17 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Potassium-40	EPA 901.1	**14.769 ± 2.755 (0.794) C:NA T:NA**	pCi/g	08/01/17 11:07	13966-00-2	
Radium-226	EPA 901.1	**1.546 ± 0.336 (0.177) C:NA T:NA**	pCi/g	08/01/17 11:07	13982-63-3	Ra
Radium-228	EPA 901.1	**1.712 ± 0.417 (0.369) C:NA T:NA**	pCi/g	08/01/17 11:07	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1706G44
Pace Project No.: 30223578

QC Batch: 265119 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30223578001, 30223578002

METHOD BLANK: 1306431 Matrix: Solid
Associated Lab Samples: 30223578001, 30223578002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Potassium-40	0.016 ± 0.332 (0.664) C:NA T:NA	pCi/g	08/01/17 09:06	
Radium-226	0.037 ± 0.049 (0.180) C:NA T:NA	pCi/g	08/01/17 09:06	Ra
Radium-228	0.016 ± 0.263 (0.312) C:NA T:NA	pCi/g	08/01/17 09:06	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 1706G44
Pace Project No.: 30223578

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Ra — The reported Ra-226 results were determined by hermetically sealing the dried, processed sample in an appropriate-sized can. Each sample was stored for a minimum of 21 days to ensure that equilibrium between Ra-226 and daughters Bi-214 and Pb-214 was achieved. Reported Ra-226 results were inferred from gamma peaks attributable to Bi-214 and Pb-214.

REPORT OF LABORATORY ANALYSIS

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32801**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **32801**	RunNo: **44224**
Prep Date: **7/14/2017**	Analysis Date: **7/14/2017**	SeqNo: **1397449** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID **LCS-32801**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **32801**	RunNo: **44224**
Prep Date: **7/14/2017**	Analysis Date: **7/14/2017**	SeqNo: **1397450** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	100	90	110			
Chloride	14	1.5	15.00	0	96.0	90	110			
Nitrogen, Nitrate (As N)	7.7	0.30	7.500	0	102	90	110			
Sulfate	30	1.5	30.00	0	99.2	90	110			

Sample ID **1706G44-002AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32801**	RunNo: **44224**
Prep Date: **7/14/2017**	Analysis Date: **7/14/2017**	SeqNo: **1397461** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.5	0.30	7.500	0.1145	99.1	61.8	142			

Sample ID **1706G44-002AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32801**	RunNo: **44224**
Prep Date: **7/14/2017**	Analysis Date: **7/14/2017**	SeqNo: **1397462** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	7.7	0.30	7.500	0.1145	102	61.8	142	2.37	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32597**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **32597**	RunNo: **44086**
Prep Date: **7/1/2017**	Analysis Date: **7/10/2017**	SeqNo: **1391064** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	8.5	20								J

Sample ID **LCS-32597**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **32597**	RunNo: **44086**
Prep Date: **7/1/2017**	Analysis Date: **7/10/2017**	SeqNo: **1391065** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	91	20	100.0	0	91.3	61.7	138			

Sample ID **1706G44-002AMS**	SampType: **MS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32597**	RunNo: **44086**
Prep Date: **7/1/2017**	Analysis Date: **7/10/2017**	SeqNo: **1391067** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	99.60	13.83	86.3	80	120			

Sample ID **1706G44-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32597**	RunNo: **44086**
Prep Date: **7/1/2017**	Analysis Date: **7/10/2017**	SeqNo: **1391068** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	97	19	95.88	13.83	86.8	80	120	2.71	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **LCS-32609**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **32609**	RunNo: **43982**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1386463** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.8	73.2	114			
Surr: DNOP	4.7		5.000		93.7	70	130			

Sample ID **MB-32609**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **32609**	RunNo: **43982**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1386464** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		106	70	130			

Sample ID **1706G44-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32609**	RunNo: **43982**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1386869** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	9.6	48.22	0	90.7	55.8	122			
Surr: DNOP	4.8		4.822		100	70	130			

Sample ID **1706G44-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32609**	RunNo: **43982**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1386870** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.9	49.65	0	90.0	55.8	122	2.19	20	
Surr: DNOP	4.9		4.965		99.3	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32616**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **32616**	RunNo: **43994**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387418** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.8	54	150			

Sample ID **LCS-32616**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **32616**	RunNo: **43994**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387419** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.0	76.4	125			
Surr: BFB	1100		1000		108	54	150			

Sample ID **1706G44-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32616**	RunNo: **43994**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387430** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	23.79	0	90.6	77.8	128			
Surr: BFB	1000		951.5		107	54	150			

Sample ID **1706G44-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32616**	RunNo: **43994**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387431** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.30	0	108	77.8	128	19.5	20	
Surr: BFB	1100		971.8		114	54	150	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32629**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **32629**	RunNo: **44110**
Prep Date: **7/5/2017**	Analysis Date: **7/11/2017**	SeqNo: **1392041** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.068		0.06250		108	26.3	128			
Surr: Tetrachloro-m-xylene	0.083		0.06250		133	20.7	151			

Sample ID **LCS-32629**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **32629**	RunNo: **44110**
Prep Date: **7/5/2017**	Analysis Date: **7/11/2017**	SeqNo: **1392042** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.18	0.020	0.1250	0	140	15	195			
Aroclor 1260	0.14	0.020	0.1250	0	110	24	140			
Surr: Decachlorobiphenyl	0.056		0.06250		88.8	26.3	128			
Surr: Tetrachloro-m-xylene	0.066		0.06250		106	20.7	151			

Sample ID **1706G44-002AMS**	SampType: **MS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32629**	RunNo: **44110**
Prep Date: **7/5/2017**	Analysis Date: **7/11/2017**	SeqNo: **1393127** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.16	0.020	0.1233	0	131	15	153			
Aroclor 1260	0.21	0.020	0.1233	0	172	15	180			
Surr: Decachlorobiphenyl	0.094		0.06164		152	26.3	128			S
Surr: Tetrachloro-m-xylene	0.080		0.06164		130	20.7	151			

Sample ID **1706G44-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32629**	RunNo: **44110**
Prep Date: **7/5/2017**	Analysis Date: **7/11/2017**	SeqNo: **1393128** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.16	0.020	0.1247	0	129	15	153	0.861	32.9	
Aroclor 1260	0.20	0.020	0.1247	0	159	15	180	6.60	31.1	
Surr: Decachlorobiphenyl	0.088		0.06234		142	26.3	128	0	0	S
Surr: Tetrachloro-m-xylene	0.077		0.06234		123	20.7	151	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32616**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387599** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	0.012	0.20								J
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	0.011	0.15								J
2-Butanone	0.19	0.50								J
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32616**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387599** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	0.042	0.50								J
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.51		0.5000		102	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.6	70	130			

Sample ID **lcs-32616**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **32616**	RunNo: **44000**
Prep Date: **7/3/2017**	Analysis Date: **7/5/2017**	SeqNo: **1387600** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	107	70	130			
Toluene	0.95	0.050	1.000	0	94.6	70	130			
Chlorobenzene	1.0	0.050	1.000	0	103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**lcs-32616**	SampType:	**LCS**	TestCode:	**EPA Method 8260B: Volatiles**
Client ID:	**LCSS**	Batch ID:	**32616**	RunNo:	**44000**
Prep Date:	**7/3/2017**	Analysis Date:	**7/5/2017**	SeqNo:	**1387600** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.4	0.050	1.000	0	139	68.8	161			
Trichloroethene (TCE)	1.0	0.050	1.000	0	101	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.53		0.5000		106	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **100ng lcs**	SampType: **LCS4**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **BatchQC**	Batch ID: **R44015**	RunNo: **44015**
Prep Date:	Analysis Date: **7/5/2017**	SeqNo: **1387911** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Ethylbenzene	20	1.0	20.00	0	99.5	70	130			
Methyl tert-butyl ether (MTBE)	42	1.0	40.00	0	104	70	130			
1,2,4-Trimethylbenzene	21	1.0	20.00	0	103	70	130			
1,3,5-Trimethylbenzene	20	1.0	20.00	0	101	70	130			
1,2-Dichloroethane (EDC)	21	1.0	20.00	0	103	62.2	143			
1,2-Dibromoethane (EDB)	20	1.0	20.00	0	99.1	70	130			
Naphthalene	19	2.0	20.00	0	92.6	70	130			
1-Methylnaphthalene	19	4.0	20.00	0	95.0	60	140			
2-Methylnaphthalene	14	4.0	20.00	0	71.6	60	140			
Acetone	43	10	40.00	0	107	60	140			
Bromobenzene	21	1.0	20.00	0	104	70	130			
Bromodichloromethane	21	1.0	20.00	0	107	70	130			
Bromoform	20	1.0	20.00	0	99.3	70	130			
Bromomethane	17	3.0	20.00	0	87.2	60	140			
2-Butanone	47	10	40.00	0	117	60	140			
Carbon disulfide	38	10	40.00	0	94.3	60	140			
Carbon Tetrachloride	21	1.0	20.00	0	104	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
Chloroethane	20	2.0	20.00	0	99.2	60	140			
Chloroform	21	1.0	20.00	0	107	70	130			
Chloromethane	17	3.0	20.00	0	87.0	60	140			
2-Chlorotoluene	20	1.0	20.00	0	102	70	130			
4-Chlorotoluene	20	1.0	20.00	0	102	70	130			
cis-1,2-DCE	21	1.0	20.00	0	107	70	130			
cis-1,3-Dichloropropene	19	1.0	20.00	0	96.8	70	130			
1,2-Dibromo-3-chloropropane	20	2.0	20.00	0	102	70	130			
Dibromochloromethane	19	1.0	20.00	0	95.4	70	130			
Dibromomethane	22	1.0	20.00	0	108	70	130			
1,2-Dichlorobenzene	20	1.0	20.00	0	101	70	130			
1,3-Dichlorobenzene	21	1.0	20.00	0	103	70	130			
1,4-Dichlorobenzene	21	1.0	20.00	0	103	67.2	141			
Dichlorodifluoromethane	17	1.0	20.00	0	85.6	60	140			
1,1-Dichloroethane	21	1.0	20.00	0	103	52.6	157			
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
1,2-Dichloropropane	21	1.0	20.00	0	103	63.7	138			
1,3-Dichloropropane	20	1.0	20.00	0	98.1	70	130			
2,2-Dichloropropane	21	2.0	20.00	0	107	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **100ng lcs**	SampType: **LCS4**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **BatchQC**	Batch ID: **R44015**	RunNo: **44015**
Prep Date:	Analysis Date: **7/5/2017**	SeqNo: **1387911** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	20	1.0	20.00	0	102	70	130			
Hexachlorobutadiene	18	1.0	20.00	0	87.6	70	130			
2-Hexanone	38	10	40.00	0	95.4	60	140			
Isopropylbenzene	20	1.0	20.00	0	100	70	130			
4-Isopropyltoluene	21	1.0	20.00	0	104	70	130			
4-Methyl-2-pentanone	41	10	40.00	0	102	60	140			
Methylene Chloride	21	3.0	20.00	0	103	70	130			
n-Butylbenzene	19	3.0	20.00	0	97.4	70	130			
n-Propylbenzene	20	1.0	20.00	0	100	70	130			
sec-Butylbenzene	20	1.0	20.00	0	98.3	70	130			
Styrene	20	1.0	20.00	0	101	70	130			
tert-Butylbenzene	20	1.0	20.00	0	101	70	130			
1,1,1,2-Tetrachloroethane	20	1.0	20.00	0	98.5	70	130			
1,1,2,2-Tetrachloroethane	21	2.0	20.00	0	105	65.9	133			
Tetrachloroethene (PCE)	21	1.0	20.00	0	103	70	130			
trans-1,2-DCE	20	1.0	20.00	0	99.9	70	130			
trans-1,3-Dichloropropene	19	1.0	20.00	0	92.8	70	130			
1,2,3-Trichlorobenzene	19	1.0	20.00	0	92.9	70	130			
1,2,4-Trichlorobenzene	18	1.0	20.00	0	92.3	70	130			
1,1,1-Trichloroethane	21	1.0	20.00	0	104	70	130			
1,1,2-Trichloroethane	20	1.0	20.00	0	99.1	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130			
Trichlorofluoromethane	20	1.0	20.00	0	102	70	130			
1,2,3-Trichloropropane	21	2.0	20.00	0	103	69.7	129			
Vinyl chloride	19	1.0	20.00	0	93.5	70	130			
Xylenes, Total	61	1.5	60.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R44015**	RunNo: **44015**
Prep Date:	Analysis Date: **7/5/2017**	SeqNo: **1387914** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R44015**	RunNo: **44015**
Prep Date:	Analysis Date: **7/5/2017**	SeqNo: **1387914** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R44015**	RunNo: **44015**
Prep Date:	Analysis Date: **7/5/2017**	SeqNo: **1387914** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		114	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32653**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390660** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	0.20	0.50								J
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.13	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-32653**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390660** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	1.7		3.330		50.9	21.4	101			
Surr: Phenol-d5	1.9		3.330		55.9	32	110			
Surr: 2,4,6-Tribromophenol	1.7		3.330		51.1	38.7	115			
Surr: Nitrobenzene-d5	1.0		1.670		61.0	26.2	120			
Surr: 2-Fluorobiphenyl	1.0		1.670		61.8	36.2	124			
Surr: 4-Terphenyl-d14	0.84		1.670		50.2	15	114			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **lcs-32653**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390661** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.670	0	67.2	39.4	110			
4-Chloro-3-methylphenol	2.2	0.50	3.330	0	66.9	41.6	108			
2-Chlorophenol	2.0	0.20	3.330	0	58.7	35	107			
1,4-Dichlorobenzene	1.0	0.20	1.670	0	62.2	31	105			
2,4-Dinitrotoluene	0.93	0.50	1.670	0	55.5	35.6	101			
N-Nitrosodi-n-propylamine	0.88	0.20	1.670	0	52.4	26	100			
4-Nitrophenol	2.0	0.25	3.330	0	61.1	34.1	106			
Pentachlorophenol	1.8	0.40	3.330	0	55.1	35.3	95.4			
Phenol	2.1	0.20	3.330	0	62.6	39.3	96.5			
Pyrene	1.3	0.20	1.670	0	80.5	47.8	95.7			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	73.0	36.6	117			
Surr: 2-Fluorophenol	1.9		3.330		55.6	21.4	101			
Surr: Phenol-d5	2.2		3.330		65.8	32	110			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.8	38.7	115			
Surr: Nitrobenzene-d5	1.2		1.670		74.0	26.2	120			
Surr: 2-Fluorobiphenyl	1.3		1.670		76.1	36.2	124			
Surr: 4-Terphenyl-d14	1.0		1.670		59.7	15	114			

Sample ID **1706G44-002Ams**	SampType: **MS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390662** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.62	0.20	1.661	0	37.3	24.7	111			
4-Chloro-3-methylphenol	1.1	0.50	3.312	0	34.4	21.7	108			
2-Chlorophenol	1.3	0.20	3.312	0	38.9	21.9	103			
1,4-Dichlorobenzene	0.67	0.20	1.661	0	40.0	15.8	93.9			
2,4-Dinitrotoluene	0.56	0.50	1.661	0	33.9	19.9	101			
N-Nitrosodi-n-propylamine	0.59	0.20	1.661	0	35.7	17.7	100			
4-Nitrophenol	1.4	0.25	3.312	0	42.2	19.3	112			
Pentachlorophenol	1.3	0.40	3.312	0	38.3	20.5	105			
Phenol	1.3	0.20	3.312	0	40.0	23.1	101			
Pyrene	1.0	0.20	1.661	0	60.3	18.3	113			
1,2,4-Trichlorobenzene	0.71	0.20	1.661	0	42.6	21.8	108			
Surr: 2-Fluorophenol	1.3		3.312		38.8	21.4	101			
Surr: Phenol-d5	1.3		3.312		38.0	32	110			
Surr: 2,4,6-Tribromophenol	1.4		3.312		41.1	38.7	115			
Surr: Nitrobenzene-d5	0.71		1.661		42.5	26.2	120			
Surr: 2-Fluorobiphenyl	0.70		1.661		41.9	36.2	124			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **1706G44-002Ams**	SampType: **MS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390662** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.85		1.661		51.3	15	114			

Sample ID **1706G44-002Amsd**	SampType: **MSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32653**	RunNo: **44069**
Prep Date: **7/6/2017**	Analysis Date: **7/8/2017**	SeqNo: **1390663** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.60	0.20	1.667	0	36.3	24.7	111	2.40	30.2	
4-Chloro-3-methylphenol	1.2	0.50	3.324	0	34.8	21.7	108	1.52	37.2	
2-Chlorophenol	1.3	0.20	3.324	0	38.9	21.9	103	0.288	48	
1,4-Dichlorobenzene	0.66	0.20	1.667	0	39.3	15.8	93.9	1.39	40.6	
2,4-Dinitrotoluene	0.59	0.50	1.667	0	35.4	19.9	101	4.63	47.7	
N-Nitrosodi-n-propylamine	0.59	0.20	1.667	0	35.2	17.7	100	0.985	52.5	
4-Nitrophenol	1.5	0.25	3.324	0	45.9	19.3	112	8.79	36.6	
Pentachlorophenol	1.3	0.40	3.324	0	40.3	20.5	105	5.41	65.5	
Phenol	1.3	0.20	3.324	0	39.5	23.1	101	0.792	44	
Pyrene	0.97	0.20	1.667	0	58.4	18.3	113	2.73	42.1	
1,2,4-Trichlorobenzene	0.69	0.20	1.667	0	41.3	21.8	108	2.82	31.5	
Surr: 2-Fluorophenol	1.3		3.324		39.6	21.4	101	0	0	
Surr: Phenol-d5	1.3		3.324		37.7	32	110	0	0	
Surr: 2,4,6-Tribromophenol	1.4		3.324		42.4	38.7	115	0	0	
Surr: Nitrobenzene-d5	0.67		1.667		40.1	26.2	120	0	0	
Surr: 2-Fluorobiphenyl	0.66		1.667		39.9	36.2	124	0	0	
Surr: 4-Terphenyl-d14	0.88		1.667		52.8	15	114	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-32826**	SampType:	**MBLK**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**PBS**	Batch ID:	**32826**		RunNo:	**44299**				
Prep Date:	**7/17/2017**	Analysis Date:	**7/18/2017**		SeqNo:	**1398895**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-32826**	SampType:	**LCS**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**LCSS**	Batch ID:	**32826**		RunNo:	**44299**				
Prep Date:	**7/17/2017**	Analysis Date:	**7/18/2017**		SeqNo:	**1398896**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	97.3	80	120			

Sample ID	**1706G44-002BMS**	SampType:	**MS**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**32826**		RunNo:	**44299**				
Prep Date:	**7/17/2017**	Analysis Date:	**7/18/2017**		SeqNo:	**1398910**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1657	0	102	75	125			

Sample ID	**1706G44-002BMSD**	SampType:	**MSD**		TestCode:	**EPA Method 7471: Mercury**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**32826**		RunNo:	**44299**				
Prep Date:	**7/17/2017**	Analysis Date:	**7/18/2017**		SeqNo:	**1398911**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.032	0.1623	0	101	75	125	2.35	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**
05-Aug-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-32636**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **32636**	RunNo: **44191**
Prep Date: **7/5/2017**	Analysis Date: **7/13/2017**	SeqNo: **1394937** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Iron	1.1	2.5								J
Lead	ND	0.25								
Selenium	ND	2.5								
Silver	ND	0.25								
Uranium	ND	5.0								

Sample ID **LCS-32636**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **32636**	RunNo: **44191**
Prep Date: **7/5/2017**	Analysis Date: **7/13/2017**	SeqNo: **1394938** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	99.7	80	120			
Cadmium	25	0.10	25.00	0	99.5	80	120			
Chromium	24	0.30	25.00	0	97.9	80	120			
Iron	27	2.5	25.00	0	107	80	120			
Lead	24	0.25	25.00	0	97.6	80	120			
Selenium	23	2.5	25.00	0	92.6	80	120			
Silver	5.2	0.25	5.000	0	103	80	120			
Uranium	22	5.0	25.00	0	87.6	80	120			

Sample ID **1706G44-002BMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V**	Batch ID: **32636**	RunNo: **44191**
Prep Date: **7/5/2017**	Analysis Date: **7/13/2017**	SeqNo: **1395262** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	12	24.57	0	103	75	125			
Cadmium	24	0.49	24.57	0	98.9	75	125			
Chromium	45	1.5	24.57	17.89	111	75	125			
Lead	25	1.2	24.57	3.613	86.4	75	125			
Selenium	ND	12	24.57	0	0	75	125			S
Silver	4.7	1.2	4.914	0	96.2	75	125			
Uranium	9.2	25	24.57	0	37.6	75	125			SJ

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**1706G44-002BMSD**	SampType:	**MSD**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**32636**		RunNo:	**44191**				
Prep Date:	**7/5/2017**	Analysis Date:	**7/13/2017**		SeqNo:	**1395263**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	12	24.25	0	103	75	125	1.40	20	
Cadmium	24	0.48	24.25	0	99.6	75	125	0.663	20	
Chromium	46	1.5	24.25	17.89	116	75	125	2.36	20	
Lead	25	1.2	24.25	3.613	86.8	75	125	0.667	20	
Selenium	ND	12	24.25	0	0	75	125	0	20	S
Silver	4.6	1.2	4.850	0	95.2	75	125	2.31	20	
Uranium	12	24	24.25	0	47.7	75	125	22.3	20	SJR

Sample ID	**1706G44-002BPS**	SampType:	**PS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**32636**		RunNo:	**44191**				
Prep Date:		Analysis Date:	**7/13/2017**		SeqNo:	**1395264**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	100	12	123.1	0	83.4	80	120			
Uranium	94	25	123.1	0	76.2	80	120			S

Sample ID	**MB-32636**	SampType:	**MBLK**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**PBS**	Batch ID:	**32636**		RunNo:	**44254**				
Prep Date:	**7/5/2017**	Analysis Date:	**7/17/2017**		SeqNo:	**1397801**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.10								
Copper	ND	0.30								
Manganese	0.087	0.10								J
Zinc	ND	2.5								

Sample ID	**LCS-32636**	SampType:	**LCS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**LCSS**	Batch ID:	**32636**		RunNo:	**44254**				
Prep Date:	**7/5/2017**	Analysis Date:	**7/17/2017**		SeqNo:	**1397802**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	25	0.10	25.00	0	98.7	80	120			
Copper	25	0.30	25.00	0	101	80	120			
Manganese	24	0.10	25.00	0	97.3	80	120			
Zinc	23	2.5	25.00	0	93.9	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706G44**

05-Aug-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**1706G44-002BMS**	SampType:	**MS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**32636**		RunNo:	**44254**				
Prep Date:	**7/5/2017**	Analysis Date:	**7/17/2017**		SeqNo:	**1397814**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	310	0.49	24.57	315.8	-26.6	75	125			S
Copper	29	1.5	24.57	4.647	98.0	75	125			
Manganese	440	0.49	24.57	373.3	259	75	125			S
Zinc	48	12	24.57	22.42	104	75	125			

Sample ID	**1706G44-002BMSD**	SampType:	**MSD**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**32636**		RunNo:	**44254**				
Prep Date:	**7/5/2017**	Analysis Date:	**7/17/2017**		SeqNo:	**1397815**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	310	0.48	24.25	315.8	-39.0	75	125	0.953	20	S
Copper	28	1.5	24.25	4.647	95.2	75	125	3.47	20	
Manganese	430	0.48	24.25	373.3	229	75	125	1.85	20	S
Zinc	48	12	24.25	22.42	103	75	125	0.934	20	

Sample ID	**1706G44-002BPS**	SampType:	**PS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**32636**		RunNo:	**44254**				
Prep Date:		Analysis Date:	**7/17/2017**		SeqNo:	**1397816**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	420	0.49	123.1	315.8	80.7	80	120			
Manganese	470	0.49	123.1	373.3	75.5	80	120			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1706G44 RcptNo: 1

Received By: Anne Thorne 6/30/2017 7:06:00 AM Anne Thorne
Completed By: Anne Thorne 6/30/2017 2:27:36 PM Anne Thorne
Reviewed By: 7/3/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC
GALLUP REFINERY
Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
Phone #: 505-722-0231
email or Fax#: CHERYL.JOHNSON@WNR.COM
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ NELAP ☐ Other
☒ EDD (Type) EXCEL

Turn-Around Time: ☒ Standard ☐ Rush
Project Name: CENTRAL OCD LANDFARM SEMIANNUAL SAMPLING
Project #:
Project Manager: CHERYL JOHNSON
Sampler: TRACY PAYNE
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1706644
6/29/17	—	SOIL	CENTRAL OCD LF DUP01	8oz-3 4oz-1	NONE	-001
	1015	SOIL	CENTRAL OCD LF VZ02 MS	8oz-3 4oz-1	NONE	002
	1015	SOIL	CENTRAL OCD LF VZ02 MSD	8oz-3 4oz-1	NONE	-002 003
	1135	WATER	CENTRAL OCD LF FB01	40 mL VOA-3	HCL	003 004
	1140	WATER	CENTRAL OCD LF EB01	40 mL VOA-3	HCL	004 005
↓	—	WATER	TRIP BLANK	40 mL VOA-3	HCL	005 006
						HT 6/30/17

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	✓ VADOSE ZONE LIST (SEE ATTACHED)	NMAC LIST (SEE ATTACHED)	BTEX		Air Bubbles (Y or N)
											✓	✓			
											✓	✓			
											✓	✓			
													✓		
													✓		
													✓		

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/29/17	1430			6/29/17	1430
6/30/17	0706			06/30/17	0706

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

VADOSE ZONE ANALYTES AND REPORTING LIMITS, CENTRAL OIL CONSERVATION DIVISION LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Chloride	E300	mg/kg	30
Benzene	SW8260B	mg/kg	0.050
Ethylbenzene	SW8260B	mg/kg	0.050
Toluene	SW8260B	mg/kg	0.050
Xylenes, Total	SW8260B	mg/kg	0.100
Petroleum Hydrocarbons, TR	E418.1	mg/kg	20

NMAC LIST ANALYTES AND REPORTING LIMITS, CONSTITUENTS LISTED IN SUBSECTIONS A AND B OF 20.6.2.3103 NMAC, CENTRAL OIL CONSERVATION DIVISION LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Fluoride	E300	mg/kg	0.3000
Nitrogen, Nitrate (As N)	E300	mg/kg	2.2000
Sulfate	E300	mg/kg	21.5000
*Radium-226	E901.1	pCi/g	1.3950
*Radium-228	E901.1	pCi/g	1.2500
*Radium-226+Radium-228	E901.1	pCi/g	2.6450
Arsenic	SW6010A	mg/kg	2.5000
Barium	SW6010A	mg/kg	1.0000
Cadmium	SW6010A	mg/kg	0.1000
Chromium	SW6010A	mg/kg	0.3000
Copper	SW6010A	mg/kg	0.6000
Iron	SW6010A	mg/kg	500.0000
Lead	SW6010A	mg/kg	0.2500
Manganese	SW6010A	mg/kg	1.0000
Selenium	SW6010A	mg/kg	2.5000
Silver	SW6010A	mg/kg	0.2500
Uranium	SW6010A	mg/kg	5.0000
Zinc	SW6010A	mg/kg	2.5000
Mercury	SW7471	mg/kg	0.0330
Aroclor 1016	SW8082	mg/kg	0.0200
Aroclor 1221	SW8082	mg/kg	0.0200
Aroclor 1232	SW8082	mg/kg	0.0200
Aroclor 1242	SW8082	mg/kg	0.0200
Aroclor 1248	SW8082	mg/kg	0.0200
Aroclor 1254	SW8082	mg/kg	0.0200
Aroclor 1260	SW8082	mg/kg	0.0200
1,1,1-Trichloroethane	SW8260B	mg/kg	0.0480
1,1,2-Trichloroethane	SW8260B	mg/kg	0.0480
1,1-Dichloroethane	SW8260B	mg/kg	0.0970
1,1-Dichloroethene	SW8260B	mg/kg	0.0480
1,2-Dichloroethane	SW8260B	mg/kg	0.0480
Carbon tetrachloride	SW8260B	mg/kg	0.0970
Chloroform	SW8260B	mg/kg	0.0480
Dibromomethane	SW8260B	mg/kg	0.1000
Methylene chloride	SW8260B	mg/kg	0.1500
Tetrachloroethene	SW8260B	mg/kg	0.0480
Trichloroethene	SW8260B	mg/kg	0.0480
Vinyl chloride	SW8260B	mg/kg	0.0480
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4-Dichlorophenol	SW8270C	mg/kg	0.4000
2,4-Dimethylphenol	SW8270C	mg/kg	0.3000
2,4-Dinitrophenol	SW8270C	mg/kg	0.4000
2-Chlorophenol	SW8270C	mg/kg	0.2000
2-Methylphenol	SW8270C	mg/kg	0.1000
2-Nitrophenol	SW8270C	mg/kg	0.1000
3+4-Methylphenol	SW8270C	mg/kg	0.1000
4,6-Dinitro-2-methylphenol	SW8270C	mg/kg	0.5000
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.1000
4-Nitrophenol	SW8270C	mg/kg	0.1000
Pentachlorophenol	SW8270C	mg/kg	0.4000
Phenol	SW8270C	mg/kg	0.2000
1-Methylnaphthalene	SW8260B	mg/kg	0.2000
2-Methylnaphthalene	SW8260B	mg/kg	0.2000
Acenaphthene	SW8270C	mg/kg	0.2000
Acenaphthylene	SW8270C	mg/kg	0.2000
Anthracene	SW8270C	mg/kg	0.2000
Benzo(a)anthracene	SW8270C	mg/kg	0.2000
Benzo(a)pyrene	SW8270C	mg/kg	0.2000
Benzo(b)fluoranthene	SW8270C	mg/kg	0.2000
Benzo(g,h,i)perylene	SW8270C	mg/kg	0.2000
Benzo(k)fluoranthene	SW8270C	mg/kg	0.2000
Chrysene	SW8270C	mg/kg	0.2000
Dibenz(a,h)anthracene	SW8270C	mg/kg	0.2000
Fluoranthene	SW8270C	mg/kg	0.2000
Fluorene	SW8270C	mg/kg	0.2000
Indeno(1,2,3-c,d)pyrene	SW8270C	mg/kg	0.2000
Naphthalene	SW8270C	mg/kg	0.2000
Phenanthrene	SW8270C	mg/kg	0.2000
Pyrene	SW8270C	mg/kg	0.2000
Cyanide	EPA 335.4	mg/kg	0.3000
Diesel Range Organics (DRO)	SW8015	mg/kg	12
Gasoline Range Organics (GRO)	SW8015	mg/kg	1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 27, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1711977

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 13 sample(s) on 11/17/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 11:35:00 AM
Lab ID: 1711977-001 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.10	0.19	D	mg/Kg	1	11/28/2017 11:04:00 AM	35096
Aroclor 1221	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 11:04:00 AM	35096
Aroclor 1232	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 11:04:00 AM	35096
Aroclor 1242	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 11:04:00 AM	35096
Aroclor 1248	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 11:04:00 AM	35096
Aroclor 1254	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 11:04:00 AM	35096
Aroclor 1260	ND	0.090	0.19	D	mg/Kg	1	11/28/2017 11:04:00 AM	35096
Surr: Decachlorobiphenyl	0	0	26.3-128	SD	%Rec	1	11/28/2017 11:04:00 AM	35096
Surr: Tetrachloro-m-xylene	0	0	20.7-151	SD	%Rec	1	11/28/2017 11:04:00 AM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	480	15	95		mg/Kg	10	11/22/2017 11:08:17 AM	35083
Motor Oil Range Organics (MRO)	520	470	470		mg/Kg	10	11/22/2017 11:08:17 AM	35083
Surr: DNOP	0	0	70-130	S	%Rec	10	11/22/2017 11:08:17 AM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.9		mg/Kg	1	11/21/2017 4:34:35 PM	35071
Surr: BFB	117	0	15-316		%Rec	1	11/21/2017 4:34:35 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	10	2.0	6.0		mg/Kg	20	12/1/2017 1:03:01 PM	35263
Chloride	840	3.7	30		mg/Kg	20	12/1/2017 1:03:01 PM	35263
Nitrogen, Nitrate (As N)	5.4	0.096	0.30		mg/Kg	1	12/1/2017 12:50:37 PM	35263
Sulfate	1500	7.1	30		mg/Kg	20	12/1/2017 1:03:01 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	0.36	0.034	0.17		mg/Kg	5	12/4/2017 4:09:24 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.3	12		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Barium	380	0.34	0.48		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Cadmium	ND	0.31	0.48		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Chromium	26	0.46	1.4		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Copper	11	0.59	1.4		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Iron	16000	2400	2400		mg/Kg	1000	12/15/2017 5:46:06 PM	35142
Lead	290	1.7	2.4		mg/Kg	10	11/30/2017 12:19:51 PM	35142
Manganese	360	0.26	0.48		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Selenium	ND	8.8	12		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Silver	ND	0.30	1.2		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Uranium	ND	5.5	24		mg/Kg	5	11/30/2017 11:58:11 AM	35142
Zinc	140	1.7	12		mg/Kg	5	11/30/2017 11:58:11 AM	35142

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 11:35:00 AM
Lab ID: 1711977-001 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Acenaphthylene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Aniline	ND	1.1	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Anthracene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Azobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Benz(a)anthracene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Benzo(a)pyrene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Benzo(b)fluoranthene	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Benzo(g,h,i)perylene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Benzo(k)fluoranthene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Benzoic acid	ND	1.5	5.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Benzyl alcohol	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Bis(2-chloroethoxy)methane	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Bis(2-chloroethyl)ether	ND	1.3	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Bis(2-chloroisopropyl)ether	ND	2.0	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Bis(2-ethylhexyl)phthalate	ND	1.9	5.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
4-Bromophenyl phenyl ether	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Butyl benzyl phthalate	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Carbazole	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
4-Chloro-3-methylphenol	ND	1.8	5.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
4-Chloroaniline	ND	1.5	5.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2-Chloronaphthalene	ND	1.8	2.5	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2-Chlorophenol	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
4-Chlorophenyl phenyl ether	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Chrysene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Di-n-butyl phthalate	ND	1.1	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Di-n-octyl phthalate	ND	1.5	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Dibenz(a,h)anthracene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Dibenzofuran	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
1,2-Dichlorobenzene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
1,3-Dichlorobenzene	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
1,4-Dichlorobenzene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Diethyl phthalate	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Dimethyl phthalate	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2,4-Dichlorophenol	ND	1.6	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2,4-Dimethylphenol	ND	0.89	3.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
4,6-Dinitro-2-methylphenol	ND	1.5	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2,4-Dinitrophenol	ND	1.2	5.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 11:35:00 AM
Lab ID: 1711977-001 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	1.9	5.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2,6-Dinitrotoluene	ND	1.8	5.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Fluoranthene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Fluorene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Hexachlorobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Hexachlorobutadiene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Hexachlorocyclopentadiene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Hexachloroethane	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Indeno(1,2,3-cd)pyrene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Isophorone	ND	1.9	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
1-Methylnaphthalene	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2-Methylnaphthalene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2-Methylphenol	ND	1.5	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
3+4-Methylphenol	ND	1.3	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
N-Nitrosodi-n-propylamine	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
N-Nitrosodiphenylamine	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Naphthalene	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2-Nitroaniline	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
3-Nitroaniline	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
4-Nitroaniline	ND	1.7	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Nitrobenzene	ND	1.7	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2-Nitrophenol	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
4-Nitrophenol	ND	1.5	2.5	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Pentachlorophenol	ND	1.7	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Phenanthrene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Phenol	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Pyrene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Pyridine	ND	1.3	4.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
1,2,4-Trichlorobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2,4,5-Trichlorophenol	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
2,4,6-Trichlorophenol	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:00:43 PM	35082
Surr: 2-Fluorophenol	0	0	23.3-81	SD	%Rec	1	11/21/2017 5:00:43 PM	35082
Surr: Phenol-d5	0	0	19.4-93.6	SD	%Rec	1	11/21/2017 5:00:43 PM	35082
Surr: 2,4,6-Tribromophenol	0	0	31.1-88.7	SD	%Rec	1	11/21/2017 5:00:43 PM	35082
Surr: Nitrobenzene-d5	0		23.7-106	SD	%Rec	1	11/21/2017 5:00:43 PM	35082
Surr: 2-Fluorobiphenyl	0		26.3-107	SD	%Rec	1	11/21/2017 5:00:43 PM	35082
Surr: 4-Terphenyl-d14	0		32.5-80.1	SD	%Rec	1	11/21/2017 5:00:43 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0048	0.025		mg/Kg	1	11/21/2017 2:35:47 PM	35071

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 11:35:00 AM
Lab ID: 1711977-001 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0040	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Ethylbenzene	ND	0.0034	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0075	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2,4-Trimethylbenzene	ND	0.0043	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,3,5-Trimethylbenzene	ND	0.0031	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0051	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0062	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Naphthalene	ND	0.0050	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1-Methylnaphthalene	0.012	0.0035	0.20	J	mg/Kg	1	11/21/2017 2:35:47 PM	35071
2-Methylnaphthalene	ND	0.0040	0.20		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Acetone	ND	0.053	0.74		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Bromobenzene	ND	0.0036	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Bromodichloromethane	ND	0.0064	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Bromoform	ND	0.012	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Bromomethane	0.035	0.0085	0.15	J	mg/Kg	1	11/21/2017 2:35:47 PM	35071
2-Butanone	0.083	0.029	0.49	J	mg/Kg	1	11/21/2017 2:35:47 PM	35071
Carbon disulfide	ND	0.0058	0.49		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Carbon tetrachloride	ND	0.0048	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Chlorobenzene	ND	0.0029	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Chloroethane	ND	0.016	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Chloroform	ND	0.0030	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Chloromethane	ND	0.010	0.15		mg/Kg	1	11/21/2017 2:35:47 PM	35071
2-Chlorotoluene	ND	0.0038	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
4-Chlorotoluene	ND	0.0044	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
cis-1,2-DCE	ND	0.0063	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
cis-1,3-Dichloropropene	ND	0.0037	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0067	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Dibromochloromethane	ND	0.0041	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Dibromomethane	ND	0.0024	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2-Dichlorobenzene	ND	0.0025	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,3-Dichlorobenzene	ND	0.0043	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,4-Dichlorobenzene	ND	0.0054	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Dichlorodifluoromethane	ND	0.020	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,1-Dichloroethane	ND	0.020	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,1-Dichloroethene	ND	0.020	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2-Dichloropropane	ND	0.0030	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,3-Dichloropropane	ND	0.012	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
2,2-Dichloropropane	ND	0.0056	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,1-Dichloropropene	ND	0.0055	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 11:35:00 AM
Lab ID: 1711977-001 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
2-Hexanone	ND	0.0096	0.49		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Isopropylbenzene	ND	0.0033	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
4-Isopropyltoluene	ND	0.0037	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
4-Methyl-2-pentanone	ND	0.010	0.49		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Methylene chloride	ND	0.020	0.15		mg/Kg	1	11/21/2017 2:35:47 PM	35071
n-Butylbenzene	ND	0.0044	0.15		mg/Kg	1	11/21/2017 2:35:47 PM	35071
n-Propylbenzene	ND	0.0030	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
sec-Butylbenzene	ND	0.0051	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Styrene	ND	0.0085	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
tert-Butylbenzene	ND	0.0040	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0055	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.014	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Tetrachloroethene (PCE)	ND	0.0039	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
trans-1,2-DCE	ND	0.020	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
trans-1,3-Dichloropropene	ND	0.0058	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2,3-Trichlorobenzene	ND	0.0045	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2,4-Trichlorobenzene	ND	0.0050	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,1,1-Trichloroethane	ND	0.0064	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,1,2-Trichloroethane	ND	0.0052	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Trichloroethene (TCE)	ND	0.0059	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Trichlorofluoromethane	ND	0.0074	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
1,2,3-Trichloropropane	ND	0.025	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Vinyl chloride	ND	0.0041	0.049		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Xylenes, Total	ND	0.015	0.098		mg/Kg	1	11/21/2017 2:35:47 PM	35071
Surr: Dibromofluoromethane	108		70-130		%Rec	1	11/21/2017 2:35:47 PM	35071
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	11/21/2017 2:35:47 PM	35071
Surr: Toluene-d8	91.2		70-130		%Rec	1	11/21/2017 2:35:47 PM	35071
Surr: 4-Bromofluorobenzene	98.8		70-130		%Rec	1	11/21/2017 2:35:47 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	870	33	200		mg/Kg	10	11/29/2017 11:00:00 AM	35099

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:00:00 PM
Lab ID: 1711977-002 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.011	0.020		mg/Kg	1	11/28/2017 11:37:00 AM	35096
Aroclor 1221	ND	0.020	0.020		mg/Kg	1	11/28/2017 11:37:00 AM	35096
Aroclor 1232	ND	0.020	0.020		mg/Kg	1	11/28/2017 11:37:00 AM	35096
Aroclor 1242	ND	0.020	0.020		mg/Kg	1	11/28/2017 11:37:00 AM	35096
Aroclor 1248	ND	0.020	0.020		mg/Kg	1	11/28/2017 11:37:00 AM	35096
Aroclor 1254	ND	0.020	0.020		mg/Kg	1	11/28/2017 11:37:00 AM	35096
Aroclor 1260	ND	0.0094	0.020		mg/Kg	1	11/28/2017 11:37:00 AM	35096
Surr: Decachlorobiphenyl	80.8	0	26.3-128		%Rec	1	11/28/2017 11:37:00 AM	35096
Surr: Tetrachloro-m-xylene	78.8	0	20.7-151		%Rec	1	11/28/2017 11:37:00 AM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	58	1.5	9.5		mg/Kg	1	11/22/2017 11:52:07 AM	35083
Motor Oil Range Organics (MRO)	56	47	47		mg/Kg	1	11/22/2017 11:52:07 AM	35083
Surr: DNOP	95.4	0	70-130		%Rec	1	11/22/2017 11:52:07 AM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.8		mg/Kg	1	11/21/2017 4:58:01 PM	35071
Surr: BFB	119	0	15-316		%Rec	1	11/21/2017 4:58:01 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.8	0.10	0.30		mg/Kg	1	12/1/2017 1:15:25 PM	35263
Chloride	920	3.6	30		mg/Kg	20	12/1/2017 1:52:39 PM	35263
Nitrogen, Nitrate (As N)	3.3	0.096	0.30		mg/Kg	1	12/1/2017 1:15:25 PM	35263
Sulfate	290	7.1	30		mg/Kg	20	12/1/2017 1:52:39 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	ND	0.0064	0.032		mg/Kg	1	12/4/2017 3:48:28 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **TES**	
Arsenic	ND	4.3	12		mg/Kg	5	12/20/2017 10:49:05 AM	35142
Barium	290	0.34	0.48		mg/Kg	5	12/1/2017 9:21:32 AM	35142
Cadmium	ND	0.30	0.48		mg/Kg	5	11/30/2017 11:59:36 AM	35142
Chromium	18	0.45	1.4		mg/Kg	5	11/30/2017 11:59:36 AM	35142
Copper	3.9	0.58	1.4		mg/Kg	5	11/30/2017 11:59:36 AM	35142
Iron	17000	2400	2400		mg/Kg	1000	12/15/2017 5:55:27 PM	35142
Lead	2.9	0.83	1.2		mg/Kg	5	11/30/2017 11:59:36 AM	35142
Manganese	400	0.26	0.48		mg/Kg	5	12/1/2017 9:21:32 AM	35142
Selenium	ND	8.7	12		mg/Kg	5	12/1/2017 9:21:32 AM	35142
Silver	ND	0.30	1.2		mg/Kg	5	12/1/2017 9:21:32 AM	35142
Uranium	ND	5.5	24		mg/Kg	5	12/1/2017 9:21:32 AM	35142
Zinc	23	1.7	12		mg/Kg	5	12/1/2017 9:21:32 AM	35142

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Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:00:00 PM
Lab ID: 1711977-002 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.33	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Acenaphthylene	ND	0.37	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Aniline	ND	0.23	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Anthracene	ND	0.37	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Azobenzene	ND	0.37	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Benz(a)anthracene	ND	0.35	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Benzo(a)pyrene	ND	0.32	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Benzo(b)fluoranthene	ND	0.39	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Benzo(g,h,i)perylene	ND	0.33	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Benzo(k)fluoranthene	ND	0.31	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Benzoic acid	ND	0.31	1.0	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Benzyl alcohol	ND	0.34	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Bis(2-chloroethoxy)methane	ND	0.37	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Bis(2-chloroethyl)ether	ND	0.26	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Bis(2-chloroisopropyl)ether	ND	0.40	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Bis(2-ethylhexyl)phthalate	ND	0.39	1.0	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
4-Bromophenyl phenyl ether	ND	0.33	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Butyl benzyl phthalate	ND	0.34	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Carbazole	ND	0.32	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
4-Chloro-3-methylphenol	ND	0.37	1.0	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
4-Chloroaniline	ND	0.31	1.0	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2-Chloronaphthalene	ND	0.36	0.51	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2-Chlorophenol	ND	0.29	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
4-Chlorophenyl phenyl ether	ND	0.32	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Chrysene	ND	0.31	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Di-n-butyl phthalate	ND	0.23	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Di-n-octyl phthalate	ND	0.30	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Dibenz(a,h)anthracene	ND	0.33	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Dibenzofuran	ND	0.35	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
1,2-Dichlorobenzene	ND	0.30	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
1,3-Dichlorobenzene	ND	0.28	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
1,4-Dichlorobenzene	ND	0.33	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
3,3´-Dichlorobenzidine	ND	0.30	0.51	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Diethyl phthalate	ND	0.35	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Dimethyl phthalate	ND	0.38	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2,4-Dichlorophenol	ND	0.32	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2,4-Dimethylphenol	ND	0.18	0.61	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
4,6-Dinitro-2-methylphenol	ND	0.31	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2,4-Dinitrophenol	ND	0.24	1.0	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:00:00 PM
Lab ID: 1711977-002 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	0.38	1.0	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2,6-Dinitrotoluene	ND	0.36	1.0	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Fluoranthene	ND	0.34	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Fluorene	ND	0.31	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Hexachlorobenzene	ND	0.37	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Hexachlorobutadiene	ND	0.35	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Hexachlorocyclopentadiene	ND	0.32	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Hexachloroethane	ND	0.29	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Indeno(1,2,3-cd)pyrene	ND	0.33	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Isophorone	ND	0.39	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
1-Methylnaphthalene	ND	0.39	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2-Methylnaphthalene	ND	0.34	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2-Methylphenol	ND	0.30	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
3+4-Methylphenol	ND	0.27	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
N-Nitrosodi-n-propylamine	ND	0.36	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
N-Nitrosodiphenylamine	ND	0.39	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Naphthalene	ND	0.38	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2-Nitroaniline	ND	0.37	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
3-Nitroaniline	ND	0.36	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
4-Nitroaniline	ND	0.34	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Nitrobenzene	ND	0.34	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2-Nitrophenol	ND	0.38	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
4-Nitrophenol	ND	0.31	0.51	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Pentachlorophenol	ND	0.35	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Phenanthrene	ND	0.36	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Phenol	ND	0.28	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Pyrene	ND	0.30	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Pyridine	ND	0.27	0.82	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
1,2,4-Trichlorobenzene	ND	0.37	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2,4,5-Trichlorophenol	ND	0.30	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
2,4,6-Trichlorophenol	ND	0.32	0.41	D	mg/Kg	1	11/21/2017 1:44:45 PM	35082
Surr: 2-Fluorophenol	37.1	0	23.3-81	D	%Rec	1	11/21/2017 1:44:45 PM	35082
Surr: Phenol-d5	40.1	0	19.4-93.6	D	%Rec	1	11/21/2017 1:44:45 PM	35082
Surr: 2,4,6-Tribromophenol	48.0	0	31.1-88.7	D	%Rec	1	11/21/2017 1:44:45 PM	35082
Surr: Nitrobenzene-d5	43.1		23.7-106	D	%Rec	1	11/21/2017 1:44:45 PM	35082
Surr: 2-Fluorobiphenyl	43.0		26.3-107	D	%Rec	1	11/21/2017 1:44:45 PM	35082
Surr: 4-Terphenyl-d14	28.3		32.5-80.1	SD	%Rec	1	11/21/2017 1:44:45 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0047	0.024		mg/Kg	1	11/21/2017 3:05:16 PM	35071

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:00:00 PM
Lab ID: 1711977-002 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0074	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2,4-Trimethylbenzene	ND	0.0042	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,3,5-Trimethylbenzene	ND	0.0030	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0050	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0061	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Naphthalene	ND	0.0049	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1-Methylnaphthalene	ND	0.0034	0.19		mg/Kg	1	11/21/2017 3:05:16 PM	35071
2-Methylnaphthalene	ND	0.0039	0.19		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Acetone	ND	0.052	0.72		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Bromobenzene	ND	0.0035	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Bromodichloromethane	ND	0.0063	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Bromoform	ND	0.012	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Bromomethane	0.033	0.0083	0.14	J	mg/Kg	1	11/21/2017 3:05:16 PM	35071
2-Butanone	0.079	0.028	0.48	J	mg/Kg	1	11/21/2017 3:05:16 PM	35071
Carbon disulfide	ND	0.0057	0.48		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Carbon tetrachloride	ND	0.0047	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Chlorobenzene	ND	0.0029	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Chloroethane	ND	0.016	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Chloroform	ND	0.0029	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Chloromethane	ND	0.010	0.14		mg/Kg	1	11/21/2017 3:05:16 PM	35071
2-Chlorotoluene	ND	0.0037	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
4-Chlorotoluene	ND	0.0043	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
cis-1,2-DCE	ND	0.0061	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
cis-1,3-Dichloropropene	ND	0.0036	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0066	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Dibromochloromethane	ND	0.0040	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Dibromomethane	ND	0.0023	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2-Dichlorobenzene	ND	0.0024	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,4-Dichlorobenzene	ND	0.0053	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Dichlorodifluoromethane	ND	0.020	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,1-Dichloroethane	ND	0.019	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2-Dichloropropane	ND	0.0030	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,3-Dichloropropane	ND	0.012	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
2,2-Dichloropropane	ND	0.0055	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,1-Dichloropropene	ND	0.0054	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:00:00 PM
Lab ID: 1711977-002 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
2-Hexanone	ND	0.0094	0.48		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Isopropylbenzene	ND	0.0032	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
4-Isopropyltoluene	ND	0.0037	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
4-Methyl-2-pentanone	ND	0.010	0.48		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Methylene chloride	ND	0.019	0.14		mg/Kg	1	11/21/2017 3:05:16 PM	35071
n-Butylbenzene	ND	0.0043	0.14		mg/Kg	1	11/21/2017 3:05:16 PM	35071
n-Propylbenzene	ND	0.0030	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
sec-Butylbenzene	ND	0.0050	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Styrene	ND	0.0084	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
tert-Butylbenzene	ND	0.0039	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0054	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.014	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Tetrachloroethene (PCE)	ND	0.0038	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
trans-1,2-DCE	ND	0.019	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
trans-1,3-Dichloropropene	ND	0.0057	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2,3-Trichlorobenzene	ND	0.0044	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,1,1-Trichloroethane	ND	0.0062	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,1,2-Trichloroethane	ND	0.0051	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Trichloroethene (TCE)	ND	0.0058	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Trichlorofluoromethane	ND	0.0072	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
1,2,3-Trichloropropane	ND	0.024	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Vinyl chloride	ND	0.0040	0.048		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Xylenes, Total	ND	0.015	0.096		mg/Kg	1	11/21/2017 3:05:16 PM	35071
Surr: Dibromofluoromethane	105		70-130		%Rec	1	11/21/2017 3:05:16 PM	35071
Surr: 1,2-Dichloroethane-d4	95.9		70-130		%Rec	1	11/21/2017 3:05:16 PM	35071
Surr: Toluene-d8	91.4		70-130		%Rec	1	11/21/2017 3:05:16 PM	35071
Surr: 4-Bromofluorobenzene	100		70-130		%Rec	1	11/21/2017 3:05:16 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	35	3.3	20		mg/Kg	1	11/29/2017 11:00:00 AM	35099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:40:00 PM
Lab ID: 1711977-003
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.11	0.20	D	mg/Kg	1	11/28/2017 1:16:00 PM	35096
Aroclor 1221	ND	0.20	0.20	D	mg/Kg	1	11/28/2017 1:16:00 PM	35096
Aroclor 1232	ND	0.20	0.20	D	mg/Kg	1	11/28/2017 1:16:00 PM	35096
Aroclor 1242	ND	0.20	0.20	D	mg/Kg	1	11/28/2017 1:16:00 PM	35096
Aroclor 1248	ND	0.20	0.20	D	mg/Kg	1	11/28/2017 1:16:00 PM	35096
Aroclor 1254	ND	0.20	0.20	D	mg/Kg	1	11/28/2017 1:16:00 PM	35096
Aroclor 1260	ND	0.094	0.20	D	mg/Kg	1	11/28/2017 1:16:00 PM	35096
Surr: Decachlorobiphenyl	0	0	26.3-128	SD	%Rec	1	11/28/2017 1:16:00 PM	35096
Surr: Tetrachloro-m-xylene	0	0	20.7-151	SD	%Rec	1	11/28/2017 1:16:00 PM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	2800	16	100		mg/Kg	10	11/22/2017 12:36:19 PM	35083
Motor Oil Range Organics (MRO)	1800	500	500		mg/Kg	10	11/22/2017 12:36:19 PM	35083
Surr: DNOP	0	0	70-130	S	%Rec	10	11/22/2017 12:36:19 PM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.0	4.6		mg/Kg	1	11/21/2017 5:21:33 PM	35071
Surr: BFB	117	0	15-316		%Rec	1	11/21/2017 5:21:33 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	12	0.10	0.30		mg/Kg	1	12/1/2017 2:05:04 PM	35263
Chloride	850	3.6	30		mg/Kg	20	12/1/2017 2:17:28 PM	35263
Nitrogen, Nitrate (As N)	3.9	0.096	0.30		mg/Kg	1	12/1/2017 2:05:04 PM	35263
Sulfate	2800	7.1	30		mg/Kg	20	12/1/2017 2:17:28 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	0.22	0.0069	0.034		mg/Kg	1	12/4/2017 3:53:36 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Barium	340	0.35	0.49		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Cadmium	ND	0.31	0.49		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Chromium	18	0.47	1.5		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Copper	7.6	0.60	1.5		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Iron	14000	2500	2500		mg/Kg	1000	12/15/2017 6:02:30 PM	35142
Lead	100	0.86	1.2		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Manganese	410	0.26	0.49		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Selenium	ND	9.0	12		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Silver	ND	0.31	1.2		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Uranium	ND	5.7	25		mg/Kg	5	11/30/2017 12:03:45 PM	35142
Zinc	68	1.7	12		mg/Kg	5	11/30/2017 12:03:45 PM	35142

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:40:00 PM
Lab ID: 1711977-003 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Acenaphthylene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Aniline	ND	1.1	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Anthracene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Azobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Benz(a)anthracene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Benzo(a)pyrene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Benzo(b)fluoranthene	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Benzo(g,h,i)perylene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Benzo(k)fluoranthene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Benzoic acid	ND	1.5	4.9	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Benzyl alcohol	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Bis(2-chloroethoxy)methane	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Bis(2-chloroethyl)ether	ND	1.3	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Bis(2-chloroisopropyl)ether	ND	2.0	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Bis(2-ethylhexyl)phthalate	ND	1.9	4.9	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
4-Bromophenyl phenyl ether	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Butyl benzyl phthalate	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Carbazole	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
4-Chloro-3-methylphenol	ND	1.8	4.9	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
4-Chloroaniline	ND	1.5	4.9	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2-Chloronaphthalene	ND	1.8	2.5	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2-Chlorophenol	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
4-Chlorophenyl phenyl ether	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Chrysene	1.5	1.5	2.0	JD	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Di-n-butyl phthalate	ND	1.1	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Di-n-octyl phthalate	ND	1.5	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Dibenz(a,h)anthracene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Dibenzofuran	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
1,2-Dichlorobenzene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
1,3-Dichlorobenzene	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
1,4-Dichlorobenzene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
3,3´-Dichlorobenzidine	ND	1.4	2.5	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Diethyl phthalate	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Dimethyl phthalate	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2,4-Dichlorophenol	ND	1.6	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2,4-Dimethylphenol	ND	0.87	3.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
4,6-Dinitro-2-methylphenol	ND	1.5	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2,4-Dinitrophenol	ND	1.2	4.9	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:40:00 PM
Lab ID: 1711977-003 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	1.8	4.9	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2,6-Dinitrotoluene	ND	1.7	4.9	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Fluoranthene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Fluorene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Hexachlorobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Hexachlorobutadiene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Hexachlorocyclopentadiene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Hexachloroethane	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Indeno(1,2,3-cd)pyrene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Isophorone	ND	1.9	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
1-Methylnaphthalene	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2-Methylnaphthalene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2-Methylphenol	ND	1.5	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
3+4-Methylphenol	ND	1.3	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
N-Nitrosodi-n-propylamine	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
N-Nitrosodiphenylamine	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Naphthalene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2-Nitroaniline	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
3-Nitroaniline	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
4-Nitroaniline	ND	1.7	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Nitrobenzene	ND	1.6	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2-Nitrophenol	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
4-Nitrophenol	ND	1.5	2.5	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Pentachlorophenol	ND	1.7	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Phenanthrene	2.9	1.7	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Phenol	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Pyrene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Pyridine	ND	1.3	4.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
1,2,4-Trichlorobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2,4,5-Trichlorophenol	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
2,4,6-Trichlorophenol	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:28:41 PM	35082
Surr: 2-Fluorophenol	0	0	23.3-81	SD	%Rec	1	11/21/2017 5:28:41 PM	35082
Surr: Phenol-d5	0	0	19.4-93.6	SD	%Rec	1	11/21/2017 5:28:41 PM	35082
Surr: 2,4,6-Tribromophenol	0	0	31.1-88.7	SD	%Rec	1	11/21/2017 5:28:41 PM	35082
Surr: Nitrobenzene-d5	0		23.7-106	SD	%Rec	1	11/21/2017 5:28:41 PM	35082
Surr: 2-Fluorobiphenyl	0		26.3-107	SD	%Rec	1	11/21/2017 5:28:41 PM	35082
Surr: 4-Terphenyl-d14	0		32.5-80.1	SD	%Rec	1	11/21/2017 5:28:41 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0045	0.023		mg/Kg	1	11/21/2017 4:33:04 PM	35071

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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:40:00 PM
Lab ID: 1711977-003 **Matrix:** SOIL **Received Date:** 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0037	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Ethylbenzene	ND	0.0032	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0071	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2,4-Trimethylbenzene	0.010	0.0040	0.046	J	mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,3,5-Trimethylbenzene	0.0051	0.0029	0.046	J	mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0048	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0059	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Naphthalene	0.035	0.0047	0.092	J	mg/Kg	1	11/21/2017 4:33:04 PM	35071
1-Methylnaphthalene	0.60	0.0033	0.18		mg/Kg	1	11/21/2017 4:33:04 PM	35071
2-Methylnaphthalene	0.35	0.0037	0.18		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Acetone	ND	0.050	0.69		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Bromobenzene	ND	0.0034	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Bromodichloromethane	ND	0.0060	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Bromoform	ND	0.011	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Bromomethane	ND	0.0079	0.14		mg/Kg	1	11/21/2017 4:33:04 PM	35071
2-Butanone	0.090	0.027	0.46	J	mg/Kg	1	11/21/2017 4:33:04 PM	35071
Carbon disulfide	ND	0.0055	0.46		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Carbon tetrachloride	ND	0.0046	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Chlorobenzene	ND	0.0027	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Chloroethane	ND	0.015	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Chloroform	ND	0.0028	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Chloromethane	ND	0.0097	0.14		mg/Kg	1	11/21/2017 4:33:04 PM	35071
2-Chlorotoluene	ND	0.0036	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
4-Chlorotoluene	ND	0.0042	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
cis-1,2-DCE	ND	0.0059	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
cis-1,3-Dichloropropene	ND	0.0035	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0063	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Dibromochloromethane	ND	0.0039	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Dibromomethane	ND	0.0022	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2-Dichlorobenzene	ND	0.0023	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,3-Dichlorobenzene	ND	0.0041	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,4-Dichlorobenzene	ND	0.0051	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Dichlorodifluoromethane	ND	0.019	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,1-Dichloroethane	ND	0.018	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,1-Dichloroethene	ND	0.018	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2-Dichloropropane	ND	0.0028	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,3-Dichloropropane	ND	0.011	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
2,2-Dichloropropane	ND	0.0052	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,1-Dichloropropene	ND	0.0052	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:40:00 PM
Lab ID: 1711977-003 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.011	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071
2-Hexanone	ND	0.0090	0.46		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Isopropylbenzene	ND	0.0031	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
4-Isopropyltoluene	ND	0.0035	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
4-Methyl-2-pentanone	ND	0.0098	0.46		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Methylene chloride	ND	0.018	0.14		mg/Kg	1	11/21/2017 4:33:04 PM	35071
n-Butylbenzene	ND	0.0041	0.14		mg/Kg	1	11/21/2017 4:33:04 PM	35071
n-Propylbenzene	ND	0.0029	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
sec-Butylbenzene	ND	0.0048	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Styrene	ND	0.0080	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
tert-Butylbenzene	ND	0.0037	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0052	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.013	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Tetrachloroethene (PCE)	ND	0.0037	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
trans-1,2-DCE	ND	0.018	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
trans-1,3-Dichloropropene	ND	0.0055	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2,3-Trichlorobenzene	ND	0.0042	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2,4-Trichlorobenzene	ND	0.0047	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,1,1-Trichloroethane	ND	0.0060	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,1,2-Trichloroethane	ND	0.0049	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Trichloroethene (TCE)	ND	0.0056	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Trichlorofluoromethane	ND	0.0069	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
1,2,3-Trichloropropane	ND	0.023	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Vinyl chloride	ND	0.0038	0.046		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Xylenes, Total	ND	0.014	0.092		mg/Kg	1	11/21/2017 4:33:04 PM	35071
Surr: Dibromofluoromethane	104		70-130		%Rec	1	11/21/2017 4:33:04 PM	35071
Surr: 1,2-Dichloroethane-d4	99.1		70-130		%Rec	1	11/21/2017 4:33:04 PM	35071
Surr: Toluene-d8	89.9		70-130		%Rec	1	11/21/2017 4:33:04 PM	35071
Surr: 4-Bromofluorobenzene	102		70-130		%Rec	1	11/21/2017 4:33:04 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	1800	31	190		mg/Kg	10	11/29/2017 11:00:00 AM	35099

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:50:00 PM
Lab ID: 1711977-004 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.011	0.020		mg/Kg	1	11/28/2017 1:49:00 PM	35096
Aroclor 1221	ND	0.020	0.020		mg/Kg	1	11/28/2017 1:49:00 PM	35096
Aroclor 1232	ND	0.020	0.020		mg/Kg	1	11/28/2017 1:49:00 PM	35096
Aroclor 1242	ND	0.020	0.020		mg/Kg	1	11/28/2017 1:49:00 PM	35096
Aroclor 1248	ND	0.020	0.020		mg/Kg	1	11/28/2017 1:49:00 PM	35096
Aroclor 1254	ND	0.020	0.020		mg/Kg	1	11/28/2017 1:49:00 PM	35096
Aroclor 1260	ND	0.0092	0.020		mg/Kg	1	11/28/2017 1:49:00 PM	35096
Surr: Decachlorobiphenyl	50.8	0	26.3-128		%Rec	1	11/28/2017 1:49:00 PM	35096
Surr: Tetrachloro-m-xylene	47.6	0	20.7-151		%Rec	1	11/28/2017 1:49:00 PM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	8.5	1.5	9.4	J	mg/Kg	1	11/22/2017 1:20:41 PM	35083
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	11/22/2017 1:20:41 PM	35083
Surr: DNOP	93.8	0	70-130		%Rec	1	11/22/2017 1:20:41 PM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.9		mg/Kg	1	11/21/2017 5:45:16 PM	35071
Surr: BFB	122	0	15-316		%Rec	1	11/21/2017 5:45:16 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.3	0.10	0.30		mg/Kg	1	12/1/2017 2:29:53 PM	35263
Chloride	900	3.7	30		mg/Kg	20	12/1/2017 2:42:18 PM	35263
Nitrogen, Nitrate (As N)	3.4	0.096	0.30		mg/Kg	1	12/1/2017 2:29:53 PM	35263
Sulfate	460	7.2	30		mg/Kg	20	12/1/2017 2:42:18 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	ND	0.0063	0.031		mg/Kg	1	12/4/2017 3:55:19 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.3	12		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Barium	290	0.34	0.48		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Cadmium	ND	0.31	0.48		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Chromium	17	0.46	1.5		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Copper	3.9	0.59	1.5		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Iron	16000	2400	2400		mg/Kg	1000	12/15/2017 6:04:06 PM	35142
Lead	3.6	0.84	1.2		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Manganese	380	0.26	0.48		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Selenium	ND	8.8	12		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Silver	ND	0.30	1.2		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Uranium	ND	5.6	24		mg/Kg	5	11/30/2017 12:11:40 PM	35142
Zinc	23	1.7	12		mg/Kg	5	11/30/2017 12:11:40 PM	35142

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:50:00 PM
Lab ID: 1711977-004 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Aniline	ND	0.11	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Anthracene	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Azobenzene	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Benzoic acid	ND	0.15	0.50		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Bis(2-ethylhexyl)phthalate	0.22	0.19	0.50	J	mg/Kg	1	11/21/2017 3:08:55 PM	35082
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Butyl benzyl phthalate	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Carbazole	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
4-Chloro-3-methylphenol	ND	0.18	0.50		mg/Kg	1	11/21/2017 3:08:55 PM	35082
4-Chloroaniline	ND	0.15	0.50		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
4-Chlorophenyl phenyl ether	ND	0.15	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Chrysene	ND	0.15	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Di-n-butyl phthalate	ND	0.11	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Di-n-octyl phthalate	ND	0.15	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Diethyl phthalate	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Dimethyl phthalate	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2,4-Dichlorophenol	ND	0.16	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2,4-Dimethylphenol	ND	0.088	0.30		mg/Kg	1	11/21/2017 3:08:55 PM	35082
4,6-Dinitro-2-methylphenol	ND	0.15	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2,4-Dinitrophenol	ND	0.12	0.50		mg/Kg	1	11/21/2017 3:08:55 PM	35082

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:50:00 PM
Lab ID: 1711977-004 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	0.18	0.50		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2,6-Dinitrotoluene	ND	0.17	0.50		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Fluoranthene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Fluorene	ND	0.15	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Isophorone	ND	0.19	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2-Methylphenol	ND	0.15	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
N-Nitrosodi-n-propylamine	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Naphthalene	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
4-Nitroaniline	ND	0.17	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Nitrobenzene	ND	0.16	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Pentachlorophenol	ND	0.17	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Phenanthrene	ND	0.17	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Phenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Pyrene	ND	0.15	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Pyridine	ND	0.13	0.40		mg/Kg	1	11/21/2017 3:08:55 PM	35082
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	11/21/2017 3:08:55 PM	35082
Surr: 2-Fluorophenol	83.4	0	23.3-81	S	%Rec	1	11/21/2017 3:08:55 PM	35082
Surr: Phenol-d5	88.2	0	19.4-93.6		%Rec	1	11/21/2017 3:08:55 PM	35082
Surr: 2,4,6-Tribromophenol	87.9	0	31.1-88.7		%Rec	1	11/21/2017 3:08:55 PM	35082
Surr: Nitrobenzene-d5	77.7		23.7-106		%Rec	1	11/21/2017 3:08:55 PM	35082
Surr: 2-Fluorobiphenyl	71.9		26.3-107		%Rec	1	11/21/2017 3:08:55 PM	35082
Surr: 4-Terphenyl-d14	76.0		32.5-80.1		%Rec	1	11/21/2017 3:08:55 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0048	0.024		mg/Kg	1	11/21/2017 5:02:30 PM	35071

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:50:00 PM
Lab ID: 1711977-004 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Ethylbenzene	ND	0.0034	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0075	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2,4-Trimethylbenzene	ND	0.0042	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,3,5-Trimethylbenzene	ND	0.0031	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0051	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0062	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Naphthalene	ND	0.0049	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1-Methylnaphthalene	0.020	0.0035	0.19	J	mg/Kg	1	11/21/2017 5:02:30 PM	35071
2-Methylnaphthalene	0.012	0.0040	0.19	J	mg/Kg	1	11/21/2017 5:02:30 PM	35071
Acetone	ND	0.053	0.73		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Bromobenzene	ND	0.0036	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Bromodichloromethane	ND	0.0063	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Bromoform	ND	0.012	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Bromomethane	0.025	0.0084	0.15	J	mg/Kg	1	11/21/2017 5:02:30 PM	35071
2-Butanone	0.075	0.029	0.49	J	mg/Kg	1	11/21/2017 5:02:30 PM	35071
Carbon disulfide	ND	0.0058	0.49		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Carbon tetrachloride	ND	0.0048	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Chlorobenzene	ND	0.0029	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Chloroethane	ND	0.016	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Chloroform	ND	0.0029	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Chloromethane	ND	0.010	0.15		mg/Kg	1	11/21/2017 5:02:30 PM	35071
2-Chlorotoluene	ND	0.0038	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
4-Chlorotoluene	ND	0.0044	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
cis-1,2-DCE	ND	0.0062	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
cis-1,3-Dichloropropene	ND	0.0037	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0067	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Dibromochloromethane	ND	0.0041	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Dibromomethane	ND	0.0024	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2-Dichlorobenzene	ND	0.0025	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,3-Dichlorobenzene	ND	0.0043	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,4-Dichlorobenzene	ND	0.0054	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Dichlorodifluoromethane	ND	0.020	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,1-Dichloroethane	ND	0.019	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,1-Dichloroethene	ND	0.019	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2-Dichloropropane	ND	0.0030	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,3-Dichloropropane	ND	0.012	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
2,2-Dichloropropane	ND	0.0055	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,1-Dichloropropene	ND	0.0055	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ02
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 12:50:00 PM
Lab ID: 1711977-004 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
2-Hexanone	ND	0.0095	0.49		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Isopropylbenzene	ND	0.0033	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
4-Isopropyltoluene	ND	0.0037	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
4-Methyl-2-pentanone	ND	0.010	0.49		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Methylene chloride	ND	0.019	0.15		mg/Kg	1	11/21/2017 5:02:30 PM	35071
n-Butylbenzene	ND	0.0044	0.15		mg/Kg	1	11/21/2017 5:02:30 PM	35071
n-Propylbenzene	ND	0.0030	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
sec-Butylbenzene	ND	0.0050	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Styrene	ND	0.0085	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
tert-Butylbenzene	ND	0.0039	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0055	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.014	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Tetrachloroethene (PCE)	ND	0.0039	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
trans-1,2-DCE	ND	0.019	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
trans-1,3-Dichloropropene	ND	0.0058	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2,3-Trichlorobenzene	ND	0.0045	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2,4-Trichlorobenzene	ND	0.0049	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,1,1-Trichloroethane	ND	0.0063	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,1,2-Trichloroethane	ND	0.0052	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Trichloroethene (TCE)	ND	0.0059	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Trichlorofluoromethane	ND	0.0073	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
1,2,3-Trichloropropane	ND	0.024	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Vinyl chloride	ND	0.0041	0.049		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Xylenes, Total	ND	0.015	0.097		mg/Kg	1	11/21/2017 5:02:30 PM	35071
Surr: Dibromofluoromethane	105		70-130		%Rec	1	11/21/2017 5:02:30 PM	35071
Surr: 1,2-Dichloroethane-d4	98.4		70-130		%Rec	1	11/21/2017 5:02:30 PM	35071
Surr: Toluene-d8	90.6		70-130		%Rec	1	11/21/2017 5:02:30 PM	35071
Surr: 4-Bromofluorobenzene	104		70-130		%Rec	1	11/21/2017 5:02:30 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	23	3.1	19		mg/Kg	1	11/29/2017 11:00:00 AM	35099

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:20:00 PM
Lab ID: 1711977-005 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.011	0.020		mg/Kg	1	11/28/2017 2:22:00 PM	35096
Aroclor 1221	ND	0.020	0.020		mg/Kg	1	11/28/2017 2:22:00 PM	35096
Aroclor 1232	ND	0.020	0.020		mg/Kg	1	11/28/2017 2:22:00 PM	35096
Aroclor 1242	ND	0.020	0.020		mg/Kg	1	11/28/2017 2:22:00 PM	35096
Aroclor 1248	ND	0.020	0.020		mg/Kg	1	11/28/2017 2:22:00 PM	35096
Aroclor 1254	ND	0.020	0.020		mg/Kg	1	11/28/2017 2:22:00 PM	35096
Aroclor 1260	ND	0.0094	0.020		mg/Kg	1	11/28/2017 2:22:00 PM	35096
Surr: Decachlorobiphenyl	85.2	0	26.3-128		%Rec	1	11/28/2017 2:22:00 PM	35096
Surr: Tetrachloro-m-xylene	82.4	0	20.7-151		%Rec	1	11/28/2017 2:22:00 PM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	7.0	1.5	9.5	J	mg/Kg	1	11/22/2017 2:04:57 PM	35083
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	11/22/2017 2:04:57 PM	35083
Surr: DNOP	93.5	0	70-130		%Rec	1	11/22/2017 2:04:57 PM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.0	4.6		mg/Kg	1	11/21/2017 6:08:59 PM	35071
Surr: BFB	122	0	15-316		%Rec	1	11/21/2017 6:08:59 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	5.5	0.51	1.5		mg/Kg	5	12/1/2017 3:19:31 PM	35263
Chloride	140	0.91	7.5		mg/Kg	5	12/1/2017 3:19:31 PM	35263
Nitrogen, Nitrate (As N)	2.1	0.48	1.5		mg/Kg	5	12/1/2017 3:19:31 PM	35263
Sulfate	360	1.8	7.5		mg/Kg	5	12/1/2017 3:19:31 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	0.071	0.0068	0.034		mg/Kg	1	12/4/2017 3:57:02 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	6.2	4.4	12	J	mg/Kg	5	11/30/2017 12:13:02 PM	35142
Barium	330	0.35	0.50		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Cadmium	ND	0.31	0.50		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Chromium	19	0.47	1.5		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Copper	7.0	0.60	1.5		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Iron	18000	2500	2500		mg/Kg	1000	12/15/2017 6:05:40 PM	35142
Lead	4.2	0.86	1.2		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Manganese	420	0.27	0.50		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Selenium	ND	9.0	12		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Silver	ND	0.31	1.2		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Uranium	ND	5.7	25		mg/Kg	5	11/30/2017 12:13:02 PM	35142
Zinc	35	1.7	12		mg/Kg	5	11/30/2017 12:13:02 PM	35142

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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:20:00 PM
Lab ID: 1711977-005 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.33	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Acenaphthylene	ND	0.37	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Aniline	ND	0.23	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Anthracene	ND	0.36	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Azobenzene	ND	0.37	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Benz(a)anthracene	ND	0.34	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Benzo(a)pyrene	ND	0.32	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Benzo(b)fluoranthene	ND	0.38	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Benzo(g,h,i)perylene	ND	0.33	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Benzo(k)fluoranthene	ND	0.30	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Benzoic acid	ND	0.30	1.0	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Benzyl alcohol	ND	0.33	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Bis(2-chloroethoxy)methane	ND	0.36	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Bis(2-chloroethyl)ether	ND	0.26	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Bis(2-chloroisopropyl)ether	ND	0.40	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Bis(2-ethylhexyl)phthalate	0.43	0.39	1.0	JD	mg/Kg	1	11/21/2017 3:36:54 PM	35082
4-Bromophenyl phenyl ether	ND	0.33	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Butyl benzyl phthalate	ND	0.33	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Carbazole	ND	0.32	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
4-Chloro-3-methylphenol	ND	0.36	1.0	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
4-Chloroaniline	ND	0.31	1.0	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2-Chloronaphthalene	ND	0.36	0.50	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2-Chlorophenol	ND	0.29	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
4-Chlorophenyl phenyl ether	ND	0.31	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Chrysene	ND	0.30	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Di-n-butyl phthalate	0.24	0.23	0.80	JD	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Di-n-octyl phthalate	ND	0.30	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Dibenz(a,h)anthracene	ND	0.32	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Dibenzofuran	ND	0.34	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
1,2-Dichlorobenzene	ND	0.30	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
1,3-Dichlorobenzene	ND	0.28	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
1,4-Dichlorobenzene	ND	0.32	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
3,3´-Dichlorobenzidine	ND	0.29	0.50	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Diethyl phthalate	ND	0.34	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Dimethyl phthalate	ND	0.37	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2,4-Dichlorophenol	ND	0.31	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2,4-Dimethylphenol	ND	0.18	0.60	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
4,6-Dinitro-2-methylphenol	ND	0.30	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2,4-Dinitrophenol	ND	0.24	1.0	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:20:00 PM
Lab ID: 1711977-005 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	0.37	1.0	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2,6-Dinitrotoluene	ND	0.35	1.0	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Fluoranthene	ND	0.33	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Fluorene	ND	0.31	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Hexachlorobenzene	ND	0.37	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Hexachlorobutadiene	ND	0.34	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Hexachlorocyclopentadiene	ND	0.32	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Hexachloroethane	ND	0.29	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Indeno(1,2,3-cd)pyrene	ND	0.33	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Isophorone	ND	0.38	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
1-Methylnaphthalene	ND	0.39	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2-Methylnaphthalene	ND	0.34	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2-Methylphenol	ND	0.30	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
3+4-Methylphenol	ND	0.27	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
N-Nitrosodi-n-propylamine	ND	0.35	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
N-Nitrosodiphenylamine	ND	0.38	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Naphthalene	ND	0.37	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2-Nitroaniline	ND	0.37	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
3-Nitroaniline	ND	0.36	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
4-Nitroaniline	ND	0.34	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Nitrobenzene	ND	0.33	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2-Nitrophenol	ND	0.38	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
4-Nitrophenol	ND	0.31	0.50	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Pentachlorophenol	ND	0.34	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Phenanthrene	ND	0.35	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Phenol	ND	0.28	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Pyrene	ND	0.30	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Pyridine	ND	0.27	0.80	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
1,2,4-Trichlorobenzene	ND	0.37	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2,4,5-Trichlorophenol	ND	0.30	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
2,4,6-Trichlorophenol	ND	0.31	0.40	D	mg/Kg	1	11/21/2017 3:36:54 PM	35082
Surr: 2-Fluorophenol	88.8	0	23.3-81	SD	%Rec	1	11/21/2017 3:36:54 PM	35082
Surr: Phenol-d5	93.6	0	19.4-93.6	D	%Rec	1	11/21/2017 3:36:54 PM	35082
Surr: 2,4,6-Tribromophenol	110	0	31.1-88.7	SD	%Rec	1	11/21/2017 3:36:54 PM	35082
Surr: Nitrobenzene-d5	99.7		23.7-106	D	%Rec	1	11/21/2017 3:36:54 PM	35082
Surr: 2-Fluorobiphenyl	97.0		26.3-107	D	%Rec	1	11/21/2017 3:36:54 PM	35082
Surr: 4-Terphenyl-d14	70.9		32.5-80.1	D	%Rec	1	11/21/2017 3:36:54 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0046	0.023		mg/Kg	1	11/21/2017 5:31:28 PM	35071

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:20:00 PM
Lab ID: 1711977-005 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0038	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Ethylbenzene	ND	0.0033	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0071	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2,4-Trimethylbenzene	ND	0.0040	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,3,5-Trimethylbenzene	ND	0.0029	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0048	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0059	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Naphthalene	ND	0.0047	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1-Methylnaphthalene	ND	0.0033	0.19		mg/Kg	1	11/21/2017 5:31:28 PM	35071
2-Methylnaphthalene	ND	0.0038	0.19		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Acetone	ND	0.050	0.70		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Bromobenzene	ND	0.0034	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Bromodichloromethane	ND	0.0060	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Bromoform	ND	0.011	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Bromomethane	0.030	0.0080	0.14	J	mg/Kg	1	11/21/2017 5:31:28 PM	35071
2-Butanone	0.080	0.028	0.46	J	mg/Kg	1	11/21/2017 5:31:28 PM	35071
Carbon disulfide	ND	0.0055	0.46		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Carbon tetrachloride	ND	0.0046	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Chlorobenzene	ND	0.0028	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Chloroethane	ND	0.015	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Chloroform	ND	0.0028	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Chloromethane	ND	0.0097	0.14		mg/Kg	1	11/21/2017 5:31:28 PM	35071
2-Chlorotoluene	ND	0.0036	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
4-Chlorotoluene	ND	0.0042	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
cis-1,2-DCE	ND	0.0059	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
cis-1,3-Dichloropropene	ND	0.0035	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0064	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Dibromochloromethane	ND	0.0039	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Dibromomethane	ND	0.0023	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2-Dichlorobenzene	ND	0.0023	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,3-Dichlorobenzene	ND	0.0041	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,4-Dichlorobenzene	ND	0.0052	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Dichlorodifluoromethane	ND	0.019	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,1-Dichloroethane	ND	0.019	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,1-Dichloroethene	ND	0.019	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2-Dichloropropane	ND	0.0029	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,3-Dichloropropane	ND	0.011	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
2,2-Dichloropropane	ND	0.0053	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,1-Dichloropropene	ND	0.0052	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:20:00 PM
Lab ID: 1711977-005 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
2-Hexanone	ND	0.0091	0.46		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Isopropylbenzene	ND	0.0031	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
4-Isopropyltoluene	ND	0.0035	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
4-Methyl-2-pentanone	ND	0.0099	0.46		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Methylene chloride	ND	0.019	0.14		mg/Kg	1	11/21/2017 5:31:28 PM	35071
n-Butylbenzene	ND	0.0042	0.14		mg/Kg	1	11/21/2017 5:31:28 PM	35071
n-Propylbenzene	ND	0.0029	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
sec-Butylbenzene	ND	0.0048	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Styrene	ND	0.0081	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
tert-Butylbenzene	ND	0.0038	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0052	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.013	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Tetrachloroethene (PCE)	ND	0.0037	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
trans-1,2-DCE	ND	0.019	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
trans-1,3-Dichloropropene	ND	0.0055	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2,3-Trichlorobenzene	ND	0.0042	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2,4-Trichlorobenzene	ND	0.0047	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,1,1-Trichloroethane	ND	0.0060	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,1,2-Trichloroethane	ND	0.0049	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Trichloroethene (TCE)	ND	0.0056	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Trichlorofluoromethane	ND	0.0070	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
1,2,3-Trichloropropane	ND	0.023	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Vinyl chloride	ND	0.0039	0.046		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Xylenes, Total	ND	0.014	0.093		mg/Kg	1	11/21/2017 5:31:28 PM	35071
Surr: Dibromofluoromethane	101		70-130		%Rec	1	11/21/2017 5:31:28 PM	35071
Surr: 1,2-Dichloroethane-d4	97.8		70-130		%Rec	1	11/21/2017 5:31:28 PM	35071
Surr: Toluene-d8	90.9		70-130		%Rec	1	11/21/2017 5:31:28 PM	35071
Surr: 4-Bromofluorobenzene	102		70-130		%Rec	1	11/21/2017 5:31:28 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	24	3.2	19		mg/Kg	1	11/29/2017 11:00:00 AM	35099

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:30:00 PM
Lab ID: 1711977-006
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	11/28/2017 2:55:00 PM	35096
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	11/28/2017 2:55:00 PM	35096
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	11/28/2017 2:55:00 PM	35096
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	11/28/2017 2:55:00 PM	35096
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	11/28/2017 2:55:00 PM	35096
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	11/28/2017 2:55:00 PM	35096
Aroclor 1260	ND	0.0090	0.019		mg/Kg	1	11/28/2017 2:55:00 PM	35096
Surr: Decachlorobiphenyl	83.6	0	26.3-128		%Rec	1	11/28/2017 2:55:00 PM	35096
Surr: Tetrachloro-m-xylene	83.6	0	20.7-151		%Rec	1	11/28/2017 2:55:00 PM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.6	9.7		mg/Kg	1	11/22/2017 2:49:20 PM	35083
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	11/22/2017 2:49:20 PM	35083
Surr: DNOP	95.0	0	70-130		%Rec	1	11/22/2017 2:49:20 PM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.0	4.6		mg/Kg	1	11/21/2017 8:07:13 PM	35071
Surr: BFB	123	0	15-316		%Rec	1	11/21/2017 8:07:13 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	3.1	0.10	0.30		mg/Kg	1	12/1/2017 3:44:20 PM	35263
Chloride	350	3.7	30		mg/Kg	20	12/1/2017 3:56:44 PM	35263
Nitrogen, Nitrate (As N)	9.4	0.096	0.30		mg/Kg	1	12/1/2017 3:44:20 PM	35263
Sulfate	520	7.1	30		mg/Kg	20	12/1/2017 3:56:44 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	ND	0.0070	0.035		mg/Kg	1	12/4/2017 3:58:47 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	4.8	4.3	12	J	mg/Kg	5	11/30/2017 12:14:24 PM	35142
Barium	260	0.35	0.49		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Cadmium	ND	0.31	0.49		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Chromium	19	0.46	1.5		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Copper	4.5	0.59	1.5		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Iron	17000	2400	2400		mg/Kg	1000	12/15/2017 4:48:13 PM	35142
Lead	2.4	0.85	1.2		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Manganese	390	0.26	0.49		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Selenium	ND	8.9	12		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Silver	ND	0.31	1.2		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Uranium	ND	5.6	24		mg/Kg	5	11/30/2017 12:14:24 PM	35142
Zinc	26	1.7	12		mg/Kg	5	11/30/2017 12:14:24 PM	35142

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:30:00 PM
Lab ID: 1711977-006
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Acenaphthylene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Aniline	ND	0.11	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Anthracene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Azobenzene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Benzo(g,h,i)perylene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Benzoic acid	ND	0.15	0.51		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Bis(2-ethylhexyl)phthalate	0.30	0.20	0.51	J	mg/Kg	1	11/21/2017 4:04:53 PM	35082
4-Bromophenyl phenyl ether	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Butyl benzyl phthalate	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Carbazole	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
4-Chloro-3-methylphenol	ND	0.18	0.51		mg/Kg	1	11/21/2017 4:04:53 PM	35082
4-Chloroaniline	ND	0.16	0.51		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2-Chloronaphthalene	ND	0.18	0.26		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2-Chlorophenol	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
4-Chlorophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Chrysene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Di-n-butyl phthalate	0.12	0.12	0.41	J	mg/Kg	1	11/21/2017 4:04:53 PM	35082
Di-n-octyl phthalate	ND	0.15	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Dibenzofuran	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
1,4-Dichlorobenzene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
3,3´-Dichlorobenzidine	ND	0.15	0.26		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Diethyl phthalate	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Dimethyl phthalate	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2,4-Dichlorophenol	ND	0.16	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2,4-Dimethylphenol	ND	0.091	0.31		mg/Kg	1	11/21/2017 4:04:53 PM	35082
4,6-Dinitro-2-methylphenol	ND	0.15	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2,4-Dinitrophenol	ND	0.12	0.51		mg/Kg	1	11/21/2017 4:04:53 PM	35082

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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:30:00 PM
Lab ID: 1711977-006
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	0.19	0.51		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2,6-Dinitrotoluene	ND	0.18	0.51		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Fluoranthene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Fluorene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Hexachlorobenzene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Hexachloroethane	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Indeno(1,2,3-cd)pyrene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Isophorone	ND	0.20	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
1-Methylnaphthalene	ND	0.20	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2-Methylphenol	ND	0.15	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
3+4-Methylphenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
N-Nitrosodi-n-propylamine	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
N-Nitrosodiphenylamine	ND	0.20	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Naphthalene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2-Nitroaniline	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
4-Nitroaniline	ND	0.17	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Nitrobenzene	ND	0.17	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
4-Nitrophenol	ND	0.16	0.26		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Pentachlorophenol	ND	0.17	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Phenanthrene	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Phenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Pyrene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Pyridine	ND	0.14	0.41		mg/Kg	1	11/21/2017 4:04:53 PM	35082
1,2,4-Trichlorobenzene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:04:53 PM	35082
Surr: 2-Fluorophenol	60.7	0	23.3-81		%Rec	1	11/21/2017 4:04:53 PM	35082
Surr: Phenol-d5	72.2	0	19.4-93.6		%Rec	1	11/21/2017 4:04:53 PM	35082
Surr: 2,4,6-Tribromophenol	90.4	0	31.1-88.7	S	%Rec	1	11/21/2017 4:04:53 PM	35082
Surr: Nitrobenzene-d5	66.1		23.7-106		%Rec	1	11/21/2017 4:04:53 PM	35082
Surr: 2-Fluorobiphenyl	68.7		26.3-107		%Rec	1	11/21/2017 4:04:53 PM	35082
Surr: 4-Terphenyl-d14	67.0		32.5-80.1		%Rec	1	11/21/2017 4:04:53 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0046	0.023		mg/Kg	1	11/21/2017 6:00:48 PM	35071

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:30:00 PM
Lab ID: 1711977-006 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0037	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Ethylbenzene	ND	0.0032	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0071	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2,4-Trimethylbenzene	ND	0.0040	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,3,5-Trimethylbenzene	ND	0.0029	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0048	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0059	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Naphthalene	ND	0.0047	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1-Methylnaphthalene	ND	0.0033	0.19		mg/Kg	1	11/21/2017 6:00:48 PM	35071
2-Methylnaphthalene	ND	0.0038	0.19		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Acetone	ND	0.050	0.69		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Bromobenzene	ND	0.0034	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Bromodichloromethane	ND	0.0060	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Bromoform	ND	0.011	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Bromomethane	0.023	0.0080	0.14	J	mg/Kg	1	11/21/2017 6:00:48 PM	35071
2-Butanone	0.081	0.027	0.46	J	mg/Kg	1	11/21/2017 6:00:48 PM	35071
Carbon disulfide	ND	0.0055	0.46		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Carbon tetrachloride	ND	0.0046	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Chlorobenzene	ND	0.0028	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Chloroethane	ND	0.015	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Chloroform	ND	0.0028	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Chloromethane	ND	0.0097	0.14		mg/Kg	1	11/21/2017 6:00:48 PM	35071
2-Chlorotoluene	ND	0.0036	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
4-Chlorotoluene	ND	0.0042	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
cis-1,2-DCE	ND	0.0059	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
cis-1,3-Dichloropropene	ND	0.0035	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0064	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Dibromochloromethane	ND	0.0039	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Dibromomethane	ND	0.0023	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2-Dichlorobenzene	ND	0.0023	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,3-Dichlorobenzene	ND	0.0041	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,4-Dichlorobenzene	ND	0.0051	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Dichlorodifluoromethane	ND	0.019	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,1-Dichloroethane	ND	0.019	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,1-Dichloroethene	ND	0.019	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2-Dichloropropane	ND	0.0029	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,3-Dichloropropane	ND	0.011	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
2,2-Dichloropropane	ND	0.0053	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,1-Dichloropropene	ND	0.0052	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ03
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 1:30:00 PM
Lab ID: 1711977-006
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
2-Hexanone	ND	0.0090	0.46		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Isopropylbenzene	ND	0.0031	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
4-Isopropyltoluene	ND	0.0035	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
4-Methyl-2-pentanone	ND	0.0099	0.46		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Methylene chloride	ND	0.019	0.14		mg/Kg	1	11/21/2017 6:00:48 PM	35071
n-Butylbenzene	ND	0.0041	0.14		mg/Kg	1	11/21/2017 6:00:48 PM	35071
n-Propylbenzene	ND	0.0029	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
sec-Butylbenzene	ND	0.0048	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Styrene	ND	0.0080	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
tert-Butylbenzene	ND	0.0037	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0052	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.013	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Tetrachloroethene (PCE)	ND	0.0037	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
trans-1,2-DCE	ND	0.019	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
trans-1,3-Dichloropropene	ND	0.0055	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2,3-Trichlorobenzene	ND	0.0042	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2,4-Trichlorobenzene	ND	0.0047	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,1,1-Trichloroethane	ND	0.0060	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,1,2-Trichloroethane	ND	0.0049	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Trichloroethene (TCE)	ND	0.0056	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Trichlorofluoromethane	ND	0.0069	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
1,2,3-Trichloropropane	ND	0.023	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Vinyl chloride	ND	0.0039	0.046		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Xylenes, Total	ND	0.014	0.093		mg/Kg	1	11/21/2017 6:00:48 PM	35071
Surr: Dibromofluoromethane	100		70-130		%Rec	1	11/21/2017 6:00:48 PM	35071
Surr: 1,2-Dichloroethane-d4	91.8		70-130		%Rec	1	11/21/2017 6:00:48 PM	35071
Surr: Toluene-d8	91.6		70-130		%Rec	1	11/21/2017 6:00:48 PM	35071
Surr: 4-Bromofluorobenzene	103		70-130		%Rec	1	11/21/2017 6:00:48 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	15	3.3	20	J	mg/Kg	1	11/29/2017 11:00:00 AM	35099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1711977-007
Matrix: AQUEOUS
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **DJF**	
Benzene	ND	0.062	1.0		µg/L	1	11/22/2017 4:53:04 PM	B47319
Toluene	ND	0.064	1.0		µg/L	1	11/22/2017 4:53:04 PM	B47319
Ethylbenzene	ND	0.093	1.0		µg/L	1	11/22/2017 4:53:04 PM	B47319
Xylenes, Total	ND	0.32	1.5		µg/L	1	11/22/2017 4:53:04 PM	B47319
Surr: 1,2-Dichloroethane-d4	97.9	0	70-130		%Rec	1	11/22/2017 4:53:04 PM	B47319
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	11/22/2017 4:53:04 PM	B47319
Surr: Dibromofluoromethane	98.6	0	70-130		%Rec	1	11/22/2017 4:53:04 PM	B47319
Surr: Toluene-d8	95.5	0	70-130		%Rec	1	11/22/2017 4:53:04 PM	B47319

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:00:00 PM
Lab ID: 1711977-008 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.010	0.019		mg/Kg	1	11/28/2017 4:01:00 PM	35096
Aroclor 1221	ND	0.019	0.019		mg/Kg	1	11/28/2017 4:01:00 PM	35096
Aroclor 1232	ND	0.019	0.019		mg/Kg	1	11/28/2017 4:01:00 PM	35096
Aroclor 1242	ND	0.019	0.019		mg/Kg	1	11/28/2017 4:01:00 PM	35096
Aroclor 1248	ND	0.019	0.019		mg/Kg	1	11/28/2017 4:01:00 PM	35096
Aroclor 1254	ND	0.019	0.019		mg/Kg	1	11/28/2017 4:01:00 PM	35096
Aroclor 1260	ND	0.0090	0.019		mg/Kg	1	11/28/2017 4:01:00 PM	35096
Surr: Decachlorobiphenyl	83.2	0	26.3-128		%Rec	1	11/28/2017 4:01:00 PM	35096
Surr: Tetrachloro-m-xylene	80.0	0	20.7-151		%Rec	1	11/28/2017 4:01:00 PM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	2.6	1.5	9.3	J	mg/Kg	1	11/22/2017 3:33:41 PM	35083
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	11/22/2017 3:33:41 PM	35083
Surr: DNOP	94.4	0	70-130		%Rec	1	11/22/2017 3:33:41 PM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	5.0		mg/Kg	1	11/21/2017 8:30:48 PM	35071
Surr: BFB	122	0	15-316		%Rec	1	11/21/2017 8:30:48 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	3.3	0.10	0.30		mg/Kg	1	12/1/2017 4:09:08 PM	35263
Chloride	74	3.6	30		mg/Kg	20	12/1/2017 4:21:33 PM	35263
Nitrogen, Nitrate (As N)	0.43	0.096	0.30		mg/Kg	1	12/1/2017 4:09:08 PM	35263
Sulfate	600	7.1	30		mg/Kg	20	12/1/2017 4:21:33 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	0.037	0.0064	0.032		mg/Kg	1	12/4/2017 4:04:07 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Barium	280	0.35	0.49		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Cadmium	ND	0.31	0.49		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Chromium	15	0.47	1.5		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Copper	12	0.60	1.5		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Iron	13000	2500	2500		mg/Kg	1000	12/15/2017 4:49:45 PM	35142
Lead	5.0	0.86	1.2		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Manganese	460	0.26	0.49		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Selenium	ND	9.0	12		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Silver	ND	0.31	1.2		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Uranium	ND	5.7	25		mg/Kg	5	11/30/2017 12:15:46 PM	35142
Zinc	61	1.7	12		mg/Kg	5	11/30/2017 12:15:46 PM	35142

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:00:00 PM
Lab ID: 1711977-008 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Acenaphthylene	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Aniline	ND	0.11	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Anthracene	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Azobenzene	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Benzoic acid	ND	0.15	0.50		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Bis(2-ethylhexyl)phthalate	0.20	0.19	0.50	J	mg/Kg	1	11/21/2017 4:32:50 PM	35082
4-Bromophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Butyl benzyl phthalate	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Carbazole	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
4-Chloro-3-methylphenol	ND	0.18	0.50		mg/Kg	1	11/21/2017 4:32:50 PM	35082
4-Chloroaniline	ND	0.15	0.50		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2-Chlorophenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
4-Chlorophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Chrysene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Di-n-butyl phthalate	ND	0.11	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Di-n-octyl phthalate	ND	0.15	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Diethyl phthalate	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Dimethyl phthalate	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2,4-Dichlorophenol	ND	0.16	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2,4-Dimethylphenol	ND	0.089	0.30		mg/Kg	1	11/21/2017 4:32:50 PM	35082
4,6-Dinitro-2-methylphenol	ND	0.15	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2,4-Dinitrophenol	ND	0.12	0.50		mg/Kg	1	11/21/2017 4:32:50 PM	35082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:00:00 PM
Lab ID: 1711977-008
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	0.19	0.50		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2,6-Dinitrotoluene	ND	0.18	0.50		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Fluoranthene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Fluorene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Hexachlorobenzene	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Hexachloroethane	ND	0.14	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Indeno(1,2,3-cd)pyrene	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Isophorone	ND	0.19	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
1-Methylnaphthalene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2-Methylphenol	ND	0.15	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
3+4-Methylphenol	ND	0.13	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
N-Nitrosodi-n-propylamine	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Naphthalene	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2-Nitroaniline	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
4-Nitroaniline	ND	0.17	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Nitrobenzene	ND	0.17	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
4-Nitrophenol	ND	0.15	0.25		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Pentachlorophenol	ND	0.17	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Phenanthrene	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Phenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Pyrene	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Pyridine	ND	0.13	0.40		mg/Kg	1	11/21/2017 4:32:50 PM	35082
1,2,4-Trichlorobenzene	ND	0.18	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	11/21/2017 4:32:50 PM	35082
Surr: 2-Fluorophenol	64.3	0	23.3-81		%Rec	1	11/21/2017 4:32:50 PM	35082
Surr: Phenol-d5	69.6	0	19.4-93.6		%Rec	1	11/21/2017 4:32:50 PM	35082
Surr: 2,4,6-Tribromophenol	78.0	0	31.1-88.7		%Rec	1	11/21/2017 4:32:50 PM	35082
Surr: Nitrobenzene-d5	73.2		23.7-106		%Rec	1	11/21/2017 4:32:50 PM	35082
Surr: 2-Fluorobiphenyl	71.3		26.3-107		%Rec	1	11/21/2017 4:32:50 PM	35082
Surr: 4-Terphenyl-d14	84.6		32.5-80.1	S	%Rec	1	11/21/2017 4:32:50 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0049	0.025		mg/Kg	1	11/21/2017 6:30:14 PM	35071

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:00:00 PM
Lab ID: 1711977-008 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0040	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Ethylbenzene	ND	0.0035	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0076	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2,4-Trimethylbenzene	ND	0.0043	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,3,5-Trimethylbenzene	ND	0.0032	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0052	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0063	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Naphthalene	ND	0.0050	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1-Methylnaphthalene	ND	0.0035	0.20		mg/Kg	1	11/21/2017 6:30:14 PM	35071
2-Methylnaphthalene	ND	0.0040	0.20		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Acetone	ND	0.054	0.75		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Bromobenzene	ND	0.0037	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Bromodichloromethane	ND	0.0065	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Bromoform	ND	0.012	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Bromomethane	0.025	0.0086	0.15	J	mg/Kg	1	11/21/2017 6:30:14 PM	35071
2-Butanone	0.090	0.030	0.50	J	mg/Kg	1	11/21/2017 6:30:14 PM	35071
Carbon disulfide	ND	0.0059	0.50		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Carbon tetrachloride	ND	0.0049	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Chlorobenzene	ND	0.0030	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Chloroethane	ND	0.016	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Chloroform	ND	0.0030	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Chloromethane	ND	0.010	0.15		mg/Kg	1	11/21/2017 6:30:14 PM	35071
2-Chlorotoluene	ND	0.0039	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
4-Chlorotoluene	ND	0.0045	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
cis-1,2-DCE	ND	0.0064	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
cis-1,3-Dichloropropene	ND	0.0038	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0069	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Dibromochloromethane	ND	0.0042	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Dibromomethane	ND	0.0024	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2-Dichlorobenzene	ND	0.0025	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,3-Dichlorobenzene	ND	0.0044	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,4-Dichlorobenzene	ND	0.0055	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Dichlorodifluoromethane	ND	0.021	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,1-Dichloroethane	ND	0.020	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2-Dichloropropane	ND	0.0031	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,3-Dichloropropane	ND	0.012	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
2,2-Dichloropropane	ND	0.0057	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,1-Dichloropropene	ND	0.0056	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF TZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:00:00 PM
Lab ID: 1711977-008 **Matrix:** SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
2-Hexanone	ND	0.0097	0.50		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Isopropylbenzene	ND	0.0033	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
4-Isopropyltoluene	ND	0.0038	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
4-Methyl-2-pentanone	ND	0.011	0.50		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Methylene chloride	ND	0.020	0.15		mg/Kg	1	11/21/2017 6:30:14 PM	35071
n-Butylbenzene	ND	0.0045	0.15		mg/Kg	1	11/21/2017 6:30:14 PM	35071
n-Propylbenzene	ND	0.0031	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
sec-Butylbenzene	ND	0.0051	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Styrene	ND	0.0087	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
tert-Butylbenzene	ND	0.0040	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0056	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.014	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
trans-1,2-DCE	ND	0.020	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
trans-1,3-Dichloropropene	ND	0.0059	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2,3-Trichlorobenzene	ND	0.0046	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2,4-Trichlorobenzene	ND	0.0050	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,1,1-Trichloroethane	ND	0.0065	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,1,2-Trichloroethane	ND	0.0053	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Trichloroethene (TCE)	ND	0.0060	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Trichlorofluoromethane	ND	0.0075	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
1,2,3-Trichloropropane	ND	0.025	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Vinyl chloride	ND	0.0042	0.050		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Xylenes, Total	ND	0.016	0.10		mg/Kg	1	11/21/2017 6:30:14 PM	35071
Surr: Dibromofluoromethane	103		70-130		%Rec	1	11/21/2017 6:30:14 PM	35071
Surr: 1,2-Dichloroethane-d4	97.4		70-130		%Rec	1	11/21/2017 6:30:14 PM	35071
Surr: Toluene-d8	93.4		70-130		%Rec	1	11/21/2017 6:30:14 PM	35071
Surr: 4-Bromofluorobenzene	99.4		70-130		%Rec	1	11/21/2017 6:30:14 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	16	3.2	19	J	mg/Kg	1	11/29/2017 11:00:00 AM	35099

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:10:00 PM
Lab ID: 1711977-009
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.011	0.020		mg/Kg	1	11/28/2017 4:34:00 PM	35096
Aroclor 1221	ND	0.020	0.020		mg/Kg	1	11/28/2017 4:34:00 PM	35096
Aroclor 1232	ND	0.020	0.020		mg/Kg	1	11/28/2017 4:34:00 PM	35096
Aroclor 1242	ND	0.020	0.020		mg/Kg	1	11/28/2017 4:34:00 PM	35096
Aroclor 1248	ND	0.020	0.020		mg/Kg	1	11/28/2017 4:34:00 PM	35096
Aroclor 1254	ND	0.020	0.020		mg/Kg	1	11/28/2017 4:34:00 PM	35096
Aroclor 1260	ND	0.0092	0.020		mg/Kg	1	11/28/2017 4:34:00 PM	35096
Surr: Decachlorobiphenyl	106	0	26.3-128		%Rec	1	11/28/2017 4:34:00 PM	35096
Surr: Tetrachloro-m-xylene	99.2	0	20.7-151		%Rec	1	11/28/2017 4:34:00 PM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.6	9.7		mg/Kg	1	11/22/2017 4:40:04 PM	35083
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	11/22/2017 4:40:04 PM	35083
Surr: DNOP	95.3	0	70-130		%Rec	1	11/22/2017 4:40:04 PM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.8		mg/Kg	1	11/21/2017 8:54:28 PM	35071
Surr: BFB	122	0	15-316		%Rec	1	11/21/2017 8:54:28 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	3.4	0.51	1.5		mg/Kg	5	12/1/2017 4:33:57 PM	35263
Chloride	130	0.91	7.5		mg/Kg	5	12/1/2017 4:33:57 PM	35263
Nitrogen, Nitrate (As N)	0.48	0.48	1.5	J	mg/Kg	5	12/1/2017 4:33:57 PM	35263
Sulfate	700	1.8	7.5		mg/Kg	5	12/1/2017 4:33:57 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	ND	0.0063	0.031		mg/Kg	1	12/4/2017 4:05:53 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	ND	4.4	12		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Barium	310	0.35	0.49		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Cadmium	ND	0.31	0.49		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Chromium	18	0.47	1.5		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Copper	4.2	0.60	1.5		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Iron	17000	2500	2500		mg/Kg	1000	12/15/2017 4:51:18 PM	35142
Lead	2.2	0.86	1.2		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Manganese	410	0.26	0.49		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Selenium	ND	9.0	12		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Silver	ND	0.31	1.2		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Uranium	ND	5.7	25		mg/Kg	5	11/30/2017 12:17:07 PM	35142
Zinc	23	1.7	12		mg/Kg	5	11/30/2017 12:17:07 PM	35142

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:10:00 PM
Lab ID: 1711977-009
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Acenaphthylene	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Aniline	ND	0.11	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Anthracene	ND	0.18	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Azobenzene	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Benz(a)anthracene	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Benzo(a)pyrene	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Benzo(b)fluoranthene	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Benzo(g,h,i)perylene	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Benzo(k)fluoranthene	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Benzoic acid	ND	0.15	0.51		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Benzyl alcohol	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Bis(2-chloroethoxy)methane	ND	0.18	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Bis(2-chloroethyl)ether	ND	0.13	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Bis(2-chloroisopropyl)ether	ND	0.20	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Bis(2-ethylhexyl)phthalate	0.32	0.20	0.51	J	mg/Kg	1	11/21/2017 1:16:46 PM	35082
4-Bromophenyl phenyl ether	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Butyl benzyl phthalate	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Carbazole	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
4-Chloro-3-methylphenol	ND	0.18	0.51		mg/Kg	1	11/21/2017 1:16:46 PM	35082
4-Chloroaniline	ND	0.16	0.51		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2-Chloronaphthalene	ND	0.18	0.25		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2-Chlorophenol	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
4-Chlorophenyl phenyl ether	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Chrysene	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Di-n-butyl phthalate	0.14	0.11	0.41	J	mg/Kg	1	11/21/2017 1:16:46 PM	35082
Di-n-octyl phthalate	ND	0.15	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Dibenz(a,h)anthracene	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Dibenzofuran	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
1,2-Dichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
1,3-Dichlorobenzene	ND	0.14	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
1,4-Dichlorobenzene	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Diethyl phthalate	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Dimethyl phthalate	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2,4-Dichlorophenol	ND	0.16	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2,4-Dimethylphenol	ND	0.090	0.31		mg/Kg	1	11/21/2017 1:16:46 PM	35082
4,6-Dinitro-2-methylphenol	ND	0.15	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2,4-Dinitrophenol	ND	0.12	0.51		mg/Kg	1	11/21/2017 1:16:46 PM	35082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:10:00 PM
Lab ID: 1711977-009
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	0.19	0.51		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2,6-Dinitrotoluene	ND	0.18	0.51		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Fluoranthene	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Fluorene	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Hexachlorobenzene	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Hexachlorobutadiene	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Hexachlorocyclopentadiene	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Hexachloroethane	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Indeno(1,2,3-cd)pyrene	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Isophorone	ND	0.19	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
1-Methylnaphthalene	ND	0.20	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2-Methylnaphthalene	ND	0.17	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2-Methylphenol	ND	0.15	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
3+4-Methylphenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
N-Nitrosodi-n-propylamine	ND	0.18	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
N-Nitrosodiphenylamine	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Naphthalene	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2-Nitroaniline	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
3-Nitroaniline	ND	0.18	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
4-Nitroaniline	ND	0.17	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Nitrobenzene	ND	0.17	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2-Nitrophenol	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
4-Nitrophenol	ND	0.16	0.25		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Pentachlorophenol	ND	0.17	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Phenanthrene	ND	0.18	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Phenol	ND	0.14	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Pyrene	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Pyridine	ND	0.13	0.41		mg/Kg	1	11/21/2017 1:16:46 PM	35082
1,2,4-Trichlorobenzene	ND	0.19	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2,4,5-Trichlorophenol	ND	0.15	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
2,4,6-Trichlorophenol	ND	0.16	0.20		mg/Kg	1	11/21/2017 1:16:46 PM	35082
Surr: 2-Fluorophenol	71.0	0	23.3-81		%Rec	1	11/21/2017 1:16:46 PM	35082
Surr: Phenol-d5	77.7	0	19.4-93.6		%Rec	1	11/21/2017 1:16:46 PM	35082
Surr: 2,4,6-Tribromophenol	82.3	0	31.1-88.7		%Rec	1	11/21/2017 1:16:46 PM	35082
Surr: Nitrobenzene-d5	71.1		23.7-106		%Rec	1	11/21/2017 1:16:46 PM	35082
Surr: 2-Fluorobiphenyl	75.3		26.3-107		%Rec	1	11/21/2017 1:16:46 PM	35082
Surr: 4-Terphenyl-d14	77.9		32.5-80.1		%Rec	1	11/21/2017 1:16:46 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0047	0.024		mg/Kg	1	11/21/2017 6:59:36 PM	35071

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:10:00 PM
Lab ID: 1711977-009
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0039	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Ethylbenzene	ND	0.0034	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0074	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2,4-Trimethylbenzene	ND	0.0042	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,3,5-Trimethylbenzene	ND	0.0030	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0050	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0061	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Naphthalene	ND	0.0049	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1-Methylnaphthalene	ND	0.0034	0.19		mg/Kg	1	11/21/2017 6:59:36 PM	35071
2-Methylnaphthalene	ND	0.0039	0.19		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Acetone	ND	0.052	0.72		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Bromobenzene	ND	0.0035	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Bromodichloromethane	ND	0.0063	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Bromoform	ND	0.012	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Bromomethane	0.021	0.0083	0.14	J	mg/Kg	1	11/21/2017 6:59:36 PM	35071
2-Butanone	0.077	0.029	0.48	J	mg/Kg	1	11/21/2017 6:59:36 PM	35071
Carbon disulfide	ND	0.0057	0.48		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Carbon tetrachloride	ND	0.0048	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Chlorobenzene	ND	0.0029	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Chloroethane	ND	0.016	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Chloroform	ND	0.0029	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Chloromethane	ND	0.010	0.14		mg/Kg	1	11/21/2017 6:59:36 PM	35071
2-Chlorotoluene	ND	0.0037	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
4-Chlorotoluene	ND	0.0044	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
cis-1,2-DCE	ND	0.0061	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
cis-1,3-Dichloropropene	ND	0.0037	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0066	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Dibromochloromethane	ND	0.0040	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Dibromomethane	ND	0.0024	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2-Dichlorobenzene	ND	0.0024	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,3-Dichlorobenzene	ND	0.0042	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,4-Dichlorobenzene	ND	0.0053	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Dichlorodifluoromethane	ND	0.020	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,1-Dichloroethane	ND	0.019	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,1-Dichloroethene	ND	0.019	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2-Dichloropropane	ND	0.0030	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,3-Dichloropropane	ND	0.012	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
2,2-Dichloropropane	ND	0.0055	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,1-Dichloropropene	ND	0.0054	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF VZ04
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:10:00 PM
Lab ID: 1711977-009
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
2-Hexanone	ND	0.0094	0.48		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Isopropylbenzene	ND	0.0032	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
4-Isopropyltoluene	ND	0.0037	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
4-Methyl-2-pentanone	ND	0.010	0.48		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Methylene chloride	ND	0.019	0.14		mg/Kg	1	11/21/2017 6:59:36 PM	35071
n-Butylbenzene	ND	0.0043	0.14		mg/Kg	1	11/21/2017 6:59:36 PM	35071
n-Propylbenzene	ND	0.0030	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
sec-Butylbenzene	ND	0.0050	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Styrene	ND	0.0084	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
tert-Butylbenzene	ND	0.0039	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0054	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.014	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Tetrachloroethene (PCE)	ND	0.0038	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
trans-1,2-DCE	ND	0.019	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
trans-1,3-Dichloropropene	ND	0.0057	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2,3-Trichlorobenzene	ND	0.0044	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2,4-Trichlorobenzene	ND	0.0049	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,1,1-Trichloroethane	ND	0.0062	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,1,2-Trichloroethane	ND	0.0051	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Trichloroethene (TCE)	ND	0.0058	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Trichlorofluoromethane	ND	0.0072	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
1,2,3-Trichloropropane	ND	0.024	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Vinyl chloride	ND	0.0040	0.048		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Xylenes, Total	ND	0.015	0.096		mg/Kg	1	11/21/2017 6:59:36 PM	35071
Surr: Dibromofluoromethane	99.2		70-130		%Rec	1	11/21/2017 6:59:36 PM	35071
Surr: 1,2-Dichloroethane-d4	93.6		70-130		%Rec	1	11/21/2017 6:59:36 PM	35071
Surr: Toluene-d8	91.4		70-130		%Rec	1	11/21/2017 6:59:36 PM	35071
Surr: 4-Bromofluorobenzene	101		70-130		%Rec	1	11/21/2017 6:59:36 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	3.4	3.1	19	J	mg/Kg	1	11/29/2017 11:00:00 AM	35099

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017
Lab ID: 1711977-010
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8082A: PCB'S							Analyst: **SCC**	
Aroclor 1016	ND	0.10	0.19	D	mg/Kg	1	11/28/2017 5:07:00 PM	35096
Aroclor 1221	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 5:07:00 PM	35096
Aroclor 1232	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 5:07:00 PM	35096
Aroclor 1242	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 5:07:00 PM	35096
Aroclor 1248	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 5:07:00 PM	35096
Aroclor 1254	ND	0.19	0.19	D	mg/Kg	1	11/28/2017 5:07:00 PM	35096
Aroclor 1260	ND	0.090	0.19	D	mg/Kg	1	11/28/2017 5:07:00 PM	35096
Surr: Decachlorobiphenyl	0	0	26.3-128	SD	%Rec	1	11/28/2017 5:07:00 PM	35096
Surr: Tetrachloro-m-xylene	0	0	20.7-151	SD	%Rec	1	11/28/2017 5:07:00 PM	35096
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	880	15	91		mg/Kg	10	11/27/2017 12:34:28 PM	35083
Motor Oil Range Organics (MRO)	900	460	460		mg/Kg	10	11/27/2017 12:34:28 PM	35083
Surr: DNOP	0	0	70-130	S	%Rec	10	11/27/2017 12:34:28 PM	35083
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	4.9		mg/Kg	1	11/21/2017 9:18:08 PM	35071
Surr: BFB	119	0	15-316		%Rec	1	11/21/2017 9:18:08 PM	35071
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	12	0.10	0.30		mg/Kg	1	12/1/2017 4:58:47 PM	35263
Chloride	1000	3.7	30		mg/Kg	20	12/1/2017 5:11:12 PM	35263
Nitrogen, Nitrate (As N)	7.8	0.096	0.30		mg/Kg	1	12/1/2017 4:58:47 PM	35263
Sulfate	2700	7.1	30		mg/Kg	20	12/1/2017 5:11:12 PM	35263
EPA METHOD 7471: MERCURY							Analyst: **MED**	
Mercury	0.081	0.0067	0.033		mg/Kg	1	12/4/2017 4:07:38 PM	35296
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Arsenic	6.6	4.4	12	J	mg/Kg	5	11/30/2017 12:18:29 PM	35142
Barium	350	0.35	0.50		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Cadmium	ND	0.32	0.50		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Chromium	22	0.47	1.5		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Copper	9.9	0.61	1.5		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Iron	15000	2500	2500		mg/Kg	1000	12/15/2017 4:52:53 PM	35142
Lead	220	0.87	1.2		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Manganese	360	0.27	0.50		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Selenium	ND	9.1	12		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Silver	ND	0.31	1.2		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Uranium	ND	5.7	25		mg/Kg	5	11/30/2017 12:18:29 PM	35142
Zinc	120	1.7	12		mg/Kg	5	11/30/2017 12:18:29 PM	35142

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017
Lab ID: 1711977-010
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Acenaphthylene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Aniline	ND	1.1	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Anthracene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Azobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Benz(a)anthracene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Benzo(a)pyrene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Benzo(b)fluoranthene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Benzo(g,h,i)perylene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Benzo(k)fluoranthene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Benzoic acid	ND	1.5	4.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Benzyl alcohol	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Bis(2-chloroethoxy)methane	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Bis(2-chloroethyl)ether	ND	1.2	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Bis(2-chloroisopropyl)ether	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Bis(2-ethylhexyl)phthalate	ND	1.9	4.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
4-Bromophenyl phenyl ether	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Butyl benzyl phthalate	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Carbazole	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
4-Chloro-3-methylphenol	ND	1.8	4.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
4-Chloroaniline	ND	1.5	4.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2-Chloronaphthalene	ND	1.7	2.4	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2-Chlorophenol	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
4-Chlorophenyl phenyl ether	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Chrysene	1.7	1.5	2.0	JD	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Di-n-butyl phthalate	ND	1.1	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Di-n-octyl phthalate	ND	1.5	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Dibenz(a,h)anthracene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Dibenzofuran	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
1,2-Dichlorobenzene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
1,3-Dichlorobenzene	ND	1.3	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
1,4-Dichlorobenzene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Diethyl phthalate	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Dimethyl phthalate	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2,4-Dichlorophenol	ND	1.5	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2,4-Dimethylphenol	ND	0.86	2.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
4,6-Dinitro-2-methylphenol	ND	1.5	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2,4-Dinitrophenol	ND	1.2	4.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017
Lab ID: 1711977-010
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
2,4-Dinitrotoluene	ND	1.8	4.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2,6-Dinitrotoluene	ND	1.7	4.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Fluoranthene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Fluorene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Hexachlorobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Hexachlorobutadiene	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Hexachlorocyclopentadiene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Hexachloroethane	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Indeno(1,2,3-cd)pyrene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Isophorone	ND	1.9	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
1-Methylnaphthalene	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2-Methylnaphthalene	ND	1.6	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2-Methylphenol	ND	1.4	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
3+4-Methylphenol	ND	1.3	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
N-Nitrosodi-n-propylamine	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
N-Nitrosodiphenylamine	ND	1.9	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Naphthalene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2-Nitroaniline	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
3-Nitroaniline	ND	1.7	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
4-Nitroaniline	ND	1.6	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Nitrobenzene	ND	1.6	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2-Nitrophenol	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
4-Nitrophenol	ND	1.5	2.4	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Pentachlorophenol	ND	1.7	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Phenanthrene	5.1	1.7	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Phenol	ND	1.3	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Pyrene	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Pyridine	ND	1.3	3.9	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
1,2,4-Trichlorobenzene	ND	1.8	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2,4,5-Trichlorophenol	ND	1.4	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
2,4,6-Trichlorophenol	ND	1.5	2.0	D	mg/Kg	1	11/21/2017 5:56:40 PM	35082
Surr: 2-Fluorophenol	0	0	23.3-81	SD	%Rec	1	11/21/2017 5:56:40 PM	35082
Surr: Phenol-d5	0	0	19.4-93.6	SD	%Rec	1	11/21/2017 5:56:40 PM	35082
Surr: 2,4,6-Tribromophenol	0	0	31.1-88.7	SD	%Rec	1	11/21/2017 5:56:40 PM	35082
Surr: Nitrobenzene-d5	0		23.7-106	SD	%Rec	1	11/21/2017 5:56:40 PM	35082
Surr: 2-Fluorobiphenyl	0		26.3-107	SD	%Rec	1	11/21/2017 5:56:40 PM	35082
Surr: 4-Terphenyl-d14	0		32.5-80.1	SD	%Rec	1	11/21/2017 5:56:40 PM	35082
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0049	0.025		mg/Kg	1	11/21/2017 7:28:52 PM	35071

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017
Lab ID: 1711977-010
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Toluene	ND	0.0040	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Ethylbenzene	ND	0.0035	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Methyl tert-butyl ether (MTBE)	ND	0.0076	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2,4-Trimethylbenzene	ND	0.0043	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,3,5-Trimethylbenzene	ND	0.0031	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2-Dichloroethane (EDC)	ND	0.0052	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2-Dibromoethane (EDB)	ND	0.0063	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Naphthalene	ND	0.0050	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1-Methylnaphthalene	0.011	0.0035	0.20	J	mg/Kg	1	11/21/2017 7:28:52 PM	35071
2-Methylnaphthalene	ND	0.0040	0.20		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Acetone	ND	0.054	0.74		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Bromobenzene	ND	0.0036	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Bromodichloromethane	ND	0.0064	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Bromoform	ND	0.012	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Bromomethane	ND	0.0085	0.15		mg/Kg	1	11/21/2017 7:28:52 PM	35071
2-Butanone	0.085	0.029	0.49	J	mg/Kg	1	11/21/2017 7:28:52 PM	35071
Carbon disulfide	ND	0.0059	0.49		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Carbon tetrachloride	ND	0.0049	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Chlorobenzene	ND	0.0029	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Chloroethane	ND	0.016	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Chloroform	ND	0.0030	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Chloromethane	ND	0.010	0.15		mg/Kg	1	11/21/2017 7:28:52 PM	35071
2-Chlorotoluene	ND	0.0038	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
4-Chlorotoluene	ND	0.0045	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
cis-1,2-DCE	ND	0.0063	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
cis-1,3-Dichloropropene	ND	0.0038	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2-Dibromo-3-chloropropane	ND	0.0068	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Dibromochloromethane	ND	0.0042	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Dibromomethane	ND	0.0024	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2-Dichlorobenzene	ND	0.0025	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,3-Dichlorobenzene	ND	0.0044	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,4-Dichlorobenzene	ND	0.0055	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Dichlorodifluoromethane	ND	0.020	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,1-Dichloroethane	ND	0.020	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,1-Dichloroethene	ND	0.020	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2-Dichloropropane	ND	0.0031	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,3-Dichloropropane	ND	0.012	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
2,2-Dichloropropane	ND	0.0056	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,1-Dichloropropene	ND	0.0056	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF DUP 01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017
Lab ID: 1711977-010
Matrix: SOIL
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Hexachlorobutadiene	ND	0.012	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
2-Hexanone	ND	0.0097	0.49		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Isopropylbenzene	ND	0.0033	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
4-Isopropyltoluene	ND	0.0038	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
4-Methyl-2-pentanone	ND	0.011	0.49		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Methylene chloride	ND	0.020	0.15		mg/Kg	1	11/21/2017 7:28:52 PM	35071
n-Butylbenzene	ND	0.0044	0.15		mg/Kg	1	11/21/2017 7:28:52 PM	35071
n-Propylbenzene	ND	0.0031	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
sec-Butylbenzene	ND	0.0051	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Styrene	ND	0.0086	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
tert-Butylbenzene	ND	0.0040	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,1,1,2-Tetrachloroethane	ND	0.0056	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,1,2,2-Tetrachloroethane	ND	0.014	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Tetrachloroethene (PCE)	ND	0.0039	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
trans-1,2-DCE	ND	0.020	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
trans-1,3-Dichloropropene	ND	0.0059	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2,3-Trichlorobenzene	ND	0.0045	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2,4-Trichlorobenzene	ND	0.0050	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,1,1-Trichloroethane	ND	0.0064	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,1,2-Trichloroethane	ND	0.0053	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Trichloroethene (TCE)	ND	0.0060	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Trichlorofluoromethane	ND	0.0074	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
1,2,3-Trichloropropane	ND	0.025	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Vinyl chloride	ND	0.0041	0.049		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Xylenes, Total	ND	0.015	0.099		mg/Kg	1	11/21/2017 7:28:52 PM	35071
Surr: Dibromofluoromethane	101		70-130		%Rec	1	11/21/2017 7:28:52 PM	35071
Surr: 1,2-Dichloroethane-d4	95.4		70-130		%Rec	1	11/21/2017 7:28:52 PM	35071
Surr: Toluene-d8	91.6		70-130		%Rec	1	11/21/2017 7:28:52 PM	35071
Surr: 4-Bromofluorobenzene	101		70-130		%Rec	1	11/21/2017 7:28:52 PM	35071
EPA METHOD 418.1: TPH							Analyst: **MAB**	
Petroleum Hydrocarbons, TR	1100	33	200		mg/Kg	10	11/29/2017 11:00:00 AM	35099

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF FB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:25:00 PM
Lab ID: 1711977-011 **Matrix:** AQUEOUS **Received Date:** 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **DJF**	
Benzene	ND	0.062	1.0		µg/L	1	11/22/2017 5:22:06 PM	B47319
Toluene	0.32	0.064	1.0	J	µg/L	1	11/22/2017 5:22:06 PM	B47319
Ethylbenzene	ND	0.093	1.0		µg/L	1	11/22/2017 5:22:06 PM	B47319
Xylenes, Total	ND	0.32	1.5		µg/L	1	11/22/2017 5:22:06 PM	B47319
Surr: 1,2-Dichloroethane-d4	96.6	0	70-130		%Rec	1	11/22/2017 5:22:06 PM	B47319
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	11/22/2017 5:22:06 PM	B47319
Surr: Dibromofluoromethane	96.3	0	70-130		%Rec	1	11/22/2017 5:22:06 PM	B47319
Surr: Toluene-d8	97.4	0	70-130		%Rec	1	11/22/2017 5:22:06 PM	B47319

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CENTRAL OCD LF EB01
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/16/2017 2:30:00 PM
Lab ID: 1711977-012
Matrix: AQUEOUS
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **DJF**	
Benzene	ND	0.062	1.0		µg/L	1	11/22/2017 5:51:02 PM	B47319
Toluene	0.32	0.064	1.0	J	µg/L	1	11/22/2017 5:51:02 PM	B47319
Ethylbenzene	ND	0.093	1.0		µg/L	1	11/22/2017 5:51:02 PM	B47319
Xylenes, Total	ND	0.32	1.5		µg/L	1	11/22/2017 5:51:02 PM	B47319
Surr: 1,2-Dichloroethane-d4	96.8	0	70-130		%Rec	1	11/22/2017 5:51:02 PM	B47319
Surr: 4-Bromofluorobenzene	98.5	0	70-130		%Rec	1	11/22/2017 5:51:02 PM	B47319
Surr: Dibromofluoromethane	97.1	0	70-130		%Rec	1	11/22/2017 5:51:02 PM	B47319
Surr: Toluene-d8	98.0	0	70-130		%Rec	1	11/22/2017 5:51:02 PM	B47319

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1711977-013
Matrix: AQUEOUS
Received Date: 11/17/2017 11:15:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: **DJF**	
Benzene	ND	0.062	1.0		µg/L	1	11/22/2017 6:19:58 PM	B47319
Toluene	ND	0.064	1.0		µg/L	1	11/22/2017 6:19:58 PM	B47319
Ethylbenzene	ND	0.093	1.0		µg/L	1	11/22/2017 6:19:58 PM	B47319
Xylenes, Total	ND	0.32	1.5		µg/L	1	11/22/2017 6:19:58 PM	B47319
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	11/22/2017 6:19:58 PM	B47319
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	11/22/2017 6:19:58 PM	B47319
Surr: Dibromofluoromethane	98.6	0	70-130		%Rec	1	11/22/2017 6:19:58 PM	B47319
Surr: Toluene-d8	96.4	0	70-130		%Rec	1	11/22/2017 6:19:58 PM	B47319

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:12	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:15	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:18	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:19	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:20	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:21	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:22	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:23	WG1046137

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	11/26/2017 16:24	WG1046137

Method Blank (MB)

(MB) R3268281-1 11/26/17 16:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.039	0.250

L953171-01 Original Sample (OS) • Duplicate (DUP)

(OS) L953171-01 11/26/17 16:33 • (DUP) R3268281-7 11/26/17 16:34

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3268281-2 11/26/17 16:04 • (LCSD) R3268281-3 11/26/17 16:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.38	2.23	95	89	50-150			6	20

L953045-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L953045-02 11/26/17 16:15 • (MS) R3268281-5 11/26/17 16:16 • (MSD) R3268281-6 11/26/17 16:17

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	1.67	ND	1.63	1.58	98	95	1	75-125			3	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1711977
Pace Project No.: 30236787

Sample: 1711977-001D CENTRAL OCD LF TZ **Lab ID: 30236787001** Collected: 11/16/17 11:35 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.471 ± 0.295 (0.192) C:NA T:NA**	pCi/g	12/21/17 09:26	13982-63-3	
Radium-228	EPA 901.1	**1.936 ± 0.414 (0.206) C:NA T:NA**	pCi/g	12/21/17 09:26	15262-20-1	

Sample: 1711977-002D CENTRAL OCD LF VZ **Lab ID: 30236787002** Collected: 11/16/17 12:00 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.312 ± 0.358 (0.185) C:NA T:NA**	pCi/g	12/21/17 09:28	13982-63-3	
Radium-228	EPA 901.1	**1.978 ± 0.503 (0.505) C:NA T:NA**	pCi/g	12/21/17 09:28	15262-20-1	

Sample: 1711977-003D CENTRAL OCD LF TZ **Lab ID: 30236787005** Collected: 11/16/17 12:40 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.631 ± 0.346 (0.123) C:NA T:NA**	pCi/g	12/21/17 09:45	13982-63-3	
Radium-228	EPA 901.1	**1.818 ± 0.491 (0.247) C:NA T:NA**	pCi/g	12/21/17 09:45	15262-20-1	

Sample: 1711977-004D CENTRAL OCD LF VZ **Lab ID: 30236787006** Collected: 11/16/17 12:50 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.161 ± 0.291 (0.187) C:NA T:NA**	pCi/g	12/26/17 10:46	13982-63-3	
Radium-228	EPA 901.1	**1.887 ± 0.466 (0.287) C:NA T:NA**	pCi/g	12/26/17 10:46	15262-20-1	

Sample: 1711977-005D CENTRAL OCD LF TZ **Lab ID: 30236787007** Collected: 11/16/17 13:20 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.622 ± 0.402 (0.245) C:NA T:NA**	pCi/g	12/21/17 10:30	13982-63-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1711977
Pace Project No.: 30236787

Sample: 1711977-005D CENTRAL OCD LF TZ **Lab ID: 30236787007** Collected: 11/16/17 13:20 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 901.1	**1.967 ± 0.536 (0.329) C:NA T:NA**	pCi/g	12/21/17 10:30	15262-20-1	

Sample: 1711977-006D CENTRAL OCD LF VZ **Lab ID: 30236787008** Collected: 11/16/17 13:30 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.339 ± 0.316 (0.190) C:NA T:NA**	pCi/g	12/21/17 10:46	13982-63-3	
Radium-228	EPA 901.1	**1.248 ± 0.619 (0.566) C:NA T:NA**	pCi/g	12/21/17 10:46	15262-20-1	

Sample: 1711977-008D CENTRAL OCD LF TZ **Lab ID: 30236787009** Collected: 11/16/17 14:00 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.233 ± 0.280 (0.292) C:NA T:NA**	pCi/g	12/21/17 10:47	13982-63-3	
Radium-228	EPA 901.1	**1.415 ± 0.487 (0.502) C:NA T:NA**	pCi/g	12/21/17 10:47	15262-20-1	

Sample: 1711977-009D CENTRAL OCD LF VZ **Lab ID: 30236787010** Collected: 11/16/17 14:10 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.562 ± 0.361 (0.192) C:NA T:NA**	pCi/g	12/21/17 11:09	13982-63-3	
Radium-228	EPA 901.1	**2.274 ± 0.540 (0.221) C:NA T:NA**	pCi/g	12/21/17 11:09	15262-20-1	

Sample: 1711977-010D CENTRAL OCD LF DU **Lab ID: 30236787011** Collected: 11/16/17 11:15 Received: 11/21/17 10:15 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.269 ± 0.389 (0.267) C:NA T:NA**	pCi/g	12/21/17 11:07	13982-63-3	
Radium-228	EPA 901.1	**1.137 ± 0.625 (0.741) C:NA T:NA**	pCi/g	12/21/17 11:07	15262-20-1	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1711977
Pace Project No.: 30236787

QC Batch: 282295 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30236787007, 30236787008, 30236787009, 30236787010, 30236787011

METHOD BLANK: 1385658 Matrix: Solid
Associated Lab Samples: 30236787007, 30236787008, 30236787009, 30236787010, 30236787011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.030 ± 0.051 (0.193) C:NA T:NA	pCi/g	12/21/17 10:11	
Radium-228	0.018 ± 0.193 (0.244) C:NA T:NA	pCi/g	12/21/17 10:11	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1711977
Pace Project No.: 30236787

QC Batch: 280958 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30236787001, 30236787002, 30236787005

METHOD BLANK: 1379234 Matrix: Solid
Associated Lab Samples: 30236787001, 30236787002, 30236787005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.045 ± 0.061 (0.193) C:NA T:NA	pCi/g	12/18/17 09:36	
Radium-228	0.000 ± 0.031 (0.427) C:NA T:NA	pCi/g	12/18/17 09:36	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1711977
Pace Project No.: 30236787

QC Batch: 282294 — Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 — Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30236787006

METHOD BLANK: 1385619 — Matrix: Solid
Associated Lab Samples: 30236787006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.107 ± 0.096 (0.111) C:NA T:NA	pCi/g	12/19/17 13:57	
Radium-228	0.115 ± 0.132 (0.153) C:NA T:NA	pCi/g	12/19/17 13:57	

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QUALIFIERS

Project: 1711977
Pace Project No.: 30236787

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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TNI - The NELAC Institute.

REPORT OF LABORATORY ANALYSIS

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-35263**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **35263**	RunNo: **47471**
Prep Date: **12/1/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516483** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID **LCS-35263**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **35263**	RunNo: **47471**
Prep Date: **12/1/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516484** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.4	0.30	1.500	0	95.6	90	110			
Chloride	14	1.5	15.00	0	92.7	90	110			
Nitrogen, Nitrate (As N)	7.4	0.30	7.500	0	99.2	90	110			
Sulfate	29	1.5	30.00	0	95.6	90	110			

Sample ID **1711977-002AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35263**	RunNo: **47471**
Prep Date: **12/1/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516497** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	11	0.30	7.500	3.344	105	61.8	142			

Sample ID **1711977-002AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35263**	RunNo: **47471**
Prep Date: **12/1/2017**	Analysis Date: **12/1/2017**	SeqNo: **1516498** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	11	0.30	7.500	3.344	95.5	61.8	142	6.90	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-35099**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **PBS**	Batch ID: **35099**	RunNo: **47392**							
Prep Date: **11/21/2017**	Analysis Date: **11/29/2017**	SeqNo: **1512330**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	11	20								J

Sample ID **LCS-35099**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **LCSS**	Batch ID: **35099**	RunNo: **47392**							
Prep Date: **11/21/2017**	Analysis Date: **11/29/2017**	SeqNo: **1512331**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	95	20	100.0	0	95.5	80.5	126			

Sample ID **1711977-002AMS**	SampType: **MS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **CENTRAL OCD LF V**	Batch ID: **35099**	RunNo: **47392**							
Prep Date: **11/21/2017**	Analysis Date: **11/29/2017**	SeqNo: **1512334**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	150	19	95.06	35.22	119	80	120			

Sample ID **1711977-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **CENTRAL OCD LF V**	Batch ID: **35099**	RunNo: **47392**							
Prep Date: **11/21/2017**	Analysis Date: **11/29/2017**	SeqNo: **1512335**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	97.56	35.22	81.5	80	120	25.7	20	R

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**
27-Dec-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **LCS-35083**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **35083**	RunNo: **47318**
Prep Date: **11/20/2017**	Analysis Date: **11/22/2017**	SeqNo: **1509436** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.3	73.2	114			
Surr: DNOP	4.5		5.000		90.7	70	130			

Sample ID **MB-35083**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **35083**	RunNo: **47318**
Prep Date: **11/20/2017**	Analysis Date: **11/22/2017**	SeqNo: **1509437** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.1		10.00		90.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**
27-Dec-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-35071**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **35071**	RunNo: **47280**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508064** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1200		1000		120	15	316			

Sample ID **LCS-35071**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **35071**	RunNo: **47280**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508065** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	110	75.9	131			
Surr: BFB	1300		1000		130	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**
27-Dec-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-35096**	SampType: **MBLK**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **PBS**	Batch ID: **35096**	RunNo: **47344**
Prep Date: **11/21/2017**	Analysis Date: **11/28/2017**	SeqNo: **1510574** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.073		0.06250		116	26.3	128			
Surr: Tetrachloro-m-xylene	0.067		0.06250		108	20.7	151			

Sample ID **LCS-35096**	SampType: **LCS**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **LCSS**	Batch ID: **35096**	RunNo: **47344**
Prep Date: **11/21/2017**	Analysis Date: **11/28/2017**	SeqNo: **1510575** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.14	0.020	0.1250	0	109	15	195			
Aroclor 1260	0.15	0.020	0.1250	0	120	24	140			
Surr: Decachlorobiphenyl	0.071		0.06250		114	26.3	128			
Surr: Tetrachloro-m-xylene	0.068		0.06250		108	20.7	151			

Sample ID **1711977-002AMS**	SampType: **MS**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35096**	RunNo: **47344**
Prep Date: **11/21/2017**	Analysis Date: **11/28/2017**	SeqNo: **1511517** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.094	0.019	0.1213	0	77.2	15	153			
Aroclor 1260	0.11	0.019	0.1213	0	93.2	15	180			
Surr: Decachlorobiphenyl	0.056		0.06065		92.4	26.3	128			
Surr: Tetrachloro-m-xylene	0.053		0.06065		88.0	20.7	151			

Sample ID **1711977-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8082A: PCB's**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35096**	RunNo: **47344**
Prep Date: **11/21/2017**	Analysis Date: **11/28/2017**	SeqNo: **1511518** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.10	0.020	0.1242	0	80.6	15	153	6.66	32.9	
Aroclor 1260	0.12	0.020	0.1242	0	94.0	15	180	3.21	31.1	
Surr: Decachlorobiphenyl	0.059		0.06210		94.4	26.3	128	0	0	
Surr: Tetrachloro-m-xylene	0.057		0.06210		91.2	20.7	151	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**
27-Dec-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-35071**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **35071**	RunNo: **47283**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508291** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	0.012	0.20								J
2-Methylnaphthalene	0.014	0.20								J
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	0.064	0.15								J
2-Butanone	0.11	0.50								J
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**
27-Dec-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-35071**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **35071**	RunNo: **47283**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508291** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	0.010	0.50								J
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	0.021	0.50								J
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	0.021	0.050								J
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.52		0.5000		105	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.45		0.5000		89.8	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.3	70	130			

Sample ID **lcs-35071**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **35071**	RunNo: **47283**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508292** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	70	130			
Toluene	0.88	0.050	1.000	0	88.2	70	130			
Chlorobenzene	0.90	0.050	1.000	0	89.9	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**
27-Dec-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **lcs-35071**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **35071**	RunNo: **47283**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508292** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.3	0.050	1.000	0	130	70	130			
Trichloroethene (TCE)	0.99	0.050	1.000	0	99.5	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.45		0.5000		90.9	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.3	70	130			

Sample ID **1711977-002ams**	SampType: **MS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35071**	RunNo: **47283**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508301** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.024	0.9542	0	124	51.9	158			
Toluene	1.1	0.048	0.9542	0	114	64.6	132			
Chlorobenzene	1.1	0.048	0.9542	0	117	62.8	136			
1,1-Dichloroethene	1.4	0.048	0.9542	0	149	42.4	170			
Trichloroethene (TCE)	1.2	0.048	0.9542	0	122	70	130			
Surr: Dibromofluoromethane	0.51		0.4771		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.4771		103	70	130			
Surr: Toluene-d8	0.45		0.4771		93.3	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.4771		101	70	130			

Sample ID **1711977-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35071**	RunNo: **47283**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508302** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.024	0.9709	0	121	51.9	158	0.564	20	
Toluene	1.1	0.049	0.9709	0	114	64.6	132	1.52	20	
Chlorobenzene	1.1	0.049	0.9709	0	116	62.8	136	0.655	20	
1,1-Dichloroethene	1.4	0.049	0.9709	0	145	42.4	170	1.09	20	
Trichloroethene (TCE)	1.2	0.049	0.9709	0	124	70	130	2.59	20	
Surr: Dibromofluoromethane	0.50		0.4854		103	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.48		0.4854		98.0	70	130	0	0	
Surr: Toluene-d8	0.45		0.4854		91.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.49		0.4854		101	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **B47319**	RunNo: **47319**
Prep Date:	Analysis Date: **11/22/2017**	SeqNo: **1509540** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.0	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.5	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.9	70	130			
Surr: Toluene-d8	9.2		10.00		91.7	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **B47319**	RunNo: **47319**
Prep Date:	Analysis Date: **11/22/2017**	SeqNo: **1509541** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	20	1.0	20.00	0	98.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.2	70	130			
Surr: Toluene-d8	9.4		10.00		94.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**
27-Dec-17

Client: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-35082**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **35082**	RunNo: **47281**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508122** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	0.21	0.50								J
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-35082**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **35082**	RunNo: **47281**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508122** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	1.9		3.330		56.0	23.3	81			
Surr: Phenol-d5	2.0		3.330		61.2	19.4	93.6			
Surr: 2,4,6-Tribromophenol	2.3		3.330		67.7	31.1	88.7			
Surr: Nitrobenzene-d5	1.1		1.670		64.6	23.7	106			
Surr: 2-Fluorobiphenyl	0.99		1.670		59.5	26.3	107			
Surr: 4-Terphenyl-d14	0.69		1.670		41.3	32.5	80.1			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **lcs-35082**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **35082**	RunNo: **47281**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508123** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	86.0	39.4	110			
4-Chloro-3-methylphenol	3.1	0.50	3.330	0	92.2	41.6	108			
2-Chlorophenol	2.8	0.20	3.330	0	84.7	35	107			
1,4-Dichlorobenzene	1.3	0.20	1.670	0	76.6	31	105			
2,4-Dinitrotoluene	1.3	0.50	1.670	0	80.8	35.6	101			
N-Nitrosodi-n-propylamine	1.5	0.20	1.670	0	92.6	26	100			
4-Nitrophenol	3.1	0.25	3.330	0	92.7	34.1	106			
Pentachlorophenol	2.7	0.40	3.330	0	80.0	35.3	95.4			
Phenol	2.7	0.20	3.330	0	80.7	39.3	96.5			
Pyrene	1.4	0.20	1.670	0	86.5	47.8	95.7			
1,2,4-Trichlorobenzene	1.4	0.20	1.670	0	85.8	36.6	117			
Surr: 2-Fluorophenol	2.5		3.330		73.9	23.3	81			
Surr: Phenol-d5	2.7		3.330		81.1	19.4	93.6			
Surr: 2,4,6-Tribromophenol	3.3		3.330		100	31.1	88.7			S
Surr: Nitrobenzene-d5	1.4		1.670		82.0	23.7	106			
Surr: 2-Fluorobiphenyl	1.4		1.670		83.1	26.3	107			
Surr: 4-Terphenyl-d14	0.90		1.670		54.1	32.5	80.1			

Sample ID **1711977-002Ams**	SampType: **MS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35082**	RunNo: **47281**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508133** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.40	1.668	0	71.6	23.7	110			
4-Chloro-3-methylphenol	2.4	1.0	3.326	0	73.1	23.5	109			
2-Chlorophenol	2.5	0.40	3.326	0	76.2	15	106			
1,4-Dichlorobenzene	1.2	0.40	1.668	0	73.1	16	98.5			
2,4-Dinitrotoluene	1.0	1.0	1.668	0	60.8	23.3	92.8			
N-Nitrosodi-n-propylamine	1.4	0.40	1.668	0	81.0	17	111			
4-Nitrophenol	2.5	0.50	3.326	0	76.5	30.9	103			
Pentachlorophenol	1.9	0.80	3.326	0	57.9	20.8	92.7			
Phenol	2.5	0.40	3.326	0	75.7	17	107			
Pyrene	1.2	0.40	1.668	0	70.5	27.9	111			
1,2,4-Trichlorobenzene	1.3	0.40	1.668	0	78.7	19.5	118			
Surr: 2-Fluorophenol	2.4		3.326		71.1	23.3	81			
Surr: Phenol-d5	2.5		3.326		74.6	19.4	93.6			
Surr: 2,4,6-Tribromophenol	2.5		3.326		75.4	31.1	88.7			
Surr: Nitrobenzene-d5	1.3		1.668		75.4	23.7	106			
Surr: 2-Fluorobiphenyl	1.2		1.668		72.9	26.3	107			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **1711977-002Ams**	SampType: **MS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35082**	RunNo: **47281**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508133** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	1.0		1.668		62.4	32.5	80.1			

Sample ID **1711977-002Amsd**	SampType: **MSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35082**	RunNo: **47281**
Prep Date: **11/20/2017**	Analysis Date: **11/21/2017**	SeqNo: **1508134** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.40	1.685	0	83.9	23.7	110	16.8	43.1	
4-Chloro-3-methylphenol	2.7	1.0	3.359	0	80.5	23.5	109	10.7	52.2	
2-Chlorophenol	2.9	0.40	3.359	0	86.4	15	106	13.6	42.5	
1,4-Dichlorobenzene	1.3	0.40	1.685	0	79.6	16	98.5	9.57	50.4	
2,4-Dinitrotoluene	1.2	1.0	1.685	0	73.0	23.3	92.8	19.3	24.2	
N-Nitrosodi-n-propylamine	1.5	0.40	1.685	0	87.5	17	111	8.82	39.7	
4-Nitrophenol	3.0	0.50	3.359	0	88.9	30.9	103	16.0	59.4	
Pentachlorophenol	2.4	0.81	3.359	0	70.6	20.8	92.7	20.8	32.7	
Phenol	2.8	0.40	3.359	0	83.8	17	107	11.2	41.2	
Pyrene	1.4	0.40	1.685	0	81.4	27.9	111	15.4	34	
1,2,4-Trichlorobenzene	1.5	0.40	1.685	0	92.0	19.5	118	16.5	35.8	
Surr: 2-Fluorophenol	2.7		3.359		80.4	23.3	81	0	0	
Surr: Phenol-d5	2.7		3.359		80.0	19.4	93.6	0	0	
Surr: 2,4,6-Tribromophenol	2.9		3.359		87.7	31.1	88.7	0	0	
Surr: Nitrobenzene-d5	1.4		1.685		84.4	23.7	106	0	0	
Surr: 2-Fluorobiphenyl	1.4		1.685		83.7	26.3	107	0	0	
Surr: 4-Terphenyl-d14	1.0		1.685		60.0	32.5	80.1	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-35296**	SampType:	**MBLK**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID:	**35296**	RunNo:	**47506**					
Prep Date:	**12/4/2017**	Analysis Date:	**12/4/2017**	SeqNo:	**1516933**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-35296**	SampType:	**LCS**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID:	**35296**	RunNo:	**47506**					
Prep Date:	**12/4/2017**	Analysis Date:	**12/4/2017**	SeqNo:	**1516934**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	104	80	120			

Sample ID	**1711977-002BMS**	SampType:	**MS**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**35296**	RunNo:	**47506**					
Prep Date:	**12/4/2017**	Analysis Date:	**12/4/2017**	SeqNo:	**1516937**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.031	0.1565	0	108	80	120			

Sample ID	**1711977-002BMSD**	SampType:	**MSD**	TestCode:	**EPA Method 7471: Mercury**					
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**35296**	RunNo:	**47506**					
Prep Date:	**12/4/2017**	Analysis Date:	**12/4/2017**	SeqNo:	**1516938**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.032	0.1625	0	107	80	120	2.77	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-35142**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **35142**	RunNo: **47357**
Prep Date: **11/25/2017**	Analysis Date: **11/27/2017**	SeqNo: **1511081** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Copper	ND	0.30								
Lead	ND	0.25								
Manganese	ND	0.10								
Selenium	ND	2.5								
Silver	ND	0.25								
Uranium	ND	5.0								

Sample ID **LCS-35142**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **35142**	RunNo: **47357**
Prep Date: **11/25/2017**	Analysis Date: **11/27/2017**	SeqNo: **1511082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	101	80	120			
Barium	24	0.10	25.00	0	96.0	80	120			
Cadmium	24	0.10	25.00	0	95.5	80	120			
Chromium	24	0.30	25.00	0	95.5	80	120			
Copper	25	0.30	25.00	0	99.4	80	120			
Lead	24	0.25	25.00	0	94.6	80	120			
Manganese	24	0.10	25.00	0	96.9	80	120			
Selenium	24	2.5	25.00	0	96.4	80	120			
Silver	5.0	0.25	5.000	0	99.2	80	120			
Uranium	22	5.0	25.00	0	89.7	80	120			

Sample ID **MB-35142**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **35142**	RunNo: **47434**
Prep Date: **11/25/2017**	Analysis Date: **11/30/2017**	SeqNo: **1513817** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	2.5								

Sample ID **LCS-35142**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **35142**	RunNo: **47434**
Prep Date: **11/25/2017**	Analysis Date: **11/30/2017**	SeqNo: **1513818** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	24	2.5	25.00	0	96.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **1711977-002BMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35142**	RunNo: **47434**
Prep Date: **11/25/2017**	Analysis Date: **11/30/2017**	SeqNo: **1513839** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	25	0.48	24.11	0	103	75	125			
Chromium	44	1.4	24.11	18.11	106	75	125			
Copper	27	1.4	24.11	3.927	97.6	75	125			
Lead	25	1.2	24.11	2.909	91.1	75	125			

Sample ID **1711977-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35142**	RunNo: **47434**
Prep Date: **11/25/2017**	Analysis Date: **11/30/2017**	SeqNo: **1513840** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	25	0.49	24.55	0	104	75	125	3.05	20	
Chromium	44	1.5	24.55	18.11	106	75	125	1.21	20	
Copper	29	1.5	24.55	3.927	101	75	125	4.42	20	
Lead	26	1.2	24.55	2.909	92.8	75	125	3.24	20	

Sample ID **1711977-002BMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35142**	RunNo: **47462**
Prep Date: **11/25/2017**	Analysis Date: **12/1/2017**	SeqNo: **1515281** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	380	0.48	24.11	286.6	399	75	125			S
Manganese	410	0.48	24.11	403.8	34.2	75	125			S
Selenium	9.4	12	24.11	0	39.2	75	125			JS
Silver	2.2	1.2	4.823	0	46.6	75	125			S
Uranium	ND	24	24.11	0	0	75	125			S
Zinc	48	12	24.11	23.00	102	75	125			

Sample ID **1711977-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **CENTRAL OCD LF V**	Batch ID: **35142**	RunNo: **47462**
Prep Date: **11/25/2017**	Analysis Date: **12/1/2017**	SeqNo: **1515283** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	300	0.49	24.55	286.6	40.3	75	125	25.4	20	RS
Manganese	390	0.49	24.55	403.8	-57.5	75	125	5.58	20	S
Selenium	9.7	12	24.55	0	39.7	75	125	3.08	20	JS
Silver	1.6	1.2	4.910	0	32.2	75	125	35.0	20	RS
Uranium	ND	25	24.55	0	0	75	125	0	20	S
Zinc	48	12	24.55	23.00	101	75	125	0.402	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1711977**

27-Dec-17

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**1711977-002BPS**	SampType:	**PS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**35142**		RunNo:	**47462**				
Prep Date:		Analysis Date:	**12/1/2017**		SeqNo:	**1515285**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	380	0.48	119.6	286.6	80.8	80	120			
Manganese	490	0.48	119.6	403.8	75.9	80	120			S
Selenium	120	12	119.6	0	97.9	80	120			
Silver	23	1.2	23.92	0	98.0	80	120			
Uranium	88	24	119.6	0	73.6	80	120			S
Zinc	130	12	119.6	23.00	93.3	80	120			

Sample ID	**MB-35142**	SampType:	**MBLK**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**PBS**	Batch ID:	**35142**		RunNo:	**47793**				
Prep Date:	**11/25/2017**	Analysis Date:	**12/14/2017**		SeqNo:	**1532881**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	2.5								
Zinc	ND	2.5								

Sample ID	**LCS-35142**	SampType:	**LCS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**LCSS**	Batch ID:	**35142**		RunNo:	**47793**				
Prep Date:	**11/25/2017**	Analysis Date:	**12/14/2017**		SeqNo:	**1532882**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	27	2.5	25.00	0	107	80	120			
Zinc	24	2.5	25.00	0	95.6	80	120			

Sample ID	**1711977-002BMS**	SampType:	**MS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**35142**		RunNo:	**47909**				
Prep Date:	**11/25/2017**	Analysis Date:	**12/20/2017**		SeqNo:	**1534613**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	18	12	24.11	0	75.4	75	125			

Sample ID	**1711977-002BMSD**	SampType:	**MSD**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**CENTRAL OCD LF V**	Batch ID:	**35142**		RunNo:	**47909**				
Prep Date:	**11/25/2017**	Analysis Date:	**12/20/2017**		SeqNo:	**1534614**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	21	12	24.55	0	85.9	75	125	14.8	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1711977 RcptNo: 1

Received By: Anne Thorne 11/17/2017 11:15:00 AM Anne Thorne
Completed By: Anne Thorne 11/20/2017 7:50:49 AM Anne Thorne
Reviewed By: JMO 11/20/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

PAGE 1 of 2

Client:	ANDEAVOR GALLUP REFINERY
Mailing Address:	92 GIANT CROSSING RD GALLUP, NM 87301
Phone #:	505-722-0231
email or Fax#:	CHERYL.A.JOHNSON@ANDEAVOR.COM
QA/QC Package:	☒ Standard ☐ Level 4 (Full Validation)
Accreditation	☐ NELAP ☐ Other
☒ EDD (Type)	EXCEL

Turn-Around Time:	☒ Standard ☐ Rush
Project Name:	CENTRAL OCD LANDFARM SEMIANNUAL SAMPLING
Project #:	
Project Manager:	CHERYL JOHNSON
Sampler:	TRACY PAYNE
On Ice:	☒ Yes ☐ No
Sample Temperature:	1.0

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1711977	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015 (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VADOSE ZONE LIST	NMAC LIST	BTEX		Air Bubbles (Y or N)
11/16/17	1135	SOIL	CENTRAL OCD LF TZ01	8OZ JAR-3 4OZ JAR-1	NONE	-001			✓									✓	✓			
	1200		CENTRAL OCD LF VZ01			-002												✓	✓			
	1240		CENTRAL OCD LF TZ02			-003			✓									✓	✓			
	1250		CENTRAL OCDLF VZ02			-004												✓	✓			
	1320		CENTRAL OCDLF TZ03			-005			✓									✓	✓			
	1330		CENTRAL OCD LF VZ03			-006												✓	✓			
	—	WATER	TRIP BLANK	40 ML VOA-3	HCL	-007														✓		

Date: 11/17/17	Time: 1115	Relinquished by:	Received by:	Date 11/17/17	Time 1115
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: ANDEAVOR
GALLUP REFINERY
Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
Phone #: 505-722-0231
email or Fax#: CHERYL.A.JOHNSON@ANDEAVOR.COM
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ NELAP ☐ Other
☒ EDD (Type) EXCEL

Turn-Around Time: ☒ Standard ☐ Rush
Project Name: CENTRAL OCD LANDFARM SEMIANNUAL SAMPLING
Project #:
Project Manager: CHERYL JOHNSON
Sampler: TRACY PAYNE
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1711977	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015 (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VADOSE ZONE LIST	NMAC LIST	BTEX		Air Bubbles (Y or N)
11/16/17	1400	SOIL	CENTRAL OCD LF VZ04	8OZJAR-3 4OZJAR-1	NONE	-008			✓									✓	✓			
	1410		CENTRAL OCD LF VZ04			-009												✓	✓			
	—		CENTRAL OCD LF DUP01			-010												✓	✓			
	1200		CENTRAL OCD LF VZ01 MS			AT 11/20/17 -002 -011												✓	✓			
	1200		CENTRAL OCD LF VZ01 MSD		~~HCL~~ TP/NONE	-002 -012												✓	✓			
	1425	WATER	CENTRAL OCD LF FB01	40 ML VOA-3	HCL	-011 -013														✓		
	1430		CENTRAL OCD LF EB01			-012 -014														✓		
	—		TRIP BLANK			-013 -015														✓		

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/17/17	1115			11/17/17	1115
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

VADOSE ZONE ANALYTES AND REPORTING LIMITS, CENTRAL OIL CONSERVATION DIVISION LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Chloride	E300	mg/kg	30
Benzene	SW8260B	mg/kg	0.050
Ethylbenzene	SW8260B	mg/kg	0.050
Toluene	SW8260B	mg/kg	0.050
Xylenes, Total	SW8260B	mg/kg	0.100
Petroleum Hydrocarbons, TR	E418.1	mg/kg	20

NMAC LIST ANALYTES AND REPORTING LIMITS, CONSTITUENTS LISTED IN SUBSECTIONS A AND B OF 20.6.2.3103 NMAC, CENTRAL OIL CONSERVATION DIVISION LANDFARM WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Fluoride	E300	mg/kg	0.3000
Nitrogen, Nitrate (As N)	E300	mg/kg	2.2000
Sulfate	E300	mg/kg	21.6000
*Radium-226	E901.1	pCi/g	1.3950
*Radium-228	E901.1	pCi/g	1.2500
*Radium-226+Radium-228	E901.1	pCi/g	2.6450
Arsenic	SW6010A	mg/kg	2.5000
Barium	SW6010A	mg/kg	1.0000
Cadmium	SW6010A	mg/kg	0.1000
Chromium	SW6010A	mg/kg	0.3000
Copper	SW6010A	mg/kg	0.6000
Iron	SW6010A	mg/kg	500.0000
Lead	SW6010A	mg/kg	0.2500
Manganese	SW6010A	mg/kg	1.0000
Selenium	SW6010A	mg/kg	2.5000
Silver	SW6010A	mg/kg	0.2500
Uranium	SW6010A	mg/kg	5.0000
Zinc	SW6010A	mg/kg	2.5000
Mercury	SW7471	mg/kg	0.0330
Aroclor 1016	SW8082	mg/kg	0.0200
Aroclor 1221	SW8082	mg/kg	0.0200
Aroclor 1232	SW8082	mg/kg	0.0200
Aroclor 1242	SW8082	mg/kg	0.0200
Aroclor 1248	SW8082	mg/kg	0.0200
Aroclor 1254	SW8082	mg/kg	0.0200
Aroclor 1260	SW8082	mg/kg	0.0200
1,1,1-Trichloroethane	SW8260B	mg/kg	0.0490
1,1,2-Trichloroethane	SW8260B	mg/kg	0.0490
1,1-Dichloroethane	SW8260B	mg/kg	0.0970
1,1-Dichloroethene	SW8260B	mg/kg	0.0490
1,2-Dichloroethene	SW8260B	mg/kg	0.0490
Carbon tetrachloride	SW8260B	mg/kg	0.0970
Chloroform	SW8260B	mg/kg	0.0490
Dibromomethane	SW8260B	mg/kg	0.1000
Methylene chloride	SW8260B	mg/kg	0.1500
Tetrachloroethene	SW8260B	mg/kg	0.0490
Trichloroethene	SW8260B	mg/kg	0.0490
Vinyl chloride	SW8260B	mg/kg	0.0490
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4-Dichlorophenol	SW8270C	mg/kg	0.4000
2,4-Dimethylphenol	SW8270C	mg/kg	0.3000
2,4-Dinitrophenol	SW8270C	mg/kg	0.4000
2-Chlorophenol	SW8270C	mg/kg	0.2000
2-Methylphenol	SW8270C	mg/kg	0.1000
2-Nitrophenol	SW8270C	mg/kg	0.1000
3+4-Methylphenol	SW8270C	mg/kg	0.1000
4,6-Dinitro-2-methylphenol	SW8270C	mg/kg	0.5000
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.1000
4-Nitrophenol	SW8270C	mg/kg	0.1000
Pentachlorophenol	SW8270C	mg/kg	0.4000
Phenol	SW8270C	mg/kg	0.2000
1-Methylnaphthalene	SW8260B	mg/kg	0.2000
2-Methylnaphthalene	SW8260B	mg/kg	0.2000
Acenaphthene	SW8270C	mg/kg	0.2000
Acenaphthylene	SW8270C	mg/kg	0.2000
Anthracene	SW8270C	mg/kg	0.2000
Benzo(a)anthracene	SW8270C	mg/kg	0.2000
Benzo(a)pyrene	SW8270C	mg/kg	0.2000
Benzo(b)fluoranthene	SW8270C	mg/kg	0.2000
Benzo(g,h,i)perylene	SW8270C	mg/kg	0.2000
Benzo(k)fluoranthene	SW8270C	mg/kg	0.2000
Chrysene	SW8270C	mg/kg	0.2000
Dibenz(a,h)anthracene	SW8270C	mg/kg	0.2000
Fluoranthene	SW8270C	mg/kg	0.2000
Fluorene	SW8270C	mg/kg	0.2000
Indeno(1,2,3-c,d)pyrene	SW8270C	mg/kg	0.2000
Naphthalene	SW8270C	mg/kg	0.2000
Phenanthrene	SW8270C	mg/kg	0.2000
Pyrene	SW8270C	mg/kg	0.2000
Cyanide	EPA 335.4	mg/kg	0.3000
Diesel Range Organics (DRO)	SW8015	mg/kg	12
Gasoline Range Organics (GRO)	SW8015	mg/kg	1.0

Marathon Petroleum Company LP

APPENDIX G
HALL LABORATORY ANALYTICAL DATA (ON ATTACHED CD)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 14, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: 2017 1ST Quarter GW Wells OrderNo.: 1702B11

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 12 sample(s) on 2/24/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 7:00:00 AM
Lab ID: 1702B11-001 **Matrix:** AQUEOUS **Received Date:** 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.096	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Toluene	0.29	0.12	1.0	J	µg/L	1	2/27/2017 8:13:00 PM	R41008
Ethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Naphthalene	ND	0.093	2.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Acetone	6.5	4.9	10	J	µg/L	1	2/27/2017 8:13:00 PM	R41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 8:13:00 PM	R41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 8:13:00 PM	R41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 8:13:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 7:00:00 AM
Lab ID: 1702B11-001
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 8:13:00 PM	R41008
Isopropylbenzene	ND	0.10	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 8:13:00 PM	R41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
n-Butylbenzene	ND	0.16	3.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
n-Propylbenzene	ND	0.13	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 8:13:00 PM	R41008
Xylenes, Total	ND	0.37	1.5		µg/L	1	2/27/2017 8:13:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	119	0	70-130		%Rec	1	2/27/2017 8:13:00 PM	R41008
Surr: 4-Bromofluorobenzene	99.0	0	70-130		%Rec	1	2/27/2017 8:13:00 PM	R41008
Surr: Dibromofluoromethane	118	0	70-130		%Rec	1	2/27/2017 8:13:00 PM	R41008
Surr: Toluene-d8	96.9	0	70-130		%Rec	1	2/27/2017 8:13:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: TRIP BLANK
Project: 2017 1ST Quarter GW Wells
Collection Date:
Lab ID: 1702B11-002
Matrix: TRIP BLANK
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.096	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Toluene	ND	0.12	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Ethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Naphthalene	ND	0.093	2.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Acetone	5.3	4.9	10	J	µg/L	1	2/27/2017 8:37:00 PM	R41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 8:37:00 PM	R41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 8:37:00 PM	R41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 8:37:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: TRIP BLANK
Project: 2017 1ST Quarter GW Wells
Collection Date:
Lab ID: 1702B11-002
Matrix: TRIP BLANK
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 8:37:00 PM	R41008
Isopropylbenzene	ND	0.10	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 8:37:00 PM	R41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
n-Butylbenzene	ND	0.16	3.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
n-Propylbenzene	ND	0.13	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 8:37:00 PM	R41008
Xylenes, Total	ND	0.37	1.5		µg/L	1	2/27/2017 8:37:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	98.9	0	70-130		%Rec	1	2/27/2017 8:37:00 PM	R41008
Surr: 4-Bromofluorobenzene	98.8	0	70-130		%Rec	1	2/27/2017 8:37:00 PM	R41008
Surr: Dibromofluoromethane	112	0	70-130		%Rec	1	2/27/2017 8:37:00 PM	R41008
Surr: Toluene-d8	104	0	70-130		%Rec	1	2/27/2017 8:37:00 PM	R41008

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 10:10:00 AM
Lab ID: 1702B11-003
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	12	0.48	1.0		mg/L	1	2/27/2017 12:32:44 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 12:32:44 PM	30397
Surr: DNOP	114	0	98.8-141		%Rec	1	2/27/2017 12:32:44 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.92	0.12	0.25		mg/L	5	2/27/2017 3:25:12 PM	AG4102
Surr: BFB	106	0	52.3-138		%Rec	5	2/27/2017 3:25:12 PM	AG4102
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.9	0.25	0.50		mg/L	5	2/24/2017 10:37:52 PM	R41000
Chloride	1400	50	100		mg/L	200	3/1/2017 12:10:58 AM	A41069
Bromide	4.8	0.15	0.50		mg/L	5	2/24/2017 10:37:52 PM	R41000
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	3/1/2017 12:48:12 AM	A41069
Sulfate	14	0.48	2.5		mg/L	5	2/24/2017 10:37:52 PM	R41000
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	2/25/2017 1:56:25 AM	R41000
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	0.95	0.00085	0.0020		mg/L	1	3/9/2017 2:54:51 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 2:54:51 PM	A41280
Calcium	170	2.5	5.0		mg/L	5	3/9/2017 2:56:38 PM	A41280
Chromium	ND	0.0010	0.0060		mg/L	1	3/9/2017 2:54:51 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 2:54:51 PM	A41280
Iron	4.8	0.10	0.10	*	mg/L	5	3/9/2017 2:56:38 PM	A41280
Magnesium	32	0.50	1.0		mg/L	1	3/9/2017 2:54:51 PM	A41280
Manganese	1.7	0.0019	0.010	*	mg/L	5	3/9/2017 2:56:38 PM	A41280
Potassium	4.0	0.50	1.0		mg/L	1	3/9/2017 2:54:51 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 2:54:51 PM	A41280
Sodium	1400	25	50		mg/L	50	3/13/2017 3:36:54 PM	A41337
Zinc	0.029	0.0011	0.010		mg/L	1	3/13/2017 3:35:09 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	0.98	0.00079	0.0020		mg/L	1	3/2/2017 12:42:19 PM	30472
Cadmium	ND	0.0015	0.0020		mg/L	1	3/2/2017 12:42:19 PM	30472
Chromium	0.0056	0.0027	0.0060	J	mg/L	1	3/2/2017 12:42:19 PM	30472
Copper	0.0093	0.0030	0.0060		mg/L	1	3/2/2017 12:42:19 PM	30472
Iron	5.8	0.20	0.20	*	mg/L	10	3/6/2017 12:33:32 PM	30472
Manganese	1.6	0.0027	0.020	*	mg/L	10	3/6/2017 12:33:32 PM	30472
Silver	ND	0.0015	0.0050		mg/L	1	3/2/2017 12:42:19 PM	30472
Zinc	0.030	0.0027	0.010		mg/L	1	3/2/2017 12:42:19 PM	30472
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.013	0.00069	0.0050	*	mg/L	5	3/6/2017 6:00:49 PM	B41191

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 10:10:00 AM
Lab ID: 1702B11-003
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	ND	0.00084	0.0025		mg/L	5	3/6/2017 6:00:49 PM	B41191
Selenium	0.022	0.0011	0.0050		mg/L	5	3/6/2017 6:00:49 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.021	0.011	0.050	*J	mg/L	50	3/3/2017 3:46:47 PM	30472
Lead	0.014	0.00041	0.0025		mg/L	5	3/3/2017 3:40:46 PM	30472
Selenium	0.025	0.0019	0.010		mg/L	10	3/3/2017 3:43:46 PM	30472
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000053	0.00020		mg/L	1	3/6/2017 4:57:04 PM	30538
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Acenaphthylene	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Aniline	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Anthracene	ND	2.5	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Azobenzene	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Benz(a)anthracene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Benzo(a)pyrene	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Benzoic acid	ND	2.6	20		µg/L	1	3/1/2017 5:36:39 PM	30412
Benzyl alcohol	ND	3.0	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Bis(2-ethylhexyl)phthalate	7.8	2.6	10	J	µg/L	1	3/1/2017 5:36:39 PM	30412
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Carbazole	ND	2.3	10		µg/L	1	3/1/2017 5:36:39 PM	30412
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
4-Chloroaniline	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2-Chloronaphthalene	ND	2.3	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2-Chlorophenol	ND	2.2	10		µg/L	1	3/1/2017 5:36:39 PM	30412
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Chrysene	ND	2.8	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Di-n-octyl phthalate	ND	2.0	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Dibenzofuran	ND	2.5	10		µg/L	1	3/1/2017 5:36:39 PM	30412

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 10:10:00 AM
Lab ID: 1702B11-003
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 5:36:39 PM	30412
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 5:36:39 PM	30412
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
3,3´-Dichlorobenzidine	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Diethyl phthalate	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Dimethyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	3/1/2017 5:36:39 PM	30412
2,4-Dimethylphenol	13	3.0	10		µg/L	1	3/1/2017 5:36:39 PM	30412
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	3/1/2017 5:36:39 PM	30412
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	3/1/2017 5:36:39 PM	30412
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Fluoranthene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Fluorene	ND	2.7	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Hexachlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Hexachlorobutadiene	ND	2.2	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Hexachloroethane	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Isophorone	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
1-Methylnaphthalene	10	2.9	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2-Methylphenol	ND	2.5	10		µg/L	1	3/1/2017 5:36:39 PM	30412
3+4-Methylphenol	ND	2.3	10		µg/L	1	3/1/2017 5:36:39 PM	30412
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	3/1/2017 5:36:39 PM	30412
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Naphthalene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2-Nitroaniline	ND	2.8	10		µg/L	1	3/1/2017 5:36:39 PM	30412
3-Nitroaniline	ND	2.9	10		µg/L	1	3/1/2017 5:36:39 PM	30412
4-Nitroaniline	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Nitrobenzene	ND	2.8	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2-Nitrophenol	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
4-Nitrophenol	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Pentachlorophenol	ND	2.3	20		µg/L	1	3/1/2017 5:36:39 PM	30412
Phenanthrene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Phenol	ND	2.0	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Pyrene	ND	3.1	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Pyridine	ND	2.2	10		µg/L	1	3/1/2017 5:36:39 PM	30412

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 10:10:00 AM
Lab ID: 1702B11-003
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	3/1/2017 5:36:39 PM	30412
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	3/1/2017 5:36:39 PM	30412
Surr: 2-Fluorophenol	29.3	0	15-98.1		%Rec	1	3/1/2017 5:36:39 PM	30412
Surr: Phenol-d5	23.8	0	15-80.7		%Rec	1	3/1/2017 5:36:39 PM	30412
Surr: 2,4,6-Tribromophenol	42.0	0	15-112		%Rec	1	3/1/2017 5:36:39 PM	30412
Surr: Nitrobenzene-d5	68.0	0	27.2-90.7		%Rec	1	3/1/2017 5:36:39 PM	30412
Surr: 2-Fluorobiphenyl	55.6	0	23.3-85.6		%Rec	1	3/1/2017 5:36:39 PM	30412
Surr: 4-Terphenyl-d14	28.0	0	27.6-107		%Rec	1	3/1/2017 5:36:39 PM	30412
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	120	0.96	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Toluene	ND	1.2	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Ethylbenzene	10	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Methyl tert-butyl ether (MTBE)	280	2.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2,4-Trimethylbenzene	3.7	1.1	10	JD	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,3,5-Trimethylbenzene	ND	1.2	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	1.2	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Naphthalene	2.0	0.93	20	JD	µg/L	10	2/27/2017 2:42:00 PM	R41008
1-Methylnaphthalene	16	2.0	40	JD	µg/L	10	2/27/2017 2:42:00 PM	R41008
2-Methylnaphthalene	ND	1.6	40	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Acetone	ND	49	100	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Bromobenzene	ND	0.98	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Bromodichloromethane	ND	1.4	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Bromoform	ND	1.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Bromomethane	ND	7.8	30	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
2-Butanone	ND	7.4	100	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Carbon disulfide	ND	6.0	100	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Carbon Tetrachloride	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Chlorobenzene	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Chloroethane	ND	1.9	20	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Chloroform	ND	0.89	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Chloromethane	ND	2.1	30	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
2-Chlorotoluene	ND	4.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
4-Chlorotoluene	ND	1.3	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
cis-1,2-DCE	ND	1.2	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
cis-1,3-Dichloropropene	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	2.3	20	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Dibromochloromethane	ND	0.87	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 10:10:00 AM
Lab ID: 1702B11-003
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Dibromomethane	ND	1.2	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2-Dichlorobenzene	ND	4.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,3-Dichlorobenzene	ND	1.4	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,4-Dichlorobenzene	ND	1.4	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Dichlorodifluoromethane	ND	3.6	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,1-Dichloroethane	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,1-Dichloroethene	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2-Dichloropropane	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,3-Dichloropropane	ND	1.6	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
2,2-Dichloropropane	ND	1.7	20	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,1-Dichloropropene	ND	1.3	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Hexachlorobutadiene	ND	2.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
2-Hexanone	ND	8.4	100	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Isopropylbenzene	1.6	1.0	10	JD	µg/L	10	2/27/2017 2:42:00 PM	R41008
4-Isopropyltoluene	ND	1.4	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
4-Methyl-2-pentanone	ND	4.3	100	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Methylene Chloride	ND	1.9	30	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
n-Butylbenzene	ND	1.6	30	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
n-Propylbenzene	1.5	1.3	10	JD	µg/L	10	2/27/2017 2:42:00 PM	R41008
sec-Butylbenzene	ND	1.2	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Styrene	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
tert-Butylbenzene	ND	1.2	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	1.3	20	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Tetrachloroethene (PCE)	ND	1.5	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
trans-1,2-DCE	ND	4.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
trans-1,3-Dichloropropene	ND	1.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2,3-Trichlorobenzene	ND	1.1	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2,4-Trichlorobenzene	ND	1.3	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,1,1-Trichloroethane	ND	0.91	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,1,2-Trichloroethane	ND	1.3	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Trichloroethene (TCE)	ND	1.8	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Trichlorofluoromethane	ND	2.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
1,2,3-Trichloropropane	ND	2.0	20	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Vinyl chloride	ND	2.0	10	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Xylenes, Total	ND	3.7	15	D	µg/L	10	2/27/2017 2:42:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	117	0	70-130	D	%Rec	10	2/27/2017 2:42:00 PM	R41008
Surr: 4-Bromofluorobenzene	98.8	0	70-130	D	%Rec	10	2/27/2017 2:42:00 PM	R41008
Surr: Dibromofluoromethane	122	0	70-130	D	%Rec	10	2/27/2017 2:42:00 PM	R41008

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 10:10:00 AM
Lab ID: 1702B11-003
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: Toluene-d8	107	0	70-130	D	%Rec	10	2/27/2017 2:42:00 PM	R41008

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-2
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:08:00 PM
Lab ID: 1702B11-004
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	2.4	0.48	1.0		mg/L	1	2/27/2017 1:00:38 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 1:00:38 PM	30397
Surr: DNOP	113	0	98.8-141		%Rec	1	2/27/2017 1:00:38 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.60	0.025	0.050		mg/L	1	2/27/2017 4:35:19 PM	AG4102
Surr: BFB	135	0	52.3-138		%Rec	1	2/27/2017 4:35:19 PM	AG4102
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.8	0.050	0.10		mg/L	1	2/24/2017 11:02:41 PM	R41000
Chloride	250	5.0	10		mg/L	20	2/24/2017 11:15:06 PM	R41000
Bromide	1.1	0.031	0.10		mg/L	1	2/24/2017 11:02:41 PM	R41000
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/1/2017 1:00:37 AM	A41069
Sulfate	8.7	0.096	0.50		mg/L	1	2/24/2017 11:02:41 PM	R41000
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	2/25/2017 2:08:50 AM	R41000
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	1.4	0.0043	0.010		mg/L	5	3/9/2017 3:00:44 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 2:58:39 PM	A41280
Calcium	76	0.50	1.0		mg/L	1	3/9/2017 2:58:39 PM	A41280
Chromium	ND	0.0010	0.0060		mg/L	1	3/9/2017 2:58:39 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 2:58:39 PM	A41280
Iron	0.88	0.020	0.020	*	mg/L	1	3/9/2017 2:58:39 PM	A41280
Magnesium	15	0.50	1.0		mg/L	1	3/9/2017 2:58:39 PM	A41280
Manganese	0.97	0.00038	0.0020	*	mg/L	1	3/9/2017 2:58:39 PM	A41280
Potassium	0.68	0.50	1.0	J	mg/L	1	3/9/2017 2:58:39 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 2:58:39 PM	A41280
Sodium	360	2.5	5.0		mg/L	5	3/9/2017 3:00:44 PM	A41280
Zinc	0.020	0.0011	0.010		mg/L	1	3/13/2017 3:38:46 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	1.8	0.0040	0.010		mg/L	5	3/6/2017 12:36:14 PM	30472
Cadmium	ND	0.0015	0.0020		mg/L	1	3/2/2017 12:44:32 PM	30472
Chromium	0.0062	0.0027	0.0060		mg/L	1	3/2/2017 12:44:32 PM	30472
Copper	0.0043	0.0030	0.0060	J	mg/L	1	3/2/2017 12:44:32 PM	30472
Iron	4.0	0.10	0.10	*	mg/L	5	3/6/2017 12:36:14 PM	30472
Manganese	0.96	0.0014	0.010	*	mg/L	5	3/6/2017 12:36:14 PM	30472
Silver	ND	0.0015	0.0050		mg/L	1	3/2/2017 12:44:32 PM	30472
Zinc	0.016	0.0027	0.010		mg/L	1	3/2/2017 12:44:32 PM	30472
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0053	0.0014	0.010	J	mg/L	10	3/6/2017 6:06:56 PM	B41191

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-2
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:08:00 PM
Lab ID: 1702B11-004
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	ND	0.00017	0.00050		mg/L	1	2/27/2017 7:40:12 PM	C41030
Selenium	0.0047	0.0021	0.010	J	mg/L	10	3/6/2017 6:06:56 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0080	0.0042	0.020	J	mg/L	20	3/3/2017 3:58:44 PM	30472
Lead	0.0038	0.000081	0.00050		mg/L	1	3/2/2017 7:40:31 PM	30472
Selenium	0.0067	0.0037	0.020	J	mg/L	20	3/3/2017 3:58:44 PM	30472
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000053	0.00020		mg/L	1	3/6/2017 5:03:15 PM	30538
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Acenaphthylene	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Aniline	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Anthracene	ND	2.5	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Azobenzene	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Benz(a)anthracene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Benzo(a)pyrene	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Benzoic acid	ND	2.6	20		µg/L	1	3/1/2017 1:26:24 PM	30432
Benzyl alcohol	ND	3.0	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Bis(2-ethylhexyl)phthalate	8.0	2.6	10	J	µg/L	1	3/1/2017 1:26:24 PM	30432
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Carbazole	ND	2.3	10		µg/L	1	3/1/2017 1:26:24 PM	30432
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
4-Chloroaniline	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2-Chloronaphthalene	ND	2.3	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2-Chlorophenol	ND	2.2	10		µg/L	1	3/1/2017 1:26:24 PM	30432
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Chrysene	ND	2.8	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Di-n-butyl phthalate	3.4	2.4	10	J	µg/L	1	3/1/2017 1:26:24 PM	30432
Di-n-octyl phthalate	3.5	2.0	10	J	µg/L	1	3/1/2017 1:26:24 PM	30432
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Dibenzofuran	ND	2.5	10		µg/L	1	3/1/2017 1:26:24 PM	30432

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-2
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:08:00 PM
Lab ID: 1702B11-004
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 1:26:24 PM	30432
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 1:26:24 PM	30432
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
3,3´-Dichlorobenzidine	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Diethyl phthalate	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Dimethyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	3/1/2017 1:26:24 PM	30432
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	3/1/2017 1:26:24 PM	30432
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	3/1/2017 1:26:24 PM	30432
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	3/1/2017 1:26:24 PM	30432
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Fluoranthene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Fluorene	ND	2.7	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Hexachlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Hexachlorobutadiene	ND	2.2	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Hexachloroethane	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Isophorone	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
1-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2-Methylphenol	ND	2.5	10		µg/L	1	3/1/2017 1:26:24 PM	30432
3+4-Methylphenol	ND	2.3	10		µg/L	1	3/1/2017 1:26:24 PM	30432
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	3/1/2017 1:26:24 PM	30432
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Naphthalene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2-Nitroaniline	ND	2.8	10		µg/L	1	3/1/2017 1:26:24 PM	30432
3-Nitroaniline	ND	2.9	10		µg/L	1	3/1/2017 1:26:24 PM	30432
4-Nitroaniline	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Nitrobenzene	ND	2.8	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2-Nitrophenol	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
4-Nitrophenol	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Pentachlorophenol	ND	2.3	20		µg/L	1	3/1/2017 1:26:24 PM	30432
Phenanthrene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Phenol	ND	2.0	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Pyrene	ND	3.1	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Pyridine	ND	2.2	10		µg/L	1	3/1/2017 1:26:24 PM	30432

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-2
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:08:00 PM
Lab ID: 1702B11-004
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	3/1/2017 1:26:24 PM	30432
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	3/1/2017 1:26:24 PM	30432
Surr: 2-Fluorophenol	22.8	0	15-98.1		%Rec	1	3/1/2017 1:26:24 PM	30432
Surr: Phenol-d5	19.6	0	15-80.7		%Rec	1	3/1/2017 1:26:24 PM	30432
Surr: 2,4,6-Tribromophenol	37.2	0	15-112		%Rec	1	3/1/2017 1:26:24 PM	30432
Surr: Nitrobenzene-d5	59.6	0	27.2-90.7		%Rec	1	3/1/2017 1:26:24 PM	30432
Surr: 2-Fluorobiphenyl	56.3	0	23.3-85.6		%Rec	1	3/1/2017 1:26:24 PM	30432
Surr: 4-Terphenyl-d14	27.9	0	27.6-107		%Rec	1	3/1/2017 1:26:24 PM	30432
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	24	0.096	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Toluene	0.14	0.12	1.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
Ethylbenzene	3.1	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Methyl tert-butyl ether (MTBE)	180	0.21	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Naphthalene	2.3	0.093	2.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1-Methylnaphthalene	2.3	0.20	4.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
2-Methylnaphthalene	0.69	0.16	4.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
Acetone	6.6	4.9	10	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 9:00:00 PM	R41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 9:00:00 PM	R41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
cis-1,2-DCE	0.14	0.12	1.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-2
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:08:00 PM
Lab ID: 1702B11-004
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,1-Dichloroethane	0.24	0.11	1.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 9:00:00 PM	R41008
Isopropylbenzene	0.74	0.10	1.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 9:00:00 PM	R41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
n-Butylbenzene	0.25	0.16	3.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
n-Propylbenzene	0.60	0.13	1.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
sec-Butylbenzene	0.46	0.12	1.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
tert-Butylbenzene	0.25	0.12	1.0	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 9:00:00 PM	R41008
Xylenes, Total	0.53	0.37	1.5	J	µg/L	1	2/27/2017 9:00:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	114	0	70-130		%Rec	1	2/27/2017 9:00:00 PM	R41008
Surr: 4-Bromofluorobenzene	107	0	70-130		%Rec	1	2/27/2017 9:00:00 PM	R41008
Surr: Dibromofluoromethane	116	0	70-130		%Rec	1	2/27/2017 9:00:00 PM	R41008

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-2
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:08:00 PM
Lab ID: 1702B11-004
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: Toluene-d8	104	0	70-130		%Rec	1	2/27/2017 9:00:00 PM	R41008

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: KA-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:28:00 PM
Lab ID: 1702B11-005
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	1.0	0.48	1.0		mg/L	1	2/27/2017 1:28:11 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 1:28:11 PM	30397
Surr: DNOP	114	0	98.8-141		%Rec	1	2/27/2017 1:28:11 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.20	0.025	0.050		mg/L	1	2/27/2017 4:58:41 PM	AG4102
Surr: BFB	110	0	52.3-138		%Rec	1	2/27/2017 4:58:41 PM	AG4102
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.0	0.050	0.10		mg/L	1	2/24/2017 11:27:30 PM	R41000
Chloride	160	5.0	10		mg/L	20	2/24/2017 11:39:54 PM	R41000
Bromide	1.1	0.031	0.10		mg/L	1	2/24/2017 11:27:30 PM	R41000
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/1/2017 1:13:02 AM	A41069
Sulfate	26	0.096	0.50		mg/L	1	2/24/2017 11:27:30 PM	R41000
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	2/25/2017 2:21:15 AM	R41000
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	1.2	0.0043	0.010		mg/L	5	3/9/2017 3:04:46 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 3:02:38 PM	A41280
Calcium	79	0.50	1.0		mg/L	1	3/9/2017 3:02:38 PM	A41280
Chromium	ND	0.0010	0.0060		mg/L	1	3/9/2017 3:02:38 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 3:02:38 PM	A41280
Iron	0.17	0.020	0.020		mg/L	1	3/9/2017 3:02:38 PM	A41280
Magnesium	13	0.50	1.0		mg/L	1	3/9/2017 3:02:38 PM	A41280
Manganese	1.1	0.0019	0.010	*	mg/L	5	3/9/2017 3:04:46 PM	A41280
Potassium	0.72	0.50	1.0	J	mg/L	1	3/9/2017 3:02:38 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 3:02:38 PM	A41280
Sodium	280	2.5	5.0		mg/L	5	3/9/2017 3:04:46 PM	A41280
Zinc	0.028	0.0011	0.010		mg/L	1	3/13/2017 3:40:50 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	1.1	0.0040	0.010		mg/L	5	3/6/2017 12:38:57 PM	30472
Cadmium	ND	0.0015	0.0020		mg/L	1	3/2/2017 12:46:47 PM	30472
Chromium	ND	0.0027	0.0060		mg/L	1	3/2/2017 12:46:47 PM	30472
Copper	ND	0.0030	0.0060		mg/L	1	3/2/2017 12:46:47 PM	30472
Iron	1.8	0.10	0.10	*	mg/L	5	3/6/2017 12:38:57 PM	30472
Manganese	1.1	0.0014	0.010	*	mg/L	5	3/6/2017 12:38:57 PM	30472
Silver	ND	0.0015	0.0050		mg/L	1	3/2/2017 12:46:47 PM	30472
Zinc	0.0047	0.0027	0.010	J	mg/L	1	3/2/2017 12:46:47 PM	30472
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0019	0.0014	0.010	J	mg/L	10	3/6/2017 6:13:02 PM	B41191

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: KA-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 12:28:00 PM
Lab ID: 1702B11-005
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	ND	0.00017	0.00050		mg/L	1	2/27/2017 7:43:16 PM	C41030
Selenium	0.0035	0.0021	0.010	J	mg/L	10	3/6/2017 6:13:02 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0068	0.0021	0.010	J	mg/L	10	3/3/2017 4:01:44 PM	30472
Lead	0.00035	0.000081	0.00050	J	mg/L	1	3/2/2017 7:45:39 PM	30472
Selenium	0.0057	0.0019	0.010	J	mg/L	10	3/3/2017 4:01:44 PM	30472
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000053	0.00020		mg/L	1	3/6/2017 5:05:19 PM	30538
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Acenaphthylene	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Aniline	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Anthracene	ND	2.5	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Azobenzene	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Benz(a)anthracene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Benzo(a)pyrene	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Benzoic acid	ND	2.6	20		µg/L	1	3/1/2017 1:54:03 PM	30432
Benzyl alcohol	ND	3.0	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Bis(2-ethylhexyl)phthalate	7.1	2.6	10	J	µg/L	1	3/1/2017 1:54:03 PM	30432
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Carbazole	ND	2.3	10		µg/L	1	3/1/2017 1:54:03 PM	30432
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
4-Chloroaniline	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2-Chloronaphthalene	ND	2.3	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2-Chlorophenol	ND	2.2	10		µg/L	1	3/1/2017 1:54:03 PM	30432
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Chrysene	ND	2.8	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Di-n-octyl phthalate	3.4	2.0	10	J	µg/L	1	3/1/2017 1:54:03 PM	30432
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Dibenzofuran	ND	2.5	10		µg/L	1	3/1/2017 1:54:03 PM	30432

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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 1:54:03 PM	30432
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 1:54:03 PM	30432
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
3,3´-Dichlorobenzidine	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Diethyl phthalate	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Dimethyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	3/1/2017 1:54:03 PM	30432
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	3/1/2017 1:54:03 PM	30432
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	3/1/2017 1:54:03 PM	30432
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	3/1/2017 1:54:03 PM	30432
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Fluoranthene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Fluorene	ND	2.7	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Hexachlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Hexachlorobutadiene	ND	2.2	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Hexachloroethane	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Isophorone	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
1-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2-Methylphenol	ND	2.5	10		µg/L	1	3/1/2017 1:54:03 PM	30432
3+4-Methylphenol	ND	2.3	10		µg/L	1	3/1/2017 1:54:03 PM	30432
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	3/1/2017 1:54:03 PM	30432
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Naphthalene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2-Nitroaniline	ND	2.8	10		µg/L	1	3/1/2017 1:54:03 PM	30432
3-Nitroaniline	ND	2.9	10		µg/L	1	3/1/2017 1:54:03 PM	30432
4-Nitroaniline	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Nitrobenzene	ND	2.8	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2-Nitrophenol	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
4-Nitrophenol	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Pentachlorophenol	ND	2.3	20		µg/L	1	3/1/2017 1:54:03 PM	30432
Phenanthrene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Phenol	ND	2.0	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Pyrene	ND	3.1	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Pyridine	ND	2.2	10		µg/L	1	3/1/2017 1:54:03 PM	30432

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Collection Date: 2/21/2017 12:28:00 PM
Lab ID: 1702B11-005
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	3/1/2017 1:54:03 PM	30432
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	3/1/2017 1:54:03 PM	30432
Surr: 2-Fluorophenol	22.8	0	15-98.1		%Rec	1	3/1/2017 1:54:03 PM	30432
Surr: Phenol-d5	17.9	0	15-80.7		%Rec	1	3/1/2017 1:54:03 PM	30432
Surr: 2,4,6-Tribromophenol	49.7	0	15-112		%Rec	1	3/1/2017 1:54:03 PM	30432
Surr: Nitrobenzene-d5	63.9	0	27.2-90.7		%Rec	1	3/1/2017 1:54:03 PM	30432
Surr: 2-Fluorobiphenyl	67.8	0	23.3-85.6		%Rec	1	3/1/2017 1:54:03 PM	30432
Surr: 4-Terphenyl-d14	36.2	0	27.6-107		%Rec	1	3/1/2017 1:54:03 PM	30432
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	17	0.096	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Toluene	ND	0.12	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Ethylbenzene	7.7	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Methyl tert-butyl ether (MTBE)	46	0.21	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Naphthalene	4.0	0.093	2.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1-Methylnaphthalene	3.2	0.20	4.0	J	µg/L	1	2/27/2017 9:24:00 PM	R41008
2-Methylnaphthalene	1.2	0.16	4.0	J	µg/L	1	2/27/2017 9:24:00 PM	R41008
Acetone	ND	4.9	10		µg/L	1	2/27/2017 9:24:00 PM	R41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 9:24:00 PM	R41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 9:24:00 PM	R41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
cis-1,2-DCE	0.16	0.12	1.0	J	µg/L	1	2/27/2017 9:24:00 PM	R41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008

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Lab ID: 1702B11-005
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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 9:24:00 PM	R41008
Isopropylbenzene	0.93	0.10	1.0	J	µg/L	1	2/27/2017 9:24:00 PM	R41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 9:24:00 PM	R41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
n-Butylbenzene	ND	0.16	3.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
n-Propylbenzene	0.73	0.13	1.0	J	µg/L	1	2/27/2017 9:24:00 PM	R41008
sec-Butylbenzene	0.36	0.12	1.0	J	µg/L	1	2/27/2017 9:24:00 PM	R41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
tert-Butylbenzene	0.19	0.12	1.0	J	µg/L	1	2/27/2017 9:24:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 9:24:00 PM	R41008
Xylenes, Total	ND	0.37	1.5		µg/L	1	2/27/2017 9:24:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	106	0	70-130		%Rec	1	2/27/2017 9:24:00 PM	R41008
Surr: 4-Bromofluorobenzene	110	0	70-130		%Rec	1	2/27/2017 9:24:00 PM	R41008
Surr: Dibromofluoromethane	114	0	70-130		%Rec	1	2/27/2017 9:24:00 PM	R41008

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Lab ID: 1702B11-005
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: Toluene-d8	104	0	70-130		%Rec	1	2/27/2017 9:24:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 3:35:00 PM
Lab ID: 1702B11-006
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	1.5	0.48	1.0		mg/L	1	2/27/2017 1:55:46 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 1:55:46 PM	30397
Surr: DNOP	115	0	98.8-141		%Rec	1	2/27/2017 1:55:46 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	2/27/2017 5:21:59 PM	AG4102
Surr: BFB	88.7	0	52.3-138		%Rec	1	2/27/2017 5:21:59 PM	AG4102
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.3	0.050	0.10		mg/L	1	2/24/2017 11:52:19 PM	R41000
Chloride	350	12	25		mg/L	50	3/1/2017 1:37:51 AM	A41069
Bromide	2.3	0.031	0.10		mg/L	1	2/24/2017 11:52:19 PM	R41000
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/1/2017 1:25:26 AM	A41069
Sulfate	150	1.9	10		mg/L	20	2/25/2017 12:04:44 AM	R41000
Nitrate+Nitrite as N	1.9	0.13	1.0		mg/L	5	2/25/2017 2:33:39 AM	R41000
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	0.089	0.00085	0.0020		mg/L	1	3/9/2017 3:06:40 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 3:06:40 PM	A41280
Calcium	19	0.50	1.0		mg/L	1	3/9/2017 3:06:40 PM	A41280
Chromium	0.0015	0.0010	0.0060	J	mg/L	1	3/9/2017 3:06:40 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 3:06:40 PM	A41280
Iron	0.23	0.020	0.020		mg/L	1	3/9/2017 3:06:40 PM	A41280
Magnesium	2.5	0.50	1.0		mg/L	1	3/9/2017 3:06:40 PM	A41280
Manganese	0.10	0.00038	0.0020	*	mg/L	1	3/9/2017 3:06:40 PM	A41280
Potassium	2.4	0.50	1.0		mg/L	1	3/9/2017 3:06:40 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 3:06:40 PM	A41280
Sodium	490	2.5	5.0		mg/L	5	3/9/2017 3:14:26 PM	A41280
Zinc	0.027	0.0011	0.010		mg/L	1	3/13/2017 3:42:55 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	0.60	0.00079	0.0020		mg/L	1	3/2/2017 12:49:33 PM	30472
Cadmium	ND	0.0015	0.0020		mg/L	1	3/2/2017 12:49:33 PM	30472
Chromium	0.025	0.0027	0.0060		mg/L	1	3/2/2017 12:49:33 PM	30472
Copper	0.026	0.0030	0.0060		mg/L	1	3/2/2017 12:49:33 PM	30472
Iron	7.2	0.40	0.40	*	mg/L	20	3/6/2017 12:41:38 PM	30472
Manganese	0.53	0.00027	0.0020	*	mg/L	1	3/2/2017 12:49:33 PM	30472
Silver	ND	0.0015	0.0050		mg/L	1	3/2/2017 12:49:33 PM	30472
Zinc	0.14	0.0027	0.010		mg/L	1	3/2/2017 12:49:33 PM	30472
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0039	0.00069	0.0050	J	mg/L	5	3/6/2017 6:16:06 PM	B41191

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 3:35:00 PM
Lab ID: 1702B11-006
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	0.0011	0.00017	0.00050		mg/L	1	2/27/2017 7:46:19 PM	C41030
Selenium	0.0083	0.0021	0.010	J	mg/L	10	3/6/2017 6:25:19 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0052	0.0021	0.010	J	mg/L	10	3/3/2017 4:07:45 PM	30472
Lead	0.014	0.000081	0.00050		mg/L	1	3/2/2017 7:50:48 PM	30472
Selenium	0.0088	0.0019	0.010	J	mg/L	10	3/3/2017 4:07:45 PM	30472
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	0.00015	0.000053	0.00020	J	mg/L	1	3/6/2017 5:07:23 PM	30538
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Acenaphthylene	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Aniline	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Anthracene	ND	2.5	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Azobenzene	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Benz(a)anthracene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Benzo(a)pyrene	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Benzoic acid	ND	2.6	20		µg/L	1	3/1/2017 2:21:44 PM	30432
Benzyl alcohol	ND	3.0	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Bis(2-ethylhexyl)phthalate	7.1	2.6	10	J	µg/L	1	3/1/2017 2:21:44 PM	30432
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Carbazole	ND	2.3	10		µg/L	1	3/1/2017 2:21:44 PM	30432
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
4-Chloroaniline	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2-Chloronaphthalene	ND	2.3	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2-Chlorophenol	ND	2.2	10		µg/L	1	3/1/2017 2:21:44 PM	30432
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Chrysene	ND	2.8	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Di-n-octyl phthalate	3.6	2.0	10	J	µg/L	1	3/1/2017 2:21:44 PM	30432
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Dibenzofuran	ND	2.5	10		µg/L	1	3/1/2017 2:21:44 PM	30432

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 3:35:00 PM
Lab ID: 1702B11-006
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 2:21:44 PM	30432
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 2:21:44 PM	30432
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
3,3´-Dichlorobenzidine	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Diethyl phthalate	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Dimethyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	3/1/2017 2:21:44 PM	30432
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	3/1/2017 2:21:44 PM	30432
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	3/1/2017 2:21:44 PM	30432
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	3/1/2017 2:21:44 PM	30432
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Fluoranthene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Fluorene	ND	2.7	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Hexachlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Hexachlorobutadiene	ND	2.2	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Hexachloroethane	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Isophorone	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
1-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2-Methylphenol	ND	2.5	10		µg/L	1	3/1/2017 2:21:44 PM	30432
3+4-Methylphenol	ND	2.3	10		µg/L	1	3/1/2017 2:21:44 PM	30432
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	3/1/2017 2:21:44 PM	30432
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Naphthalene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2-Nitroaniline	ND	2.8	10		µg/L	1	3/1/2017 2:21:44 PM	30432
3-Nitroaniline	ND	2.9	10		µg/L	1	3/1/2017 2:21:44 PM	30432
4-Nitroaniline	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Nitrobenzene	ND	2.8	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2-Nitrophenol	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
4-Nitrophenol	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Pentachlorophenol	ND	2.3	20		µg/L	1	3/1/2017 2:21:44 PM	30432
Phenanthrene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Phenol	ND	2.0	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Pyrene	ND	3.1	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Pyridine	ND	2.2	10		µg/L	1	3/1/2017 2:21:44 PM	30432

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 3:35:00 PM
Lab ID: 1702B11-006
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	3/1/2017 2:21:44 PM	30432
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	3/1/2017 2:21:44 PM	30432
Surr: 2-Fluorophenol	20.8	0	15-98.1		%Rec	1	3/1/2017 2:21:44 PM	30432
Surr: Phenol-d5	20.5	0	15-80.7		%Rec	1	3/1/2017 2:21:44 PM	30432
Surr: 2,4,6-Tribromophenol	45.5	0	15-112		%Rec	1	3/1/2017 2:21:44 PM	30432
Surr: Nitrobenzene-d5	55.8	0	27.2-90.7		%Rec	1	3/1/2017 2:21:44 PM	30432
Surr: 2-Fluorobiphenyl	56.8	0	23.3-85.6		%Rec	1	3/1/2017 2:21:44 PM	30432
Surr: 4-Terphenyl-d14	37.4	0	27.6-107		%Rec	1	3/1/2017 2:21:44 PM	30432
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.096	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Toluene	ND	0.12	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Ethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Methyl tert-butyl ether (MTBE)	16	0.21	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Naphthalene	ND	0.093	2.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Acetone	ND	4.9	10		µg/L	1	2/27/2017 9:47:00 PM	R41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 9:47:00 PM	R41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 9:47:00 PM	R41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 3:35:00 PM
Lab ID: 1702B11-006
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 9:47:00 PM	R41008
Isopropylbenzene	ND	0.10	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 9:47:00 PM	R41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
n-Butylbenzene	ND	0.16	3.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
n-Propylbenzene	ND	0.13	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 9:47:00 PM	R41008
Xylenes, Total	ND	0.37	1.5		µg/L	1	2/27/2017 9:47:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	118	0	70-130		%Rec	1	2/27/2017 9:47:00 PM	R41008
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	2/27/2017 9:47:00 PM	R41008
Surr: Dibromofluoromethane	119	0	70-130		%Rec	1	2/27/2017 9:47:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-3
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 3:35:00 PM
Lab ID: 1702B11-006
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: Toluene-d8	105	0	70-130		%Rec	1	2/27/2017 9:47:00 PM	R41008

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 1:35:00 PM
Lab ID: 1702B11-007
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	ND	0.48	1.0		mg/L	1	2/27/2017 2:23:09 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 2:23:09 PM	30397
Surr: DNOP	116	0	98.8-141		%Rec	1	2/27/2017 2:23:09 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	2/27/2017 5:45:32 PM	AG4102
Surr: BFB	86.5	0	52.3-138		%Rec	1	2/27/2017 5:45:32 PM	AG4102
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	0.32	0.050	0.10		mg/L	1	2/25/2017 12:17:09 AM	R41000
Chloride	110	5.0	10		mg/L	20	2/25/2017 12:29:34 AM	R41000
Bromide	1.7	0.031	0.10		mg/L	1	2/25/2017 12:17:09 AM	R41000
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/1/2017 1:50:16 AM	A41069
Sulfate	110	1.9	10		mg/L	20	2/25/2017 12:29:34 AM	R41000
Nitrate+Nitrite as N	27	0.13	1.0	*	mg/L	5	2/25/2017 2:46:04 AM	R41000
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	0.12	0.00085	0.0020		mg/L	1	3/9/2017 3:16:14 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 3:16:14 PM	A41280
Calcium	110	2.5	5.0		mg/L	5	3/9/2017 3:18:09 PM	A41280
Chromium	ND	0.0010	0.0060		mg/L	1	3/9/2017 3:16:14 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 3:16:14 PM	A41280
Iron	ND	0.020	0.020		mg/L	1	3/9/2017 3:16:14 PM	A41280
Magnesium	20	0.50	1.0		mg/L	1	3/9/2017 3:16:14 PM	A41280
Manganese	0.090	0.00038	0.0020	*	mg/L	1	3/9/2017 3:16:14 PM	A41280
Potassium	0.54	0.50	1.0	J	mg/L	1	3/9/2017 3:16:14 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 3:16:14 PM	A41280
Sodium	350	2.5	5.0		mg/L	5	3/9/2017 3:18:09 PM	A41280
Zinc	0.018	0.0011	0.010		mg/L	1	3/13/2017 3:44:57 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	0.13	0.00079	0.0020		mg/L	1	3/6/2017 9:16:51 AM	30504
Cadmium	ND	0.0015	0.0020		mg/L	1	3/6/2017 9:16:51 AM	30504
Chromium	ND	0.0027	0.0060		mg/L	1	3/6/2017 9:16:51 AM	30504
Copper	ND	0.0030	0.0060		mg/L	1	3/6/2017 9:16:51 AM	30504
Iron	0.14	0.020	0.020		mg/L	1	3/6/2017 9:16:51 AM	30504
Manganese	0.26	0.00027	0.0020	*	mg/L	1	3/6/2017 9:16:51 AM	30504
Silver	ND	0.0015	0.0050		mg/L	1	3/6/2017 9:16:51 AM	30504
Zinc	ND	0.0027	0.010		mg/L	1	3/6/2017 9:16:51 AM	30504
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0028	0.0014	0.010	J	mg/L	10	3/6/2017 6:28:23 PM	B41191

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 1:35:00 PM
Lab ID: 1702B11-007
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	ND	0.00017	0.00050		mg/L	1	2/27/2017 7:49:23 PM	C41030
Selenium	0.0082	0.0021	0.010	J	mg/L	10	3/6/2017 6:28:23 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0042	0.0021	0.010	J	mg/L	10	3/7/2017 1:57:32 PM	30504
Lead	0.00028	0.000081	0.00050	J	mg/L	1	3/3/2017 4:28:55 PM	30504
Selenium	0.0085	0.0019	0.010	J	mg/L	10	3/7/2017 1:57:32 PM	30504
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000053	0.00020		mg/L	1	3/6/2017 5:09:27 PM	30538
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Acenaphthylene	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Aniline	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Anthracene	ND	2.5	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Azobenzene	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Benz(a)anthracene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Benzo(a)pyrene	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Benzoic acid	ND	2.6	20		µg/L	1	3/1/2017 2:49:27 PM	30432
Benzyl alcohol	ND	3.0	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Bis(2-ethylhexyl)phthalate	6.9	2.6	10	J	µg/L	1	3/1/2017 2:49:27 PM	30432
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Carbazole	ND	2.3	10		µg/L	1	3/1/2017 2:49:27 PM	30432
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
4-Chloroaniline	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2-Chloronaphthalene	ND	2.3	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2-Chlorophenol	ND	2.2	10		µg/L	1	3/1/2017 2:49:27 PM	30432
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Chrysene	ND	2.8	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Di-n-butyl phthalate	2.6	2.4	10	J	µg/L	1	3/1/2017 2:49:27 PM	30432
Di-n-octyl phthalate	3.5	2.0	10	J	µg/L	1	3/1/2017 2:49:27 PM	30432
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Dibenzofuran	ND	2.5	10		µg/L	1	3/1/2017 2:49:27 PM	30432

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 1:35:00 PM
Lab ID: 1702B11-007
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 2:49:27 PM	30432
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 2:49:27 PM	30432
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
3,3´-Dichlorobenzidine	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Diethyl phthalate	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Dimethyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	3/1/2017 2:49:27 PM	30432
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	3/1/2017 2:49:27 PM	30432
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	3/1/2017 2:49:27 PM	30432
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	3/1/2017 2:49:27 PM	30432
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Fluoranthene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Fluorene	ND	2.7	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Hexachlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Hexachlorobutadiene	ND	2.2	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Hexachloroethane	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Isophorone	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
1-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2-Methylphenol	ND	2.5	10		µg/L	1	3/1/2017 2:49:27 PM	30432
3+4-Methylphenol	ND	2.3	10		µg/L	1	3/1/2017 2:49:27 PM	30432
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	3/1/2017 2:49:27 PM	30432
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Naphthalene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2-Nitroaniline	ND	2.8	10		µg/L	1	3/1/2017 2:49:27 PM	30432
3-Nitroaniline	ND	2.9	10		µg/L	1	3/1/2017 2:49:27 PM	30432
4-Nitroaniline	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Nitrobenzene	ND	2.8	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2-Nitrophenol	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
4-Nitrophenol	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Pentachlorophenol	ND	2.3	20		µg/L	1	3/1/2017 2:49:27 PM	30432
Phenanthrene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Phenol	ND	2.0	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Pyrene	ND	3.1	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Pyridine	ND	2.2	10		µg/L	1	3/1/2017 2:49:27 PM	30432

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 1:35:00 PM
Lab ID: 1702B11-007
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	3/1/2017 2:49:27 PM	30432
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	3/1/2017 2:49:27 PM	30432
Surr: 2-Fluorophenol	30.0	0	15-98.1		%Rec	1	3/1/2017 2:49:27 PM	30432
Surr: Phenol-d5	24.7	0	15-80.7		%Rec	1	3/1/2017 2:49:27 PM	30432
Surr: 2,4,6-Tribromophenol	54.8	0	15-112		%Rec	1	3/1/2017 2:49:27 PM	30432
Surr: Nitrobenzene-d5	65.4	0	27.2-90.7		%Rec	1	3/1/2017 2:49:27 PM	30432
Surr: 2-Fluorobiphenyl	56.3	0	23.3-85.6		%Rec	1	3/1/2017 2:49:27 PM	30432
Surr: 4-Terphenyl-d14	30.2	0	27.6-107		%Rec	1	3/1/2017 2:49:27 PM	30432
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.096	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Toluene	ND	0.12	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Ethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Methyl tert-butyl ether (MTBE)	1.3	0.21	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Naphthalene	ND	0.093	2.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Acetone	ND	4.9	10		µg/L	1	2/27/2017 10:11:00 PM	R41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 10:11:00 PM	R41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 10:11:00 PM	R41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 1:35:00 PM
Lab ID: 1702B11-007
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 10:11:00 PM	R41008
Isopropylbenzene	ND	0.10	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 10:11:00 PM	R41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
n-Butylbenzene	ND	0.16	3.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
n-Propylbenzene	ND	0.13	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 10:11:00 PM	R41008
Xylenes, Total	ND	0.37	1.5		µg/L	1	2/27/2017 10:11:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	119	0	70-130		%Rec	1	2/27/2017 10:11:00 PM	R41008
Surr: 4-Bromofluorobenzene	110	0	70-130		%Rec	1	2/27/2017 10:11:00 PM	R41008
Surr: Dibromofluoromethane	123	0	70-130		%Rec	1	2/27/2017 10:11:00 PM	R41008

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: NAPIS-1
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 1:35:00 PM
Lab ID: 1702B11-007
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: Toluene-d8	101	0	70-130		%Rec	1	2/27/2017 10:11:00 PM	R41008

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: STP1-NW
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 2:32:00 PM
Lab ID: 1702B11-008
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	ND	0.48	1.0		mg/L	1	2/27/2017 3:18:45 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 3:18:45 PM	30397
Surr: DNOP	117	0	98.8-141		%Rec	1	2/27/2017 3:18:45 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	2/27/2017 6:09:10 PM	AG4102
Surr: BFB	91.3	0	52.3-138		%Rec	1	2/27/2017 6:09:10 PM	AG4102
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.25	0.50		mg/L	5	3/1/2017 2:15:06 AM	A41069
Chloride	2000	50	100		mg/L	200	3/1/2017 2:27:30 AM	A41069
Bromide	4.0	0.61	2.0		mg/L	20	2/25/2017 1:19:12 AM	R41000
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/1/2017 2:02:41 AM	A41069
Sulfate	140	1.9	10		mg/L	20	2/25/2017 1:19:12 AM	R41000
Nitrate+Nitrite as N	24	0.26	2.0	*	mg/L	10	2/28/2017 11:33:56 AM	R41069
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	0.12	0.00085	0.0020		mg/L	1	3/9/2017 3:20:04 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 3:20:04 PM	A41280
Calcium	91	0.50	1.0		mg/L	1	3/9/2017 3:20:04 PM	A41280
Chromium	ND	0.0010	0.0060		mg/L	1	3/9/2017 3:20:04 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 3:20:04 PM	A41280
Iron	0.031	0.020	0.020		mg/L	1	3/9/2017 3:20:04 PM	A41280
Magnesium	13	0.50	1.0		mg/L	1	3/9/2017 3:20:04 PM	A41280
Manganese	0.00045	0.00038	0.0020	J	mg/L	1	3/9/2017 3:20:04 PM	A41280
Potassium	5.8	0.50	1.0		mg/L	1	3/9/2017 3:20:04 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 3:20:04 PM	A41280
Sodium	1500	25	50		mg/L	50	3/13/2017 3:48:46 PM	A41337
Zinc	0.020	0.0011	0.010		mg/L	1	3/13/2017 3:46:50 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	0.29	0.00079	0.0020		mg/L	1	3/6/2017 9:19:32 AM	30504
Cadmium	ND	0.0015	0.0020		mg/L	1	3/6/2017 9:19:32 AM	30504
Chromium	0.0042	0.0027	0.0060	J	mg/L	1	3/6/2017 9:19:32 AM	30504
Copper	ND	0.0030	0.0060		mg/L	1	3/6/2017 9:19:32 AM	30504
Iron	3.1	0.10	0.10	*	mg/L	5	3/7/2017 8:22:18 AM	30504
Manganese	0.14	0.00027	0.0020	*	mg/L	1	3/6/2017 9:19:32 AM	30504
Silver	ND	0.0015	0.0050		mg/L	1	3/6/2017 9:19:32 AM	30504
Zinc	0.031	0.0027	0.010		mg/L	1	3/7/2017 8:19:44 AM	30504
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0063	0.0014	0.010	J	mg/L	10	3/6/2017 6:34:30 PM	B41191

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: STP1-NW
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 2:32:00 PM
Lab ID: 1702B11-008
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	ND	0.00084	0.0025		mg/L	5	3/6/2017 6:31:26 PM	B41191
Selenium	0.022	0.0011	0.0050		mg/L	5	3/6/2017 6:31:26 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0094	0.0021	0.010	J	mg/L	10	3/7/2017 2:03:33 PM	30504
Lead	0.0043	0.00041	0.0025		mg/L	5	3/7/2017 2:00:32 PM	30504
Selenium	0.019	0.00094	0.0050		mg/L	5	3/7/2017 2:00:32 PM	30504
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000053	0.00020		mg/L	1	3/6/2017 5:11:31 PM	30538
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.096	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Toluene	ND	0.12	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Ethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Methyl tert-butyl ether (MTBE)	0.63	0.21	1.0	J	µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Naphthalene	ND	0.093	2.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Acetone	ND	4.9	10		µg/L	1	2/27/2017 10:34:00 PM	R41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 10:34:00 PM	R41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 10:34:00 PM	R41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: STP1-NW
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 2:32:00 PM
Lab ID: 1702B11-008
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 10:34:00 PM	R41008
Isopropylbenzene	ND	0.10	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 10:34:00 PM	R41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
n-Butylbenzene	ND	0.16	3.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
n-Propylbenzene	ND	0.13	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 10:34:00 PM	R41008
Xylenes, Total	ND	0.37	1.5		µg/L	1	2/27/2017 10:34:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	117	0	70-130		%Rec	1	2/27/2017 10:34:00 PM	R41008
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	2/27/2017 10:34:00 PM	R41008
Surr: Dibromofluoromethane	116	0	70-130		%Rec	1	2/27/2017 10:34:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: STP1-NW
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 2:32:00 PM
Lab ID: 1702B11-008
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: Toluene-d8	102	0	70-130		%Rec	1	2/27/2017 10:34:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: West LDU
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 4:00:00 PM
Lab ID: 1702B11-009
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	14	0.48	1.0		mg/L	1	2/27/2017 3:46:18 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 3:46:18 PM	30397
Surr: DNOP	118	0	98.8-141		%Rec	1	2/27/2017 3:46:18 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	2.6	0.25	0.50		mg/L	10	2/27/2017 8:06:27 PM	AG4102
Surr: BFB	100	0	52.3-138		%Rec	10	2/27/2017 8:06:27 PM	AG4102
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	0.22	0.00085	0.0020		mg/L	1	3/9/2017 3:24:03 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 3:24:03 PM	A41280
Chromium	2.2	0.0051	0.030	*	mg/L	5	3/9/2017 3:26:00 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 3:24:03 PM	A41280
Iron	0.59	0.020	0.020	*	mg/L	1	3/9/2017 3:24:03 PM	A41280
Manganese	2.7	0.0019	0.010	*	mg/L	5	3/9/2017 3:26:00 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 3:24:03 PM	A41280
Zinc	0.019	0.0011	0.010		mg/L	1	3/13/2017 3:50:34 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	0.22	0.00079	0.0020		mg/L	1	3/6/2017 9:22:05 AM	30504
Cadmium	ND	0.0015	0.0020		mg/L	1	3/6/2017 9:22:05 AM	30504
Chromium	2.1	0.013	0.030	*	mg/L	5	3/7/2017 8:27:41 AM	30504
Copper	ND	0.0030	0.0060		mg/L	1	3/6/2017 9:22:05 AM	30504
Iron	1.4	0.10	0.10	*	mg/L	5	3/7/2017 8:27:41 AM	30504
Manganese	2.6	0.0014	0.010	*	mg/L	5	3/7/2017 8:27:41 AM	30504
Silver	ND	0.0015	0.0050		mg/L	1	3/6/2017 9:22:05 AM	30504
Zinc	0.014	0.0027	0.010		mg/L	1	3/7/2017 8:25:03 AM	30504
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0068	0.00069	0.0050		mg/L	5	3/6/2017 6:37:33 PM	B41191
Lead	ND	0.00084	0.0025		mg/L	5	3/6/2017 6:37:33 PM	B41191
Selenium	0.0054	0.0011	0.0050		mg/L	5	3/6/2017 6:37:33 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0072	0.0011	0.0050		mg/L	5	3/7/2017 2:15:39 PM	30504
Lead	ND	0.00041	0.0025		mg/L	5	3/7/2017 2:15:39 PM	30504
Selenium	0.0050	0.00094	0.0050	J	mg/L	5	3/7/2017 2:15:39 PM	30504
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	0.000064	0.000053	0.00020	J	mg/L	1	3/6/2017 5:13:35 PM	30538
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	290	0.96	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: West LDU
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 4:00:00 PM
Lab ID: 1702B11-009
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Toluene	24	1.2	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Ethylbenzene	32	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Methyl tert-butyl ether (MTBE)	9.8	2.1	10	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2,4-Trimethylbenzene	17	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,3,5-Trimethylbenzene	7.6	1.2	10	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	1.2	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Naphthalene	22	0.93	20	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1-Methylnaphthalene	26	2.0	40	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
2-Methylnaphthalene	23	1.6	40	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
Acetone	ND	49	100	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Bromobenzene	ND	0.98	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Bromodichloromethane	ND	1.4	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Bromoform	ND	1.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Bromomethane	ND	7.8	30	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
2-Butanone	ND	7.4	100	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Carbon disulfide	19	6.0	100	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
Carbon Tetrachloride	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Chlorobenzene	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Chloroethane	ND	1.9	20	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Chloroform	ND	0.89	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Chloromethane	ND	2.1	30	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
2-Chlorotoluene	ND	4.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
4-Chlorotoluene	ND	1.3	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
cis-1,2-DCE	ND	1.2	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
cis-1,3-Dichloropropene	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	2.3	20	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Dibromochloromethane	ND	0.87	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Dibromomethane	ND	1.2	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2-Dichlorobenzene	ND	4.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,3-Dichlorobenzene	ND	1.4	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,4-Dichlorobenzene	ND	1.4	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Dichlorodifluoromethane	ND	3.6	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,1-Dichloroethane	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,1-Dichloroethene	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2-Dichloropropane	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,3-Dichloropropane	ND	1.6	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
2,2-Dichloropropane	ND	1.7	20	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,1-Dichloropropene	ND	1.3	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: West LDU
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 4:00:00 PM
Lab ID: 1702B11-009
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Hexachlorobutadiene	ND	2.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
2-Hexanone	ND	8.4	100	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Isopropylbenzene	4.1	1.0	10	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
4-Isopropyltoluene	2.0	1.4	10	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
4-Methyl-2-pentanone	ND	4.3	100	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Methylene Chloride	ND	1.9	30	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
n-Butylbenzene	ND	1.6	30	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
n-Propylbenzene	4.0	1.3	10	JD	µg/L	10	2/27/2017 3:06:00 PM	R41008
sec-Butylbenzene	ND	1.2	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Styrene	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
tert-Butylbenzene	ND	1.2	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	1.3	20	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Tetrachloroethene (PCE)	ND	1.5	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
trans-1,2-DCE	ND	4.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
trans-1,3-Dichloropropene	ND	1.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2,3-Trichlorobenzene	ND	1.1	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2,4-Trichlorobenzene	ND	1.3	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,1,1-Trichloroethane	ND	0.91	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,1,2-Trichloroethane	ND	1.3	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Trichloroethene (TCE)	ND	1.8	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Trichlorofluoromethane	ND	2.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
1,2,3-Trichloropropane	ND	2.0	20	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Vinyl chloride	ND	2.0	10	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Xylenes, Total	60	3.7	15	D	µg/L	10	2/27/2017 3:06:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	85.1	0	70-130	D	%Rec	10	2/27/2017 3:06:00 PM	R41008
Surr: 4-Bromofluorobenzene	99.1	0	70-130	D	%Rec	10	2/27/2017 3:06:00 PM	R41008
Surr: Dibromofluoromethane	107	0	70-130	D	%Rec	10	2/27/2017 3:06:00 PM	R41008
Surr: Toluene-d8	107	0	70-130	D	%Rec	10	2/27/2017 3:06:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: East LDU
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 4:15:00 PM
Lab ID: 1702B11-010
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	27	0.48	1.0		mg/L	1	2/27/2017 4:14:10 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 4:14:10 PM	30397
Surr: DNOP	116	0	98.8-141		%Rec	1	2/27/2017 4:14:10 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	4.4	0.25	0.50		mg/L	10	2/27/2017 8:29:54 PM	AG4102
Surr: BFB	116	0	52.3-138		%Rec	10	2/27/2017 8:29:54 PM	AG4102
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	0.13	0.00085	0.0020		mg/L	1	3/9/2017 3:27:57 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 3:27:57 PM	A41280
Chromium	1.2	0.0051	0.030	*	mg/L	5	3/9/2017 3:29:57 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 3:27:57 PM	A41280
Iron	91	2.0	2.0	*	mg/L	100	3/13/2017 4:01:54 PM	A41337
Manganese	15	0.0077	0.040	*	mg/L	20	3/13/2017 4:00:22 PM	A41337
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 3:27:57 PM	A41280
Zinc	0.057	0.0011	0.010		mg/L	1	3/13/2017 3:58:35 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	0.13	0.00079	0.0020		mg/L	1	3/6/2017 12:25:33 PM	30504
Cadmium	ND	0.0015	0.0020		mg/L	1	3/6/2017 12:25:33 PM	30504
Chromium	1.2	0.013	0.030	*	mg/L	5	3/7/2017 8:43:13 AM	30504
Copper	0.039	0.0030	0.0060		mg/L	1	3/6/2017 12:25:33 PM	30504
Iron	84	2.0	2.0	*	mg/L	100	3/7/2017 8:48:29 AM	30504
Manganese	14	0.014	0.10	*	mg/L	50	3/7/2017 8:45:40 AM	30504
Silver	ND	0.0015	0.0050		mg/L	1	3/6/2017 12:25:33 PM	30504
Zinc	0.063	0.0027	0.010		mg/L	1	3/6/2017 12:25:33 PM	30504
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0039	0.00014	0.0010		mg/L	1	3/6/2017 6:46:43 PM	B41191
Lead	0.00069	0.00017	0.00050		mg/L	1	3/6/2017 6:46:43 PM	B41191
Selenium	0.0032	0.00021	0.0010		mg/L	1	3/6/2017 6:46:43 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0049	0.0011	0.0050	J	mg/L	5	3/7/2017 2:24:44 PM	30504
Lead	0.0018	0.000081	0.00050		mg/L	1	3/3/2017 4:37:56 PM	30504
Selenium	0.0025	0.00094	0.0050	J	mg/L	5	3/7/2017 2:24:44 PM	30504
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	0.00022	0.000053	0.00020		mg/L	1	3/6/2017 5:15:33 PM	30538
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	230	0.96	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: East LDU
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 4:15:00 PM
Lab ID: 1702B11-010
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Toluene	140	1.2	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Ethylbenzene	140	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Methyl tert-butyl ether (MTBE)	13	2.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2,4-Trimethylbenzene	110	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,3,5-Trimethylbenzene	100	1.2	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2-Dichloroethane (EDC)	ND	1.2	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2-Dibromoethane (EDB)	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Naphthalene	92	0.93	20	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1-Methylnaphthalene	55	2.0	40	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
2-Methylnaphthalene	58	1.6	40	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Acetone	2000	49	100	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Bromobenzene	ND	0.98	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Bromodichloromethane	ND	1.4	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Bromoform	ND	1.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Bromomethane	ND	7.8	30	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
2-Butanone	360	7.4	100	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Carbon disulfide	ND	6.0	100	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Carbon Tetrachloride	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Chlorobenzene	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Chloroethane	ND	1.9	20	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Chloroform	ND	0.89	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Chloromethane	ND	2.1	30	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
2-Chlorotoluene	ND	4.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
4-Chlorotoluene	ND	1.3	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
cis-1,2-DCE	ND	1.2	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
cis-1,3-Dichloropropene	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2-Dibromo-3-chloropropane	ND	2.3	20	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Dibromochloromethane	ND	0.87	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Dibromomethane	ND	1.2	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2-Dichlorobenzene	ND	4.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,3-Dichlorobenzene	ND	1.4	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,4-Dichlorobenzene	ND	1.4	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Dichlorodifluoromethane	ND	3.6	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,1-Dichloroethane	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,1-Dichloroethene	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2-Dichloropropane	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,3-Dichloropropane	ND	1.6	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
2,2-Dichloropropane	ND	1.7	20	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,1-Dichloropropene	ND	1.3	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: East LDU
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017 4:15:00 PM
Lab ID: 1702B11-010
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Hexachlorobutadiene	ND	2.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
2-Hexanone	ND	8.4	100	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Isopropylbenzene	18	1.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
4-Isopropyltoluene	7.5	1.4	10	JD	µg/L	10	2/27/2017 3:30:00 PM	R41008
4-Methyl-2-pentanone	52	4.3	100	JD	µg/L	10	2/27/2017 3:30:00 PM	R41008
Methylene Chloride	ND	1.9	30	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
n-Butylbenzene	6.8	1.6	30	JD	µg/L	10	2/27/2017 3:30:00 PM	R41008
n-Propylbenzene	28	1.3	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
sec-Butylbenzene	6.5	1.2	10	JD	µg/L	10	2/27/2017 3:30:00 PM	R41008
Styrene	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
tert-Butylbenzene	ND	1.2	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,1,1,2-Tetrachloroethane	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,1,2,2-Tetrachloroethane	ND	1.3	20	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Tetrachloroethene (PCE)	ND	1.5	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
trans-1,2-DCE	ND	4.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
trans-1,3-Dichloropropene	ND	1.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2,3-Trichlorobenzene	ND	1.1	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2,4-Trichlorobenzene	ND	1.3	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,1,1-Trichloroethane	ND	0.91	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,1,2-Trichloroethane	ND	1.3	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Trichloroethene (TCE)	ND	1.8	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Trichlorofluoromethane	ND	2.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
1,2,3-Trichloropropane	ND	2.0	20	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Vinyl chloride	ND	2.0	10	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Xylenes, Total	300	3.7	15	D	µg/L	10	2/27/2017 3:30:00 PM	R41008
Surr: 1,2-Dichloroethane-d4	94.6	0	70-130	D	%Rec	10	2/27/2017 3:30:00 PM	R41008
Surr: 4-Bromofluorobenzene	105	0	70-130	D	%Rec	10	2/27/2017 3:30:00 PM	R41008
Surr: Dibromofluoromethane	105	0	70-130	D	%Rec	10	2/27/2017 3:30:00 PM	R41008
Surr: Toluene-d8	108	0	70-130	D	%Rec	10	2/27/2017 3:30:00 PM	R41008

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Duplicate
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017
Lab ID: 1702B11-011
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	ND	0.48	1.0		mg/L	1	2/27/2017 4:41:54 PM	30397
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	2/27/2017 4:41:54 PM	30397
Surr: DNOP	120	0	98.8-141		%Rec	1	2/27/2017 4:41:54 PM	30397
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	2/27/2017 8:53:21 PM	AG4102
Surr: BFB	90.5	0	52.3-138		%Rec	1	2/27/2017 8:53:21 PM	AG4102
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.25	0.50		mg/L	5	3/1/2017 3:17:09 AM	A41069
Chloride	1700	50	100		mg/L	200	3/1/2017 3:29:34 AM	A41069
Bromide	3.7	0.61	2.0		mg/L	20	2/25/2017 1:44:01 AM	R41000
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/1/2017 3:04:44 AM	A41069
Sulfate	130	1.9	10		mg/L	20	2/25/2017 1:44:01 AM	R41000
Nitrate+Nitrite as N	24	0.26	2.0	*	mg/L	10	2/28/2017 11:46:21 AM	R41069
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **MED**	
Barium	0.12	0.00085	0.0020		mg/L	1	3/9/2017 3:31:35 PM	A41280
Cadmium	ND	0.0010	0.0020		mg/L	1	3/9/2017 3:31:35 PM	A41280
Calcium	90	0.50	1.0		mg/L	1	3/9/2017 3:31:35 PM	A41280
Chromium	ND	0.0010	0.0060		mg/L	1	3/9/2017 3:31:35 PM	A41280
Copper	ND	0.0032	0.0060		mg/L	1	3/9/2017 3:31:35 PM	A41280
Iron	0.044	0.020	0.020		mg/L	1	3/9/2017 3:31:35 PM	A41280
Magnesium	13	0.50	1.0		mg/L	1	3/9/2017 3:31:35 PM	A41280
Manganese	0.00042	0.00038	0.0020	J	mg/L	1	3/9/2017 3:31:35 PM	A41280
Potassium	5.9	0.50	1.0		mg/L	1	3/9/2017 3:31:35 PM	A41280
Silver	ND	0.00088	0.0050		mg/L	1	3/9/2017 3:31:35 PM	A41280
Sodium	1500	25	50		mg/L	50	3/13/2017 4:15:28 PM	A41337
Zinc	0.025	0.0011	0.010		mg/L	1	3/13/2017 4:03:58 PM	A41337
EPA METHOD 200.7: TOTAL METALS							Analyst: **MED**	
Barium	0.23	0.00079	0.0020		mg/L	1	3/6/2017 12:28:07 PM	30504
Cadmium	ND	0.0015	0.0020		mg/L	1	3/6/2017 12:28:07 PM	30504
Chromium	0.0031	0.0027	0.0060	J	mg/L	1	3/6/2017 12:28:07 PM	30504
Copper	0.0044	0.0030	0.0060	J	mg/L	1	3/6/2017 12:28:07 PM	30504
Iron	3.1	0.10	0.10	*	mg/L	5	3/7/2017 8:53:52 AM	30504
Manganese	0.11	0.00027	0.0020	*	mg/L	1	3/6/2017 12:28:07 PM	30504
Silver	ND	0.0015	0.0050		mg/L	1	3/6/2017 12:28:07 PM	30504
Zinc	0.028	0.0027	0.010		mg/L	1	3/6/2017 12:28:07 PM	30504
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0063	0.0014	0.010	J	mg/L	10	3/6/2017 7:02:03 PM	B41191

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Duplicate
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017
Lab ID: 1702B11-011
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	ND	0.00084	0.0025		mg/L	5	3/6/2017 6:49:47 PM	B41191
Selenium	0.027	0.0011	0.0050		mg/L	5	3/6/2017 6:49:47 PM	B41191
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0088	0.0021	0.010	J	mg/L	10	3/7/2017 2:33:46 PM	30504
Lead	0.0043	0.00041	0.0025		mg/L	5	3/7/2017 2:30:45 PM	30504
Selenium	0.021	0.00094	0.0050		mg/L	5	3/7/2017 2:30:45 PM	30504
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000053	0.00020		mg/L	1	3/6/2017 5:17:31 PM	30538
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.096	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Toluene	ND	0.12	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Ethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Methyl tert-butyl ether (MTBE)	0.66	0.21	1.0	J	µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Naphthalene	ND	0.093	2.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Acetone	ND	4.9	10		µg/L	1	2/27/2017 11:45:00 PM	B41008
Bromobenzene	ND	0.098	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Bromodichloromethane	ND	0.14	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Bromoform	ND	0.10	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Bromomethane	ND	0.78	3.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
2-Butanone	ND	0.74	10		µg/L	1	2/27/2017 11:45:00 PM	B41008
Carbon disulfide	ND	0.60	10		µg/L	1	2/27/2017 11:45:00 PM	B41008
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Chlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Chloroethane	ND	0.19	2.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Chloroform	ND	0.089	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Chloromethane	ND	0.21	3.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Dibromochloromethane	ND	0.087	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Duplicate
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017
Lab ID: 1702B11-011
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Dibromomethane	ND	0.12	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
2-Hexanone	ND	0.84	10		µg/L	1	2/27/2017 11:45:00 PM	B41008
Isopropylbenzene	ND	0.10	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	2/27/2017 11:45:00 PM	B41008
Methylene Chloride	ND	0.19	3.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
n-Butylbenzene	ND	0.16	3.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
n-Propylbenzene	ND	0.13	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Styrene	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Vinyl chloride	ND	0.20	1.0		µg/L	1	2/27/2017 11:45:00 PM	B41008
Xylenes, Total	ND	0.37	1.5		µg/L	1	2/27/2017 11:45:00 PM	B41008
Surr: 1,2-Dichloroethane-d4	118	0	70-130		%Rec	1	2/27/2017 11:45:00 PM	B41008
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	2/27/2017 11:45:00 PM	B41008
Surr: Dibromofluoromethane	120	0	70-130		%Rec	1	2/27/2017 11:45:00 PM	B41008

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Duplicate
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017
Lab ID: 1702B11-011
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: Toluene-d8	103	0	70-130		%Rec	1	2/27/2017 11:45:00 PM	B41008

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Duplicate
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017
Lab ID: 1702B11-012
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Acenaphthylene	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Aniline	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Anthracene	ND	2.5	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Azobenzene	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Benz(a)anthracene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Benzo(a)pyrene	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Benzoic acid	ND	2.6	20		µg/L	1	3/1/2017 6:04:17 PM	30412
Benzyl alcohol	ND	3.0	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Bis(2-ethylhexyl)phthalate	7.1	2.6	10	J	µg/L	1	3/1/2017 6:04:17 PM	30412
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Carbazole	ND	2.3	10		µg/L	1	3/1/2017 6:04:17 PM	30412
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
4-Chloroaniline	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2-Chloronaphthalene	ND	2.3	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2-Chlorophenol	ND	2.2	10		µg/L	1	3/1/2017 6:04:17 PM	30412
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Chrysene	ND	2.8	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Di-n-octyl phthalate	3.7	2.0	10	J	µg/L	1	3/1/2017 6:04:17 PM	30412
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Dibenzofuran	ND	2.5	10		µg/L	1	3/1/2017 6:04:17 PM	30412
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 6:04:17 PM	30412
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	3/1/2017 6:04:17 PM	30412
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
3,3´-Dichlorobenzidine	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Diethyl phthalate	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Dimethyl phthalate	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	3/1/2017 6:04:17 PM	30412
2,4-Dimethylphenol	17	3.0	10		µg/L	1	3/1/2017 6:04:17 PM	30412
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	3/1/2017 6:04:17 PM	30412
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	3/1/2017 6:04:17 PM	30412

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Duplicate
Project: 2017 1ST Quarter GW Wells
Collection Date: 2/21/2017
Lab ID: 1702B11-012
Matrix: AQUEOUS
Received Date: 2/24/2017 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Fluoranthene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Fluorene	ND	2.7	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Hexachlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Hexachlorobutadiene	ND	2.2	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Hexachloroethane	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Isophorone	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
1-Methylnaphthalene	12	2.9	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2-Methylnaphthalene	ND	2.9	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2-Methylphenol	ND	2.5	10		µg/L	1	3/1/2017 6:04:17 PM	30412
3+4-Methylphenol	ND	2.3	10		µg/L	1	3/1/2017 6:04:17 PM	30412
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	3/1/2017 6:04:17 PM	30412
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Naphthalene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2-Nitroaniline	ND	2.8	10		µg/L	1	3/1/2017 6:04:17 PM	30412
3-Nitroaniline	ND	2.9	10		µg/L	1	3/1/2017 6:04:17 PM	30412
4-Nitroaniline	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Nitrobenzene	ND	2.8	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2-Nitrophenol	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
4-Nitrophenol	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Pentachlorophenol	ND	2.3	20		µg/L	1	3/1/2017 6:04:17 PM	30412
Phenanthrene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Phenol	ND	2.0	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Pyrene	ND	3.1	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Pyridine	ND	2.2	10		µg/L	1	3/1/2017 6:04:17 PM	30412
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	3/1/2017 6:04:17 PM	30412
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	3/1/2017 6:04:17 PM	30412
Surr: 2-Fluorophenol	42.8	0	15-98.1		%Rec	1	3/1/2017 6:04:17 PM	30412
Surr: Phenol-d5	33.9	0	15-80.7		%Rec	1	3/1/2017 6:04:17 PM	30412
Surr: 2,4,6-Tribromophenol	58.2	0	15-112		%Rec	1	3/1/2017 6:04:17 PM	30412
Surr: Nitrobenzene-d5	77.5	0	27.2-90.7		%Rec	1	3/1/2017 6:04:17 PM	30412
Surr: 2-Fluorobiphenyl	64.2	0	23.3-85.6		%Rec	1	3/1/2017 6:04:17 PM	30412
Surr: 4-Terphenyl-d14	36.3	0	27.6-107		%Rec	1	3/1/2017 6:04:17 PM	30412

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Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	170228014
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1702B11
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	170228014-001	**Sampling Date**	2/21/2017	**Date/Time Received**	2/28/2017 11:00 AM
Client Sample ID	1702B11-003G / OAPIS-1	**Sampling Time**	10:10 AM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.0745	mg/L	0.01	3/7/2017	JEK	EPA 335.4	

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170228014
Project Name: 1702B11

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.501	mg/L	0.5	100.2	90-110	3/7/2017	3/7/2017

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
170223021-001	Cyanide	ND	0.519	mg/L	0.5	103.8	90-110	3/7/2017	3/7/2017

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	0.467	mg/L	0.5	93.4	10.5	0-20	3/7/2017	3/7/2017

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	3/7/2017	3/7/2017

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A41280**	RunNo: **41280**
Prep Date:	Analysis Date: **3/9/2017**	SeqNo: **1293155** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A41280**	RunNo: **41280**
Prep Date:	Analysis Date: **3/9/2017**	SeqNo: **1293156** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	100	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.9	85	115			
Calcium	53	1.0	50.00	0	105	85	115			
Chromium	0.49	0.0060	0.5000	0	98.5	85	115			
Copper	0.49	0.0060	0.5000	0	97.0	85	115			
Iron	0.48	0.020	0.5000	0	96.9	85	115			
Magnesium	53	1.0	50.00	0	106	85	115			
Manganese	0.48	0.0020	0.5000	0	96.0	85	115			
Potassium	52	1.0	50.00	0	103	85	115			
Silver	0.087	0.0050	0.1000	0	87.2	85	115			
Sodium	52	1.0	50.00	0	103	85	115			

Sample ID **LCSLL-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A41280**	RunNo: **41280**
Prep Date:	Analysis Date: **3/9/2017**	SeqNo: **1293157** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0019	0.0020	0.002000	0	96.0	50	150			J
Cadmium	0.0020	0.0020	0.002000	0	102	50	150			
Calcium	0.65	1.0	0.5000	0	131	50	150			J
Chromium	0.0059	0.0060	0.006000	0	98.5	50	150			J
Copper	0.0069	0.0060	0.006000	0	115	50	150			
Iron	0.024	0.020	0.02000	0	118	50	150			

Qualifiers:

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID	**LCSLL-A**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Dissolved Metals**
Client ID:	**BatchQC**	Batch ID:	**A41280**	RunNo:	**41280**
Prep Date:		Analysis Date:	**3/9/2017**	SeqNo:	**1293157** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	0.56	1.0	0.5000	0	111	50	150			J
Manganese	0.0024	0.0020	0.002000	0	118	50	150			
Potassium	0.55	1.0	0.5000	0	111	50	150			J
Silver	0.0049	0.0050	0.005000	0	98.8	50	150			J
Sodium	0.52	1.0	0.5000	0	104	50	150			J

Sample ID	**MB-A**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Dissolved Metals**
Client ID:	**PBW**	Batch ID:	**A41337**	RunNo:	**41337**
Prep Date:		Analysis Date:	**3/13/2017**	SeqNo:	**1295209** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Manganese	ND	0.0020								
Sodium	ND	1.0								
Zinc	ND	0.010								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **MB-30472**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **PBW**	Batch ID: **30472**	RunNo: **41106**
Prep Date: **3/1/2017**	Analysis Date: **3/2/2017**	SeqNo: **1287549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS-30472**	SampType: **LCS**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW**	Batch ID: **30472**	RunNo: **41106**
Prep Date: **3/1/2017**	Analysis Date: **3/2/2017**	SeqNo: **1287550** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	98.8	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.1	85	115			
Chromium	0.48	0.0060	0.5000	0	96.6	85	115			
Copper	0.49	0.0060	0.5000	0	97.7	85	115			
Iron	0.48	0.020	0.5000	0	95.5	85	115			
Manganese	0.48	0.0020	0.5000	0	96.0	85	115			
Silver	0.099	0.0050	0.1000	0	99.4	85	115			
Zinc	0.48	0.010	0.5000	0	95.2	85	115			

Sample ID **LCSLL-30472**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC**	Batch ID: **30472**	RunNo: **41106**
Prep Date: **3/1/2017**	Analysis Date: **3/2/2017**	SeqNo: **1287551** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0021	0.0020	0.002000	0	107	50	150			
Cadmium	0.0017	0.0020	0.002000	0	85.5	50	150			J
Chromium	0.0068	0.0060	0.006000	0	114	50	150			
Copper	0.0045	0.0060	0.006000	0	75.2	50	150			J
Iron	0.020	0.020	0.02000	0	98.3	50	150			J
Manganese	0.0020	0.0020	0.002000	0	99.5	50	150			J
Silver	0.0051	0.0050	0.005000	0	101	50	150			
Zinc	0.0052	0.010	0.005000	0	104	50	150			J

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID	**MB-30504**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**PBW**	Batch ID:	**30504**	RunNo:	**41147**
Prep Date:	**3/2/2017**	Analysis Date:	**3/6/2017**	SeqNo:	**1289946** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	**LCS-30504**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**LCSW**	Batch ID:	**30504**	RunNo:	**41147**
Prep Date:	**3/2/2017**	Analysis Date:	**3/6/2017**	SeqNo:	**1289947** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.48	0.0020	0.5000	0	96.4	85	115			
Chromium	0.47	0.0060	0.5000	0	94.3	85	115			
Copper	0.47	0.0060	0.5000	0	94.7	85	115			
Iron	0.46	0.020	0.5000	0	92.4	85	115			
Manganese	0.47	0.0020	0.5000	0	93.0	85	115			
Silver	0.097	0.0050	0.1000	0	96.7	85	115			
Zinc	0.46	0.010	0.5000	0	92.3	85	115			

Sample ID	**LCSLL-30504**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**BatchQC**	Batch ID:	**30504**	RunNo:	**41147**
Prep Date:	**3/2/2017**	Analysis Date:	**3/6/2017**	SeqNo:	**1289948** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.0022	0.0020	0.002000	0	112	50	150			
Chromium	0.0056	0.0060	0.006000	0	94.0	50	150			J
Copper	0.0060	0.0060	0.006000	0	100	50	150			
Iron	0.019	0.020	0.02000	0	95.1	50	150			J
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Silver	0.0051	0.0050	0.005000	0	102	50	150			
Zinc	0.0052	0.010	0.005000	0	105	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID	**LCS**	SampType:	**LCS**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**LCSW**	Batch ID:	**C41030**	RunNo:	**41030**					
Prep Date:		Analysis Date:	**2/27/2017**	SeqNo:	**1285265**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.011	0.00050	0.01250	0	91.9	85	115			

Sample ID	**LCSLL**	SampType:	**LCSLL**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**BatchQC**	Batch ID:	**C41030**	RunNo:	**41030**					
Prep Date:		Analysis Date:	**2/27/2017**	SeqNo:	**1285267**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00047	0.00050	0.0005000	0	94.8	50	150			J

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**PBW**	Batch ID:	**C41030**	RunNo:	**41030**					
Prep Date:		Analysis Date:	**2/27/2017**	SeqNo:	**1285269**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								

Sample ID	**1702B11-009DMSDL**	SampType:	**MSD**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**West LDU**	Batch ID:	**B41191**	RunNo:	**41191**					
Prep Date:		Analysis Date:	**3/6/2017**	SeqNo:	**1290330**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.14	0.0050	0.1250	0.006779	104	70	130	0.00708	20	
Lead	0.092	0.0025	0.06250	0	148	70	130	3.09	20	S
Selenium	0.12	0.0050	0.1250	0.005383	95.5	70	130	4.82	20	

Sample ID	**1702B11-009DMSLL**	SampType:	**MS**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**West LDU**	Batch ID:	**B41191**	RunNo:	**41191**					
Prep Date:		Analysis Date:	**3/6/2017**	SeqNo:	**1290331**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.14	0.0050	0.1250	0.006779	104	70	130			
Lead	0.090	0.0025	0.06250	0	143	70	130			S
Selenium	0.12	0.0050	0.1250	0.005383	90.8	70	130			

Sample ID	**1702B11-011EMSLL**	SampType:	**MS**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**Duplicate**	Batch ID:	**B41191**	RunNo:	**41191**					
Prep Date:		Analysis Date:	**3/6/2017**	SeqNo:	**1290335**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.064	0.0025	0.06250	0	103	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID	**1702B11-011EMSLL**	SampType:	**MS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**Duplicate**	Batch ID:	**B41191**		RunNo:	**41191**				
Prep Date:		Analysis Date:	**3/6/2017**		SeqNo:	**1290335**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.15	0.0050	0.1250	0.02687	102	70	130			

Sample ID	**LCS**	SampType:	**LCS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**B41191**		RunNo:	**41191**				
Prep Date:		Analysis Date:	**3/6/2017**		SeqNo:	**1290363**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	102	85	115			
Lead	0.012	0.00050	0.01250	0	96.4	85	115			
Selenium	0.027	0.0010	0.02500	0	108	85	115			

Sample ID	**LCSLL**	SampType:	**LCSLL**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**B41191**		RunNo:	**41191**				
Prep Date:		Analysis Date:	**3/6/2017**		SeqNo:	**1290365**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0011	0.0010	0.001000	0	106	50	150			
Lead	0.00049	0.00050	0.0005000	0	98.3	50	150			J
Selenium	0.0012	0.0010	0.001000	0	120	50	150			

Sample ID	**MB**	SampType:	**MBLK**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**PBW**	Batch ID:	**B41191**		RunNo:	**41191**				
Prep Date:		Analysis Date:	**3/6/2017**		SeqNo:	**1290367**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID	**MB-30472**	SampType:	**MBLK**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**PBW**	Batch ID:	**30472**	RunNo:	**41121**					
Prep Date:	**3/1/2017**	Analysis Date:	**3/2/2017**	SeqNo:	**1287862**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	**MSLCS-30472**	SampType:	**LCS**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**LCSW**	Batch ID:	**30472**	RunNo:	**41121**					
Prep Date:	**3/1/2017**	Analysis Date:	**3/2/2017**	SeqNo:	**1287863**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.8	85	115			
Lead	0.013	0.00050	0.01250	0	101	85	115			
Selenium	0.024	0.0010	0.02500	0	96.6	85	115			

Sample ID	**MSLCSLL-30472**	SampType:	**LCSLL**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**BatchQC**	Batch ID:	**30472**	RunNo:	**41121**					
Prep Date:	**3/1/2017**	Analysis Date:	**3/2/2017**	SeqNo:	**1287864**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00049	0.00050	0.0005000	0	98.8	50	150			J
Selenium	0.00069	0.0010	0.001000	0	68.6	50	150			J

Sample ID	**MB-30504**	SampType:	**MBLK**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**PBW**	Batch ID:	**30504**	RunNo:	**41153**					
Prep Date:	**3/2/2017**	Analysis Date:	**3/3/2017**	SeqNo:	**1289016**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	**MSLCS-30504**	SampType:	**LCS**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**LCSW**	Batch ID:	**30504**	RunNo:	**41153**					
Prep Date:	**3/2/2017**	Analysis Date:	**3/3/2017**	SeqNo:	**1289017**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.2	85	115			
Lead	0.012	0.00050	0.01250	0	99.2	85	115			
Selenium	0.024	0.0010	0.02500	0	96.2	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID	**MSLCSLL-30504**	SampType:	**LCSLL**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**BatchQC**	Batch ID:	**30504**	RunNo:	**41153**					
Prep Date:	**3/2/2017**	Analysis Date:	**3/3/2017**	SeqNo:	**1289018**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00094	0.0010	0.001000	0	94.0	50	150			J
Lead	0.00048	0.00050	0.0005000	0	96.5	50	150			J
Selenium	0.00088	0.0010	0.001000	0	87.9	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID	**MB-30538**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**30538**	RunNo:	**41181**					
Prep Date:	**3/6/2017**	Analysis Date:	**3/6/2017**	SeqNo:	**1290025**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-30538**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**30538**	RunNo:	**41181**					
Prep Date:	**3/6/2017**	Analysis Date:	**3/6/2017**	SeqNo:	**1290026**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.5	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R41000**	RunNo: **41000**
Prep Date:	Analysis Date: **2/24/2017**	SeqNo: **1284044** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R41000**	RunNo: **41000**
Prep Date:	Analysis Date: **2/24/2017**	SeqNo: **1284045** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	105	90	110			
Chloride	4.7	0.50	5.000	0	94.4	90	110			
Bromide	2.4	0.10	2.500	0	97.9	90	110			
Sulfate	9.6	0.50	10.00	0	95.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R41069**	RunNo: **41069**
Prep Date:	Analysis Date: **2/28/2017**	SeqNo: **1286505** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R41069**	RunNo: **41069**
Prep Date:	Analysis Date: **2/28/2017**	SeqNo: **1286506** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.1	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A41069**	RunNo: **41069**
Prep Date:	Analysis Date: **2/28/2017**	SeqNo: **1286559** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Phosphorus, Orthophosphate (As P	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A41069**	RunNo: **41069**
Prep Date:	Analysis Date: **2/28/2017**	SeqNo: **1286560** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.56	0.10	0.5000	0	112	90	110			S
Chloride	4.8	0.50	5.000	0	96.9	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	98.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID	**LCS-30397**	SampType:	**LCS**	TestCode:	**EPA Method 8015M/D: Diesel Range**
Client ID:	**LCSW**	Batch ID:	**30397**	RunNo:	**40996**
Prep Date:	**2/27/2017**	Analysis Date:	**2/27/2017**	SeqNo:	**1284442** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.7	1.0	5.000	0	114	63.2	155			
Surr: DNOP	0.58		0.5000		117	98.8	141			

Sample ID	**MB-30397**	SampType:	**MBLK**	TestCode:	**EPA Method 8015M/D: Diesel Range**
Client ID:	**PBW**	Batch ID:	**30397**	RunNo:	**40996**
Prep Date:	**2/27/2017**	Analysis Date:	**2/27/2017**	SeqNo:	**1284443** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.2		1.000		117	98.8	141			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **AG41024**	RunNo: **41024**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284788** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.4	52.3	138			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **AG41024**	RunNo: **41024**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284789** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	79.1	123			
Surr: BFB	12		10.00		123	52.3	138			

Sample ID **1702B11-003AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **OAPIS-1**	Batch ID: **AG41024**	RunNo: **41024**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284791** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	3.4	0.25	2.500	0.9210	100	64.8	129			
Surr: BFB	120		100.0		117	52.3	138			

Sample ID **1702B11-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **OAPIS-1**	Batch ID: **AG41024**	RunNo: **41024**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284792** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	3.4	0.25	2.500	0.9210	101	64.8	129	0.494	20	
Surr: BFB	120		100.0		118	52.3	138	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284869** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	104	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	93.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284877** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284877** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	0.71	10								J
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1284877** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.2	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.5	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **B41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1285014** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	117	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Chlorobenzene	21	1.0	20.00	0	105	70	130			
1,1-Dichloroethene	24	1.0	20.00	0	120	70	130			
Trichloroethene (TCE)	23	1.0	20.00	0	113	70	130			
Surr: 1,2-Dichloroethane-d4	12		10.00		122	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.0	70	130			
Surr: Dibromofluoromethane	12		10.00		120	70	130			
Surr: Toluene-d8	11		10.00		108	70	130			

Sample ID **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **B41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1285015** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **B41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1285015** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	0.65	10								J
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **B41008**	RunNo: **41008**
Prep Date:	Analysis Date: **2/27/2017**	SeqNo: **1285015** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.4	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		123	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **lcs-30412**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **30412**	RunNo: **41091**
Prep Date: **2/27/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287151** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	75	10	100.0	0	74.6	42.9	100			
4-Chloro-3-methylphenol	170	10	200.0	0	84.6	36.2	110			
2-Chlorophenol	150	10	200.0	0	74.0	33.4	97.8			
1,4-Dichlorobenzene	66	10	100.0	0	66.1	32.8	79.3			
2,4-Dinitrotoluene	65	10	100.0	0	64.9	34.9	107			
N-Nitrosodi-n-propylamine	81	10	100.0	0	80.8	30.7	111			
4-Nitrophenol	80	10	200.0	0	39.8	15	91.9			
Pentachlorophenol	120	20	200.0	0	61.8	33.3	93.5			
Phenol	80	10	200.0	0	39.8	20.9	86.4			
Pyrene	72	10	100.0	0	72.1	45.6	111			
1,2,4-Trichlorobenzene	72	10	100.0	0	72.0	38.7	88.2			
Surr: 2-Fluorophenol	110		200.0		54.7	15	98.1			
Surr: Phenol-d5	83		200.0		41.4	15	80.7			
Surr: 2,4,6-Tribromophenol	150		200.0		75.4	15	112			
Surr: Nitrobenzene-d5	80		100.0		79.7	27.2	90.7			
Surr: 2-Fluorobiphenyl	71		100.0		71.1	23.3	85.6			
Surr: 4-Terphenyl-d14	62		100.0		62.4	27.6	107			

Sample ID **lcs-30432**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **30432**	RunNo: **41091**
Prep Date: **2/28/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287152** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	78.8	42.9	100			
4-Chloro-3-methylphenol	180	10	200.0	0	91.0	36.2	110			
2-Chlorophenol	160	10	200.0	0	80.8	33.4	97.8			
1,4-Dichlorobenzene	69	10	100.0	0	69.0	32.8	79.3			
2,4-Dinitrotoluene	71	10	100.0	0	70.7	34.9	107			
N-Nitrosodi-n-propylamine	85	10	100.0	0	85.1	30.7	111			
4-Nitrophenol	81	10	200.0	0	40.6	15	91.9			
Pentachlorophenol	140	20	200.0	0	70.0	33.3	93.5			
Phenol	86	10	200.0	0	43.1	20.9	86.4			
Pyrene	79	10	100.0	0	79.1	45.6	111			
1,2,4-Trichlorobenzene	77	10	100.0	0	77.3	38.7	88.2			
Surr: 2-Fluorophenol	120		200.0		58.8	15	98.1			
Surr: Phenol-d5	88		200.0		44.2	15	80.7			
Surr: 2,4,6-Tribromophenol	170		200.0		84.2	15	112			
Surr: Nitrobenzene-d5	83		100.0		82.8	27.2	90.7			
Surr: 2-Fluorobiphenyl	77		100.0		76.7	23.3	85.6			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **lcs-30432**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **30432**	RunNo: **41091**
Prep Date: **2/28/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287152** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	68		100.0		67.7	27.6	107			

Sample ID **lcsd-30412**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **30412**	RunNo: **41091**
Prep Date: **2/27/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287153** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	61	10	100.0	0	61.5	42.9	100	19.3	37.4	
4-Chloro-3-methylphenol	86	10	200.0	0	42.8	36.2	110	65.6	26.8	R
2-Chlorophenol	89	10	200.0	0	44.4	33.4	97.8	50.0	30.3	R
1,4-Dichlorobenzene	57	10	100.0	0	56.8	32.8	79.3	15.1	32	
2,4-Dinitrotoluene	52	10	100.0	0	52.5	34.9	107	21.2	36.7	
N-Nitrosodi-n-propylamine	69	10	100.0	0	68.9	30.7	111	15.9	29.9	
4-Nitrophenol	44	10	200.0	0	21.9	15	91.9	58.1	28.8	R
Pentachlorophenol	82	20	200.0	0	41.0	33.3	93.5	40.6	38.2	R
Phenol	53	10	200.0	0	26.3	20.9	86.4	40.9	39.8	R
Pyrene	60	10	100.0	0	59.9	45.6	111	18.5	28.3	
1,2,4-Trichlorobenzene	57	10	100.0	0	57.2	38.7	88.2	23.0	39.8	
Surr: 2-Fluorophenol	66		200.0		32.8	15	98.1	0	0	
Surr: Phenol-d5	52		200.0		26.0	15	80.7	0	0	
Surr: 2,4,6-Tribromophenol	96		200.0		48.0	15	112	0	0	
Surr: Nitrobenzene-d5	64		100.0		64.2	27.2	90.7	0	0	
Surr: 2-Fluorobiphenyl	63		100.0		62.5	23.3	85.6	0	0	
Surr: 4-Terphenyl-d14	38		100.0		38.2	27.6	107	0	0	

Sample ID **lcsd-30432**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **30432**	RunNo: **41091**
Prep Date: **2/28/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287154** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	61	10	100.0	0	60.8	42.9	100	25.8	37.4	
4-Chloro-3-methylphenol	91	10	200.0	0	45.3	36.2	110	67.0	26.8	R
2-Chlorophenol	80	10	200.0	0	39.9	33.4	97.8	67.8	30.3	R
1,4-Dichlorobenzene	47	10	100.0	0	46.7	32.8	79.3	38.4	32	R
2,4-Dinitrotoluene	59	10	100.0	0	58.6	34.9	107	18.7	36.7	
N-Nitrosodi-n-propylamine	64	10	100.0	0	63.6	30.7	111	28.9	29.9	
4-Nitrophenol	49	10	200.0	0	24.3	15	91.9	50.0	28.8	R
Pentachlorophenol	76	20	200.0	0	38.2	33.3	93.5	58.8	38.2	R
Phenol	46	10	200.0	0	23.2	20.9	86.4	60.1	39.8	R
Pyrene	63	10	100.0	0	63.3	45.6	111	22.1	28.3	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID	**lcsd-30432**	SampType:	**LCSD**	TestCode:	**EPA Method 8270C: Semivolatiles**					
Client ID:	**LCSS02**	Batch ID:	**30432**	RunNo:	**41091**					
Prep Date:	**2/28/2017**	Analysis Date:	**3/1/2017**	SeqNo:	**1287154**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	52	10	100.0	0	51.9	38.7	88.2	39.3	39.8	
Surr: 2-Fluorophenol	54		200.0		26.9	15	98.1	0	0	
Surr: Phenol-d5	46		200.0		23.1	15	80.7	0	0	
Surr: 2,4,6-Tribromophenol	92		200.0		45.9	15	112	0	0	
Surr: Nitrobenzene-d5	61		100.0		61.5	27.2	90.7	0	0	
Surr: 2-Fluorobiphenyl	59		100.0		58.7	23.3	85.6	0	0	
Surr: 4-Terphenyl-d14	36		100.0		36.0	27.6	107	0	0	

Sample ID	**mb-30412**	SampType:	**MBLK**	TestCode:	**EPA Method 8270C: Semivolatiles**					
Client ID:	**PBW**	Batch ID:	**30412**	RunNo:	**41091**					
Prep Date:	**2/27/2017**	Analysis Date:	**3/1/2017**	SeqNo:	**1287155**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	6.7	20								J
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	7.3	10								J
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **mb-30412**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **30412**	RunNo: **41091**
Prep Date: **2/27/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287155** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Di-n-octyl phthalate	3.6	10								J
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	3.4	20								J
Phenanthrene	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **mb-30412**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **30412**	RunNo: **41091**
Prep Date: **2/27/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287155** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	99		200.0		49.7	15	98.1			
Surr: Phenol-d5	82		200.0		41.1	15	80.7			
Surr: 2,4,6-Tribromophenol	150		200.0		75.9	15	112			
Surr: Nitrobenzene-d5	77		100.0		77.2	27.2	90.7			
Surr: 2-Fluorobiphenyl	73		100.0		72.5	23.3	85.6			
Surr: 4-Terphenyl-d14	61		100.0		61.3	27.6	107			

Sample ID **mb-30432**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **30432**	RunNo: **41091**
Prep Date: **2/28/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287156** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	6.8	20								J
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	7.4	10								J
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**
14-Mar-17

Client: Western Refining Southwest, Gallup
Project: 2017 1ST Quarter GW Wells

Sample ID **mb-30432**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**							
Client ID: **PBW**	Batch ID: **30432**	RunNo: **41091**							
Prep Date: **2/28/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287156**	Units: **µg/L**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	3.5	10								J
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	3.9	10								J
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	4.0	20								J
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1702B11**

14-Mar-17

Client: Western Refining Southwest, Gallup

Project: 2017 1ST Quarter GW Wells

Sample ID **mb-30432**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **30432**	RunNo: **41091**
Prep Date: **2/28/2017**	Analysis Date: **3/1/2017**	SeqNo: **1287156** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	3.5	20								J
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	2.5	10								J
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	93		200.0		46.4	15	98.1			
Surr: Phenol-d5	71		200.0		35.3	15	80.7			
Surr: 2,4,6-Tribromophenol	130		200.0		66.6	15	112			
Surr: Nitrobenzene-d5	70		100.0		70.4	27.2	90.7			
Surr: 2-Fluorobiphenyl	62		100.0		62.2	23.3	85.6			
Surr: 4-Terphenyl-d14	55		100.0		54.9	27.6	107			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1702B11 RcptNo: 1

Received by/date: 02/24/17

Logged By: Ashley Gallegos 2/24/2017 9:50:00 AM

Completed By: Ashley Gallegos 2/24/2017 10:44:35 AM

Reviewed By: 02/24/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved? aj	~~Yes~~ ☑	No ☐ ✓	
9. Was preservative added to bottles?	Yes ☐ ✓	~~No ☑~~ aj	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 2 (1) (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? yes
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: aj

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:		Date	
By Whom:		Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person	
Regarding:			
Client Instructions:			

17. Additional remarks: For metals analysis: added 1mL HNO3 to cooler for acceptable pH. Held 24 hours prior to analysis.

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Yes			

2/24 @ 1610 aj

Chain-of-Custody Record

Client: Western Refining Company

GALLUP REFINERY

Mailing Address: 92 Giant Crossing Road, Gallup, NM 87301

Phone #: 505-722-3833

Email or Fax#: 505-863-0930

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name: 2017 1ST Quarter GW Wells

Project #: NAP, OAP, STP1, LDU(2)

Project Manager: C. JOHNSON (cheryl.johnson@wnr.com)

Sampler: Cjohnson WNR

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1702811	8260+MTBE	WQCC Metals - Total	WQCC Metals - Dissolved - Filtered	8015D (GRO/DRO/MRO)	MAJOR CATIONS/ANIONS	8270	CYANIDE	8021B + MTBE							Air Bubbles (Y or N)
												AT 02/28/17									
2/21/2017	700	aqueous	FIELD BLANK	3-40ML VOAS	HCL	-001	X														
2/21/2017	700	aqueous	TRIP BLANK	3-40ML VOAS	HCL	-002	X														
2/21/2017	1010	aqueous	OAPIS-1	Misc	Misc	-003	X	X	X	X	X	X	X								
2/21/2017	1208	aqueous	NAPIS-2	Misc	Misc	-004	X	X	X	X	X	X		X							
2/21/2017	1228	aqueous	KA-3	Misc	Misc	-005	X	X	X	X	X	X		X							
2/21/2017	1535	aqueous	NAPIS-3	Misc	Misc	-006	X	X	X	X	X	X		X							
2/21/2017	1335	aqueous	NAPIS-1	Misc	Misc	-007	X	X	X	X	X	X		X							
2/21/2017	1432	aqueous	STP1-NW	Misc	Misc	-008	X	X	X	X	X			X							
2/21/2017	1600	aqueous	WEST LDU	Misc	Misc	-009	X	X	X	X				X							
2/21/2017	1615	aqueous	EAST LDU	Misc	Misc	-010	X	X	X	X				X							
2/21/2017		aqueous	DUPLICATE	Misc	Misc	-011	X	X	X	X	X										
2/21/2017		aqueous	DUPLICATE	1-L AMBER	NONE	-012						X									

Date: 02/22/17 Time: 0940 Relinquished by:

Received by: Date 02/24/17 Time 0958

Date: Time: Relinquished by:

Received by: Date Time

Remarks: A NEW PO FOR THIS PROJECT WILL BE ASSIGNED FOR THE GW & MKTE WELLS FOR THE 1ST QTR.

No H on Tot or Diss Metals

AT 02/28/17

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 27, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: 2017 1st QTR Ground Water OrderNo.: 1703F34

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 15 sample(s) on 3/30/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water
Lab Order: 1703F34

Lab ID: 1703F34-002 **Collection Date:** 3/30/2017 8:40:00 AM
Client Sample ID: STP-1 to EP-2 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3760	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-003 **Collection Date:** 3/30/2017 8:45:00 AM
Client Sample ID: EP-2 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	9430	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-004 **Collection Date:** 3/30/2017 9:10:00 AM
Client Sample ID: EP-3 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10800	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-005 **Collection Date:** 3/30/2017 9:20:00 AM
Client Sample ID: EP-4 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10300	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-006 **Collection Date:** 3/30/2017 9:45:00 AM
Client Sample ID: EP-5 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	17500	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water
Lab Order: 1703F34

Lab ID: 1703F34-007 **Collection Date:** 3/30/2017 9:55:00 AM
Client Sample ID: EP-6 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	19200	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-008 **Collection Date:** 3/30/2017 10:15:00 AM
Client Sample ID: EP-7 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	105000	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-009 **Collection Date:** 3/30/2017 10:25:00 AM
Client Sample ID: EP-11 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	104000	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-010 **Collection Date:** 3/30/2017 11:10:00 AM
Client Sample ID: EP-12A **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	13600	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-011 **Collection Date:** 3/30/2017 11:20:00 AM
Client Sample ID: EP-12B **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10600	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water
Lab Order: 1703F34

Lab ID: 1703F34-012 **Collection Date:** 3/30/2017 11:38:00 AM
Client Sample ID: EP-8 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	99100	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Lab ID: 1703F34-013 **Collection Date:** 3/30/2017 12:05:00 PM
Client Sample ID: EP-9 **Matrix:** AQUEOUS

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	88800	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

27-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **MB-31114**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **31114**	RunNo: **41979**
Prep Date: **4/6/2017**	Analysis Date: **4/8/2017**	SeqNo: **1318231** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	14.0	20.0								J

Sample ID **LCS-31114**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **31114**	RunNo: **41979**
Prep Date: **4/6/2017**	Analysis Date: **4/8/2017**	SeqNo: **1318232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1703F34 RcptNo: 1

Received By: Andy Jansson 3/30/2017 4:55:00 PM

Completed By: Ashley Gallegos 3/30/2017 5:32:45 PM

Reviewed By: aJ 04/03/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	aJ ~~Yes~~ ✔	No ✓	
9. Was preservative added to bottles?	Yes ✓	~~No~~ ✔ aJ	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: 4 0 1 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? Yes
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by: aJ/ENM

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: ____ Date: ____

By Whom: ____ Via: eMail Phone Fax In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks: For metals analysis: added 1mL HNO3 to -004B, -005B, -011B for acceptable pH. Held 24 hours prior to analysis.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

~~3/30/17~~ @ ~~aJ~~

03/31/17 @ 0952 ~~aJ~~ FNM

Chain-of-Custody Record

Corrected COC

Client:	Western Refining Company
	GALLUP REFINERY
Mailing Address:	92 Giant Crossing Road, Gallup, NM 87301
Phone #:	505-722-3833
Email or Fax#:	505-863-0930
QA/QC Package:	☐ Standard ☐ Level 4 (Full Validation)
Accreditation:	☐ NELAP ☐ Other
☐ EDD (Type)	

Turn-Around Time:	X Standard ☐ Rush
Project Name:	2017 1ST QTR GROUND WATER
Project #:	
Project Manager:	C. JOHNSON (cheryl.johnson@wnr.com)
Sampler:	
On Ice:	☒ Yes ☐ No
Sample Temperature:	2.4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1703534	Analysis Request: 8260+MTBE	WQCC Metals - Total	WQCC Metals - Dissolved - Filtered	8015D (GRO/DRO/MRO)	8270	MAJOR CATIONS/ANIONS	CYANIDE	BOD/COD/TDS	GENERAL CHEMISTRY	E-COLI	NITRATES		Air Bubbles (Y or N)
03/30/17																			
10/30/2017	700	aqueous	FIELD BLANK	3-40ML VOAS	HCL	-001	X												
10/30/2017	840	aqueous	STP-1 TO EP-2	Misc	Misc	-002	X			X				X					
10/30/2017	845	aqueous	EP-2	Misc	Misc	-003	X	X	X		X			X	X	X			
10/30/2017	910	aqueous	EP-3	Misc	Misc	-004	X	X	X	X	X			X	X	X			
10/30/2017	920	aqueous	EP-4	Misc	Misc	-005	X			X	X			X	X	X			
10/30/2017	945	aqueous	EP-5	Misc	Misc	-006	X			X	X			X	X	X			
10/30/2017	955	aqueous	EP-6	Misc	Misc	-007	X			X	X			X	X	X			
10/30/2017	1015	aqueous	EP-7	Misc	Misc	-008	X			X	X			X	X	X			
10/30/2017	1025	aqueous	EP-11	Misc	Misc	-009	X			X	X			X	X	X			
10/30/2017	1110	aqueous	EP-12A	Misc	Misc	-010	X			X	X			X	X	X			
10/30/2017	1120	aqueous	EP-12B	Misc	Misc	-011	X			X	X			X	X	X			
10/30/2017	1138	aqueous	EP-8	Misc	Misc	-012	X			X	X			X	X	X			
10/30/2017	1205	aqueous	EP-9	Misc	Misc	-013	X			X	X			X	X	X			
10/30/2017	1220	aqueous	PW-4	Misc	Misc	-014	X	X	X		X		X				X		
10/30/2017	1240	aqueous	OW-57	Misc	Misc	-015	X	X	X	X	X	X							

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/30/17	1400			3/30/17	1400
Date:	Time:	Relinquished by:	Received by:	Date	Time
3/30/17	1655			03/30/17	1655

Remarks: GENERAL CHEMISTRY TO INCLUDE pH, specific conductance, cations/anions. ON THE "EP" SAMPLES - PLEASE PLACE ALL THE TDS ON A SEPARATE FORM - DO NOT COMBINE WITH THE QUARTERLY.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 05, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: 2017 1st QTR Ground Water OrderNo.: 1703F34

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 15 sample(s) on 3/30/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 7:00:00 AM
Lab ID: 1703F34-001 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.096	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Toluene	0.16	0.089	1.0	J	µg/L	1	4/3/2017 4:22:27 PM	R41853
Ethylbenzene	ND	0.11	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	0.15	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Naphthalene	ND	0.083	2.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Acetone	2.1	0.88	10	J	µg/L	1	4/3/2017 4:22:27 PM	R41853
Bromobenzene	ND	0.14	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Bromodichloromethane	ND	0.18	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Bromoform	ND	0.21	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Bromomethane	ND	0.78	3.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
2-Butanone	ND	1.1	10		µg/L	1	4/3/2017 4:22:27 PM	R41853
Carbon disulfide	ND	0.60	10		µg/L	1	4/3/2017 4:22:27 PM	R41853
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Chlorobenzene	ND	0.11	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Chloroethane	ND	0.23	2.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Chloroform	ND	0.089	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Chloromethane	ND	0.21	3.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Dibromochloromethane	ND	0.078	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Dibromomethane	ND	0.12	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,1-Dichloroethane	ND	0.10	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	4/3/2017 4:22:27 PM	R41853

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 7:00:00 AM
Lab ID: 1703F34-001 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
2-Hexanone	ND	0.66	10		µg/L	1	4/3/2017 4:22:27 PM	R41853
Isopropylbenzene	ND	0.098	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	4/3/2017 4:22:27 PM	R41853
Methylene Chloride	ND	0.11	3.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
n-Butylbenzene	ND	0.16	3.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
n-Propylbenzene	ND	0.13	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Styrene	ND	0.16	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Vinyl chloride	ND	0.18	1.0		µg/L	1	4/3/2017 4:22:27 PM	R41853
Xylenes, Total	ND	0.32	1.5		µg/L	1	4/3/2017 4:22:27 PM	R41853
Surr: 1,2-Dichloroethane-d4	90.1	0	70-130		%Rec	1	4/3/2017 4:22:27 PM	R41853
Surr: 4-Bromofluorobenzene	107	0	70-130		%Rec	1	4/3/2017 4:22:27 PM	R41853
Surr: Dibromofluoromethane	96.0	0	70-130		%Rec	1	4/3/2017 4:22:27 PM	R41853
Surr: Toluene-d8	98.8	0	70-130		%Rec	1	4/3/2017 4:22:27 PM	R41853

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: STP-1 to EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:40:00 AM
Lab ID: 1703F34-002 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	11	0.36	1.0		mg/L	1	4/6/2017 1:13:31 PM	31110
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	4/6/2017 1:13:31 PM	31110
Surr: DNOP	106	0	72.4-157		%Rec	1	4/6/2017 1:13:31 PM	31110
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	470	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	1.9	0.96	5.0	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
Toluene	2.2	0.89	5.0	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2,4-Trimethylbenzene	2.8	1.0	5.0	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1-Methylnaphthalene	9.9	1.6	20	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
2-Methylnaphthalene	12	1.5	20	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
Acetone	1200	88	1000		µg/L	100	4/3/2017 4:51:24 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Bromomethane	11	7.8	15	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
2-Butanone	58	11	50	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Carbon disulfide	20	6.0	50	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Chlorobenzene	2.0	1.1	5.0	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: STP-1 to EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:40:00 AM
Lab ID: 1703F34-002 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
n-Butylbenzene	3.2	1.6	15	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:20:10 PM	R41853
Xylenes, Total	3.5	3.2	7.5	JD	µg/L	10	4/3/2017 5:20:10 PM	R41853
Surr: 1,2-Dichloroethane-d4	94.6	0	70-130	D	%Rec	10	4/3/2017 5:20:10 PM	R41853
Surr: 4-Bromofluorobenzene	113	0	70-130	D	%Rec	10	4/3/2017 5:20:10 PM	R41853
Surr: Dibromofluoromethane	95.7	0	70-130	D	%Rec	10	4/3/2017 5:20:10 PM	R41853
Surr: Toluene-d8	98.5	0	70-130	D	%Rec	10	4/3/2017 5:20:10 PM	R41853
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **AG**	
Gasoline Range Organics (GRO)	1.2	0.097	0.50	D	mg/L	10	4/3/2017 5:20:10 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: STP-1 to EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:40:00 AM
Lab ID: 1703F34-002 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **AG**	
Surr: BFB	102	0	70-130	D	%Rec	10	4/3/2017 5:20:10 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	1330	20	20		mg/l	2	4/4/2017	R42566
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	3760	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:45:00 AM
Lab ID: 1703F34-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	35	1.0	2.0	*	mg/L	20	4/5/2017 2:47:44 PM	R41934
Chloride	3500	120	250		mg/L	500	4/7/2017 9:58:50 PM	R41969
Bromide	1.5	0.61	2.0	J	mg/L	20	4/5/2017 2:47:44 PM	R41934
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	4/7/2017 9:46:25 PM	R41969
Sulfate	1200	48	250		mg/L	500	4/7/2017 9:58:50 PM	R41969
Nitrate+Nitrite as N	ND	0.52	4.0		mg/L	20	4/7/2017 8:07:06 PM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.22	0.00085	0.0020		mg/L	1	4/5/2017 8:57:39 PM	A41931
Cadmium	ND	0.0010	0.0020		mg/L	1	4/5/2017 8:57:39 PM	A41931
Calcium	310	5.0	10		mg/L	10	4/5/2017 8:59:44 PM	A41931
Chromium	0.013	0.0010	0.0060		mg/L	1	4/5/2017 8:57:39 PM	A41931
Copper	ND	0.0032	0.0060		mg/L	1	4/5/2017 8:57:39 PM	A41931
Iron	1.1	0.20	0.20	*	mg/L	10	4/5/2017 8:59:44 PM	A41931
Magnesium	85	0.50	1.0		mg/L	1	4/5/2017 8:57:39 PM	A41931
Manganese	0.34	0.00038	0.0020	*	mg/L	1	4/5/2017 8:57:39 PM	A41931
Potassium	260	5.0	10		mg/L	10	4/5/2017 8:59:44 PM	A41931
Silver	ND	0.00088	0.0050		mg/L	1	4/5/2017 8:57:39 PM	A41931
Sodium	2500	50	100		mg/L	100	4/6/2017 6:24:28 PM	A41953
Zinc	0.017	0.0011	0.010		mg/L	1	4/5/2017 8:57:39 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.24	0.00079	0.0020		mg/L	1	4/7/2017 3:37:45 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:09:11 PM	31104
Chromium	0.0075	0.0027	0.0060		mg/L	1	4/7/2017 3:37:45 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 3:37:45 AM	31104
Iron	1.4	0.20	0.20	*	mg/L	10	4/12/2017 7:16:28 PM	31177
Manganese	0.35	0.00027	0.0020	*	mg/L	1	4/7/2017 3:37:45 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 3:37:45 AM	31104
Zinc	0.024	0.0027	0.010		mg/L	1	4/12/2017 7:14:26 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.015	0.00089	0.0050	*	mg/L	5	4/11/2017 8:02:11 PM	C42036
Lead	ND	0.00084	0.0025		mg/L	5	4/11/2017 8:02:11 PM	C42036
Selenium	0.026	0.0019	0.0050		mg/L	5	4/11/2017 8:02:11 PM	C42036
Uranium	0.0013	0.00025	0.0025	J	mg/L	5	4/12/2017 6:20:03 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.018	0.0011	0.0050	*	mg/L	5	4/12/2017 2:28:54 PM	31177
Lead	0.00087	0.00041	0.0025	J	mg/L	5	4/12/2017 2:28:54 PM	31177
Selenium	0.032	0.00094	0.0050		mg/L	5	4/12/2017 2:28:54 PM	31177

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:45:00 AM
Lab ID: 1703F34-003 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Uranium	0.0017	0.00087	0.0025	J	mg/L	5	4/12/2017 2:28:54 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.00014	0.000037	0.00020	J	mg/L	1	4/13/2017 8:19:05 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	410	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	>24196	10.00	10.00	H	MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Benzoic acid	51	20	100	JD	µg/L	1	4/6/2017 2:21:42 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Bis(2-ethylhexyl)phthalate	39	24	50	JD	µg/L	1	4/6/2017 2:21:42 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059

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Collection Date: 3/30/2017 8:45:00 AM
Lab ID: 1703F34-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2,4-Dimethylphenol	26	14	50	JD	µg/L	1	4/6/2017 2:21:42 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
3+4-Methylphenol	36	16	50	JD	µg/L	1	4/6/2017 2:21:42 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Phenol	50	16	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:45:00 AM
Lab ID: 1703F34-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 2:21:42 PM	31059
Surr: 2-Fluorophenol	22.8	0	15-98.1	D	%Rec	1	4/6/2017 2:21:42 PM	31059
Surr: Phenol-d5	19.4	0	15-80.7	D	%Rec	1	4/6/2017 2:21:42 PM	31059
Surr: 2,4,6-Tribromophenol	35.4	0	15-112	D	%Rec	1	4/6/2017 2:21:42 PM	31059
Surr: Nitrobenzene-d5	62.9	0	27.2-90.7	D	%Rec	1	4/6/2017 2:21:42 PM	31059
Surr: 2-Fluorobiphenyl	40.7	0	23.3-85.6	D	%Rec	1	4/6/2017 2:21:42 PM	31059
Surr: 4-Terphenyl-d14	38.6	0	27.6-107	D	%Rec	1	4/6/2017 2:21:42 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	13	0.96	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Toluene	22	0.89	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Ethylbenzene	6.8	1.1	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2,4-Trimethylbenzene	8.5	1.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,3,5-Trimethylbenzene	3.1	1.2	5.0	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1-Methylnaphthalene	6.1	1.6	20	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
2-Methylnaphthalene	7.9	1.5	20	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
Acetone	140	8.8	50	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Bromomethane	14	7.8	15	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
2-Butanone	ND	11	50	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Carbon disulfide	27	6.0	50	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:45:00 AM
Lab ID: 1703F34-003 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Isopropylbenzene	2.1	0.98	5.0	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
n-Butylbenzene	3.5	1.6	15	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
n-Propylbenzene	3.3	1.3	5.0	JD	µg/L	10	4/3/2017 5:48:57 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Xylenes, Total	23	3.2	7.5	D	µg/L	10	4/3/2017 5:48:57 PM	R41853
Surr: 1,2-Dichloroethane-d4	92.6	0	70-130	D	%Rec	10	4/3/2017 5:48:57 PM	R41853
Surr: 4-Bromofluorobenzene	113	0	70-130	D	%Rec	10	4/3/2017 5:48:57 PM	R41853
Surr: Dibromofluoromethane	102	0	70-130	D	%Rec	10	4/3/2017 5:48:57 PM	R41853

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-2
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 8:45:00 AM
Lab ID: 1703F34-003 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Toluene-d8	97.1	0	70-130	D	%Rec	10	4/3/2017 5:48:57 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	1030	20	20		mg/l	2	4/5/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	17000	10	10		µmhos/c	10	4/4/2017 6:23:42 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.58			H	pH units	1	4/4/2017 2:07:49 PM	R41894
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	9430	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-3
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:10:00 AM
Lab ID: 1703F34-004
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	10	1.0	2.0	*	mg/L	20	4/7/2017 9:46:36 AM	R41969
Chloride	5000	1200	2500		mg/L	5E+	4/7/2017 9:59:01 AM	R41969
Nitrogen, Nitrite (As N)	ND	0.39	2.0		mg/L	20	3/31/2017 8:37:40 PM	A41794
Bromide	2.5	0.15	0.50		mg/L	5	3/31/2017 8:25:16 PM	A41794
Nitrogen, Nitrate (As N)	ND	0.11	0.50		mg/L	5	3/31/2017 8:25:16 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	3/31/2017 8:25:16 PM	A41794
Sulfate	1200	190	1000		mg/L	2E+	4/10/2017 7:45:47 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.22	0.00085	0.0020		mg/L	1	4/5/2017 9:01:46 PM	A41931
Cadmium	ND	0.0010	0.0020		mg/L	1	4/5/2017 9:01:46 PM	A41931
Calcium	370	5.0	10		mg/L	10	4/5/2017 9:03:36 PM	A41931
Chromium	0.0095	0.0010	0.0060		mg/L	1	4/5/2017 9:01:46 PM	A41931
Copper	ND	0.0032	0.0060		mg/L	1	4/5/2017 9:01:46 PM	A41931
Iron	0.50	0.020	0.020	*	mg/L	1	4/5/2017 9:01:46 PM	A41931
Magnesium	100	5.0	10		mg/L	10	4/5/2017 9:03:36 PM	A41931
Manganese	0.35	0.00038	0.0020	*	mg/L	1	4/5/2017 9:01:46 PM	A41931
Potassium	330	5.0	10		mg/L	10	4/5/2017 9:03:36 PM	A41931
Silver	ND	0.00088	0.0050		mg/L	1	4/5/2017 9:01:46 PM	A41931
Sodium	3000	50	100		mg/L	100	4/6/2017 6:27:14 PM	A41953
Zinc	0.030	0.0011	0.010		mg/L	1	4/5/2017 9:01:46 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.22	0.00079	0.0020		mg/L	1	4/7/2017 3:43:09 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:13:08 PM	31104
Chromium	0.0072	0.0027	0.0060		mg/L	1	4/7/2017 3:43:09 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 3:43:09 AM	31104
Iron	0.69	0.020	0.020	*	mg/L	1	4/12/2017 7:18:33 PM	31177
Manganese	0.35	0.00027	0.0020	*	mg/L	1	4/7/2017 3:43:09 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 3:43:09 AM	31104
Zinc	0.016	0.0027	0.010		mg/L	1	4/12/2017 7:18:33 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.016	0.00089	0.0050	*	mg/L	5	4/11/2017 8:12:28 PM	C42036
Lead	ND	0.00084	0.0025		mg/L	5	4/11/2017 8:12:28 PM	C42036
Selenium	0.028	0.0019	0.0050		mg/L	5	4/11/2017 8:12:28 PM	C42036
Uranium	0.0013	0.00025	0.0025	J	mg/L	5	4/12/2017 6:26:10 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.018	0.0011	0.0050	*	mg/L	5	4/12/2017 2:31:54 PM	31177
Lead	0.00063	0.00041	0.0025	J	mg/L	5	4/12/2017 2:31:54 PM	31177

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-3
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:10:00 AM
Lab ID: 1703F34-004 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Selenium	0.030	0.00094	0.0050		mg/L	5	4/12/2017 2:31:54 PM	31177
Uranium	0.0011	0.00087	0.0025	J	mg/L	5	4/12/2017 2:31:54 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000079	0.000037	0.00020	J	mg/L	1	4/13/2017 8:21:01 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	280	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	>24196	10.00	10.00	H	MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Benzoic acid	37	20	100	JD	µg/L	1	4/6/2017 2:50:02 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Bis(2-ethylhexyl)phthalate	32	24	50	JD	µg/L	1	4/6/2017 2:50:02 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-3
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:10:00 AM
Lab ID: 1703F34-004 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
3+4-Methylphenol	34	16	50	JD	µg/L	1	4/6/2017 2:50:02 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Phenol	22	16	50	JD	µg/L	1	4/6/2017 2:50:02 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-3
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:10:00 AM
Lab ID: 1703F34-004
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 2:50:02 PM	31059
Surr: 2-Fluorophenol	25.8	0	15-98.1	D	%Rec	1	4/6/2017 2:50:02 PM	31059
Surr: Phenol-d5	21.2	0	15-80.7	D	%Rec	1	4/6/2017 2:50:02 PM	31059
Surr: 2,4,6-Tribromophenol	34.1	0	15-112	D	%Rec	1	4/6/2017 2:50:02 PM	31059
Surr: Nitrobenzene-d5	70.9	0	27.2-90.7	D	%Rec	1	4/6/2017 2:50:02 PM	31059
Surr: 2-Fluorobiphenyl	52.2	0	23.3-85.6	D	%Rec	1	4/6/2017 2:50:02 PM	31059
Surr: 4-Terphenyl-d14	49.6	0	27.6-107	D	%Rec	1	4/6/2017 2:50:02 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	4.0	0.96	5.0	JD	µg/L	10	4/3/2017 6:18:21 PM	R41853
Toluene	6.9	0.89	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Ethylbenzene	3.2	1.1	5.0	JD	µg/L	10	4/3/2017 6:18:21 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2,4-Trimethylbenzene	4.1	1.0	5.0	JD	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,3,5-Trimethylbenzene	1.6	1.2	5.0	JD	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Acetone	120	8.8	50	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
2-Butanone	27	11	50	JD	µg/L	10	4/3/2017 6:18:21 PM	R41853
Carbon disulfide	23	6.0	50	JD	µg/L	10	4/3/2017 6:18:21 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 6:18:21 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-3
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:10:00 AM
Lab ID: 1703F34-004 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Xylenes, Total	9.2	3.2	7.5	D	µg/L	10	4/3/2017 6:18:21 PM	R41853
Surr: 1,2-Dichloroethane-d4	95.4	0	70-130	D	%Rec	10	4/3/2017 6:18:21 PM	R41853
Surr: 4-Bromofluorobenzene	108	0	70-130	D	%Rec	10	4/3/2017 6:18:21 PM	R41853

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-3
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:10:00 AM
Lab ID: 1703F34-004
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Dibromofluoromethane	98.1	0	70-130	D	%Rec	10	4/3/2017 6:18:21 PM	R41853
Surr: Toluene-d8	97.3	0	70-130	D	%Rec	10	4/3/2017 6:18:21 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	717	10	10		mg/l	1	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	23000	10	10		µmhos/c	10	4/4/2017 2:15:51 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.92			H	pH units	1	4/3/2017 2:56:19 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10800	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:20:00 AM
Lab ID: 1703F34-005 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	37	1.0	2.0	*	mg/L	20	4/5/2017 3:12:33 PM	R41934
Chloride	4300	120	250		mg/L	500	4/7/2017 10:23:39 PM	R41969
Bromide	10	0.61	2.0		mg/L	20	4/5/2017 3:12:33 PM	R41934
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	4/7/2017 10:11:15 PM	R41969
Sulfate	1100	48	250		mg/L	500	4/7/2017 10:23:39 PM	R41969
Nitrate+Nitrite as N	ND	0.52	4.0		mg/L	20	4/7/2017 8:19:31 PM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.22	0.00085	0.0020		mg/L	1	4/5/2017 9:05:38 PM	A41931
Cadmium	ND	0.0010	0.0020		mg/L	1	4/5/2017 9:05:38 PM	A41931
Calcium	350	5.0	10		mg/L	10	4/5/2017 9:07:31 PM	A41931
Chromium	0.0090	0.0010	0.0060		mg/L	1	4/5/2017 9:05:38 PM	A41931
Copper	ND	0.0032	0.0060		mg/L	1	4/5/2017 9:05:38 PM	A41931
Iron	0.61	0.020	0.020	*	mg/L	1	4/5/2017 9:05:38 PM	A41931
Magnesium	99	5.0	10		mg/L	10	4/5/2017 9:07:31 PM	A41931
Manganese	0.34	0.00038	0.0020	*	mg/L	1	4/5/2017 9:05:38 PM	A41931
Potassium	310	5.0	10		mg/L	10	4/5/2017 9:07:31 PM	A41931
Silver	ND	0.00088	0.0050		mg/L	1	4/5/2017 9:05:38 PM	A41931
Sodium	2900	50	100		mg/L	100	4/6/2017 6:34:16 PM	A41953
Zinc	0.035	0.0011	0.010		mg/L	1	4/5/2017 9:05:38 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.23	0.00079	0.0020		mg/L	1	4/7/2017 3:48:31 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:15:09 PM	31104
Chromium	0.0063	0.0027	0.0060		mg/L	1	4/7/2017 3:48:31 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 3:48:31 AM	31104
Iron	0.76	0.020	0.020	*	mg/L	1	4/12/2017 7:20:22 PM	31177
Manganese	0.35	0.00027	0.0020	*	mg/L	1	4/7/2017 3:48:31 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 3:48:31 AM	31104
Zinc	0.016	0.0027	0.010		mg/L	1	4/12/2017 7:20:22 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.015	0.00089	0.0050	*	mg/L	5	4/11/2017 8:27:58 PM	C42036
Lead	ND	0.00084	0.0025		mg/L	5	4/11/2017 8:27:58 PM	C42036
Selenium	0.029	0.0019	0.0050		mg/L	5	4/11/2017 8:27:58 PM	C42036
Uranium	0.0011	0.00025	0.0025	J	mg/L	5	4/12/2017 6:29:13 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.015	0.0011	0.0050	*	mg/L	5	4/12/2017 2:34:55 PM	31177
Lead	0.00062	0.00041	0.0025	J	mg/L	5	4/12/2017 2:34:55 PM	31177
Selenium	0.027	0.00094	0.0050		mg/L	5	4/12/2017 2:34:55 PM	31177

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:20:00 AM
Lab ID: 1703F34-005 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Uranium	0.0011	0.00087	0.0025	J	mg/L	5	4/12/2017 2:34:55 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000091	0.000037	0.00020	J	mg/L	1	4/13/2017 8:22:57 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	390	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	>24196	10.00	10.00	H	MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Benzoic acid	40	20	100	JD	µg/L	1	4/6/2017 3:18:25 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Bis(2-ethylhexyl)phthalate	31	24	50	JD	µg/L	1	4/6/2017 3:18:25 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:20:00 AM
Lab ID: 1703F34-005 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
3+4-Methylphenol	36	16	50	JD	µg/L	1	4/6/2017 3:18:25 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Phenol	32	16	50	JD	µg/L	1	4/6/2017 3:18:25 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:20:00 AM
Lab ID: 1703F34-005
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 3:18:25 PM	31059
Surr: 2-Fluorophenol	23.7	0	15-98.1	D	%Rec	1	4/6/2017 3:18:25 PM	31059
Surr: Phenol-d5	19.8	0	15-80.7	D	%Rec	1	4/6/2017 3:18:25 PM	31059
Surr: 2,4,6-Tribromophenol	33.5	0	15-112	D	%Rec	1	4/6/2017 3:18:25 PM	31059
Surr: Nitrobenzene-d5	59.7	0	27.2-90.7	D	%Rec	1	4/6/2017 3:18:25 PM	31059
Surr: 2-Fluorobiphenyl	39.7	0	23.3-85.6	D	%Rec	1	4/6/2017 3:18:25 PM	31059
Surr: 4-Terphenyl-d14	44.7	0	27.6-107	D	%Rec	1	4/6/2017 3:18:25 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	7.1	0.96	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Toluene	13	0.89	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Ethylbenzene	4.5	1.1	5.0	JD	µg/L	10	4/3/2017 6:47:45 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2,4-Trimethylbenzene	5.7	1.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,3,5-Trimethylbenzene	2.3	1.2	5.0	JD	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Acetone	130	8.8	50	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
2-Butanone	26	11	50	JD	µg/L	10	4/3/2017 6:47:45 PM	R41853
Carbon disulfide	23	6.0	50	JD	µg/L	10	4/3/2017 6:47:45 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:20:00 AM
Lab ID: 1703F34-005 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Xylenes, Total	14	3.2	7.5	D	µg/L	10	4/3/2017 6:47:45 PM	R41853
Surr: 1,2-Dichloroethane-d4	93.9	0	70-130	D	%Rec	10	4/3/2017 6:47:45 PM	R41853
Surr: 4-Bromofluorobenzene	107	0	70-130	D	%Rec	10	4/3/2017 6:47:45 PM	R41853
Surr: Dibromofluoromethane	95.5	0	70-130	D	%Rec	10	4/3/2017 6:47:45 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:20:00 AM
Lab ID: 1703F34-005 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Toluene-d8	96.6	0	70-130	D	%Rec	10	4/3/2017 6:47:45 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	802	10	10		mg/l	1	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	19000	10	10		µmhos/c	10	4/4/2017 2:23:53 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.78			H	pH units	1	4/3/2017 3:04:20 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10300	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-5
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:45:00 AM
Lab ID: 1703F34-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	20	1.0	2.0	*	mg/L	20	4/7/2017 10:11:25 AM	R41969
Chloride	7700	250	500		mg/L	1E+	4/7/2017 10:23:50 AM	R41969
Nitrogen, Nitrite (As N)	ND	0.39	2.0		mg/L	20	3/31/2017 9:02:29 PM	A41794
Bromide	5.4	0.15	0.50		mg/L	5	3/31/2017 8:50:05 PM	A41794
Nitrogen, Nitrate (As N)	ND	0.11	0.50		mg/L	5	3/31/2017 8:50:05 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	3/31/2017 8:50:05 PM	A41794
Sulfate	1900	96	500		mg/L	1E+	4/7/2017 10:23:50 AM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.17	0.00085	0.0020		mg/L	1	4/5/2017 9:09:35 PM	A41931
Cadmium	ND	0.0010	0.0020		mg/L	1	4/5/2017 9:09:35 PM	A41931
Calcium	560	5.0	10		mg/L	10	4/5/2017 9:11:25 PM	A41931
Chromium	0.010	0.0010	0.0060		mg/L	1	4/5/2017 9:09:35 PM	A41931
Copper	ND	0.0032	0.0060		mg/L	1	4/5/2017 9:09:35 PM	A41931
Iron	0.15	0.020	0.020		mg/L	1	4/5/2017 9:09:35 PM	A41931
Magnesium	210	5.0	10		mg/L	10	4/5/2017 9:11:25 PM	A41931
Manganese	0.62	0.00038	0.0020	*	mg/L	1	4/5/2017 9:09:35 PM	A41931
Potassium	260	5.0	10		mg/L	10	4/5/2017 9:11:25 PM	A41931
Silver	ND	0.00088	0.0050		mg/L	1	4/5/2017 9:09:35 PM	A41931
Sodium	5200	50	100		mg/L	100	4/6/2017 6:37:01 PM	A41953
Zinc	0.024	0.0011	0.010		mg/L	1	4/5/2017 9:09:35 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.18	0.00079	0.0020		mg/L	1	4/7/2017 3:53:54 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:17:09 PM	31104
Chromium	0.0094	0.0027	0.0060		mg/L	1	4/7/2017 3:53:54 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 3:53:54 AM	31104
Iron	0.33	0.020	0.020	*	mg/L	1	4/12/2017 7:28:47 PM	31177
Manganese	0.66	0.00027	0.0020	*	mg/L	1	4/7/2017 3:53:54 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 3:53:54 AM	31104
Zinc	0.0084	0.0027	0.010	J	mg/L	1	4/12/2017 7:28:47 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.029	0.00089	0.0050	*	mg/L	5	4/11/2017 8:43:24 PM	C42036
Lead	ND	0.00084	0.0025		mg/L	5	4/11/2017 8:43:24 PM	C42036
Selenium	0.051	0.0019	0.0050	*	mg/L	5	4/11/2017 8:43:24 PM	C42036
Uranium	0.0026	0.00025	0.0025		mg/L	5	4/12/2017 6:32:17 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.032	0.0011	0.0050	*	mg/L	5	4/12/2017 2:37:55 PM	31177
Lead	0.00080	0.00041	0.0025	J	mg/L	5	4/12/2017 2:37:55 PM	31177

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Hall Environmental Analysis Laboratory, Inc.

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Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:45:00 AM
Lab ID: 1703F34-006 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Selenium	0.056	0.00094	0.0050	*	mg/L	5	4/12/2017 2:37:55 PM	31177
Uranium	0.0025	0.00087	0.0025		mg/L	5	4/12/2017 2:37:55 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000059	0.000037	0.00020	J	mg/L	1	4/13/2017 8:24:53 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	32	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	52	10.00	10.00	H	MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Benzoic acid	31	20	100	JD	µg/L	1	4/6/2017 3:47:06 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Bis(2-ethylhexyl)phthalate	33	24	50	JD	µg/L	1	4/6/2017 3:47:06 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

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Lab ID: 1703F34-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
3+4-Methylphenol	ND	16	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Phenol	ND	16	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059

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CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-5
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:45:00 AM
Lab ID: 1703F34-006 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 3:47:06 PM	31059
Surr: 2-Fluorophenol	21.4	0	15-98.1	D	%Rec	1	4/6/2017 3:47:06 PM	31059
Surr: Phenol-d5	19.8	0	15-80.7	D	%Rec	1	4/6/2017 3:47:06 PM	31059
Surr: 2,4,6-Tribromophenol	35.3	0	15-112	D	%Rec	1	4/6/2017 3:47:06 PM	31059
Surr: Nitrobenzene-d5	58.0	0	27.2-90.7	D	%Rec	1	4/6/2017 3:47:06 PM	31059
Surr: 2-Fluorobiphenyl	49.4	0	23.3-85.6	D	%Rec	1	4/6/2017 3:47:06 PM	31059
Surr: 4-Terphenyl-d14	49.8	0	27.6-107	D	%Rec	1	4/6/2017 3:47:06 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.96	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Toluene	ND	0.89	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2,4-Trimethylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Acetone	17	8.8	50	JD	µg/L	10	4/3/2017 7:16:54 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
2-Butanone	17	11	50	JD	µg/L	10	4/3/2017 7:16:54 PM	R41853
Carbon disulfide	ND	6.0	50	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 7:16:54 PM	R41853

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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Xylenes, Total	ND	3.2	7.5	D	µg/L	10	4/3/2017 7:16:54 PM	R41853
Surr: 1,2-Dichloroethane-d4	93.1	0	70-130	D	%Rec	10	4/3/2017 7:16:54 PM	R41853
Surr: 4-Bromofluorobenzene	105	0	70-130	D	%Rec	10	4/3/2017 7:16:54 PM	R41853

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-5
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:45:00 AM
Lab ID: 1703F34-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Dibromofluoromethane	99.3	0	70-130	D	%Rec	10	4/3/2017 7:16:54 PM	R41853
Surr: Toluene-d8	96.8	0	70-130	D	%Rec	10	4/3/2017 7:16:54 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	990	10	10		mg/l	1	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	33000	10	10		µmhos/c	10	4/4/2017 2:27:54 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.80			H	pH units	1	4/3/2017 3:08:29 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	17500	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-6
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:55:00 AM
Lab ID: 1703F34-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	22	1.0	2.0	*	mg/L	20	4/7/2017 10:36:14 AM	R41969
Chloride	7200	250	500		mg/L	1E+	4/7/2017 10:48:38 AM	R41969
Nitrogen, Nitrite (As N)	ND	0.39	2.0		mg/L	20	3/31/2017 9:27:19 PM	A41794
Bromide	5.5	0.15	0.50		mg/L	5	3/31/2017 9:14:55 PM	A41794
Nitrogen, Nitrate (As N)	ND	0.11	0.50		mg/L	5	3/31/2017 9:14:55 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	3/31/2017 9:14:55 PM	A41794
Sulfate	1800	96	500		mg/L	1E+	4/7/2017 10:48:38 AM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.19	0.0085	0.020		mg/L	10	4/5/2017 9:23:21 PM	A41931
Cadmium	ND	0.010	0.020		mg/L	10	4/5/2017 9:23:21 PM	A41931
Calcium	530	5.0	10		mg/L	10	4/5/2017 9:23:21 PM	A41931
Chromium	ND	0.010	0.060		mg/L	10	4/5/2017 9:23:21 PM	A41931
Copper	ND	0.032	0.060		mg/L	10	4/5/2017 9:23:21 PM	A41931
Iron	ND	0.20	0.20		mg/L	10	4/5/2017 9:23:21 PM	A41931
Magnesium	200	5.0	10		mg/L	10	4/5/2017 9:23:21 PM	A41931
Manganese	0.72	0.0038	0.020	*	mg/L	10	4/5/2017 9:23:21 PM	A41931
Potassium	240	5.0	10		mg/L	10	4/5/2017 9:23:21 PM	A41931
Silver	ND	0.0088	0.050		mg/L	10	4/5/2017 9:23:21 PM	A41931
Sodium	5300	50	100		mg/L	100	4/6/2017 10:10:13 PM	C41953
Zinc	0.042	0.011	0.10	J	mg/L	10	4/5/2017 9:23:21 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.18	0.00079	0.0020		mg/L	1	4/7/2017 3:59:14 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:19:11 PM	31104
Chromium	0.0093	0.0027	0.0060		mg/L	1	4/7/2017 3:59:14 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 3:59:14 AM	31104
Iron	0.38	0.020	0.020	*	mg/L	1	4/12/2017 7:30:44 PM	31177
Manganese	0.66	0.00027	0.0020	*	mg/L	1	4/7/2017 3:59:14 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 3:59:14 AM	31104
Zinc	0.0097	0.0027	0.010	J	mg/L	1	4/12/2017 7:30:44 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.031	0.00089	0.0050	*	mg/L	5	4/11/2017 8:48:32 PM	C42036
Lead	ND	0.00084	0.0025		mg/L	5	4/11/2017 8:48:32 PM	C42036
Selenium	0.054	0.0019	0.0050	*	mg/L	5	4/11/2017 8:48:32 PM	C42036
Uranium	0.0026	0.00025	0.0025		mg/L	5	4/12/2017 6:35:20 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.031	0.0011	0.0050	*	mg/L	5	4/12/2017 2:43:57 PM	31177
Lead	0.00070	0.00041	0.0025	J	mg/L	5	4/12/2017 2:43:57 PM	31177

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-6
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:55:00 AM
Lab ID: 1703F34-007 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Selenium	0.058	0.0037	0.020	*	mg/L	20	4/12/2017 2:46:57 PM	31177
Uranium	0.0026	0.00087	0.0025		mg/L	5	4/12/2017 2:43:57 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000059	0.000037	0.00020	J	mg/L	1	4/13/2017 8:26:50 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	30	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	10	10.00	10.00		MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Benzoic acid	31	20	100	JD	µg/L	1	4/6/2017 4:15:34 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Bis(2-ethylhexyl)phthalate	33	24	50	JD	µg/L	1	4/6/2017 4:15:34 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-6
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:55:00 AM
Lab ID: 1703F34-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
3+4-Methylphenol	ND	16	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Phenol	ND	16	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-6
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:55:00 AM
Lab ID: 1703F34-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 4:15:34 PM	31059
Surr: 2-Fluorophenol	23.9	0	15-98.1	D	%Rec	1	4/6/2017 4:15:34 PM	31059
Surr: Phenol-d5	19.3	0	15-80.7	D	%Rec	1	4/6/2017 4:15:34 PM	31059
Surr: 2,4,6-Tribromophenol	39.7	0	15-112	D	%Rec	1	4/6/2017 4:15:34 PM	31059
Surr: Nitrobenzene-d5	59.7	0	27.2-90.7	D	%Rec	1	4/6/2017 4:15:34 PM	31059
Surr: 2-Fluorobiphenyl	45.6	0	23.3-85.6	D	%Rec	1	4/6/2017 4:15:34 PM	31059
Surr: 4-Terphenyl-d14	43.0	0	27.6-107	D	%Rec	1	4/6/2017 4:15:34 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.96	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Toluene	ND	0.89	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2,4-Trimethylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Acetone	17	8.8	50	JD	µg/L	10	4/3/2017 7:46:21 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
2-Butanone	17	11	50	JD	µg/L	10	4/3/2017 7:46:21 PM	R41853
Carbon disulfide	ND	6.0	50	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 7:46:21 PM	R41853

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-6
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:55:00 AM
Lab ID: 1703F34-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Xylenes, Total	ND	3.2	7.5	D	µg/L	10	4/3/2017 7:46:21 PM	R41853
Surr: 1,2-Dichloroethane-d4	93.3	0	70-130	D	%Rec	10	4/3/2017 7:46:21 PM	R41853
Surr: 4-Bromofluorobenzene	104	0	70-130	D	%Rec	10	4/3/2017 7:46:21 PM	R41853

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-6
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 9:55:00 AM
Lab ID: 1703F34-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Dibromofluoromethane	98.0	0	70-130	D	%Rec	10	4/3/2017 7:46:21 PM	R41853
Surr: Toluene-d8	96.3	0	70-130	D	%Rec	10	4/3/2017 7:46:21 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	981	10	10		mg/l	1	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	33000	10	10		µmhos/c	10	4/4/2017 2:31:55 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.79			H	pH units	1	4/3/2017 3:12:29 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	19200	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-7
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:15:00 AM
Lab ID: 1703F34-008 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	11	2.5	5.0	*	mg/L	50	4/7/2017 5:00:56 PM	R41969
Chloride	49000	1200	2500		mg/L	5E+	4/7/2017 5:13:21 PM	R41969
Bromide	33	0.61	2.0		mg/L	20	3/31/2017 9:52:08 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	5.0	10		mg/L	20	3/31/2017 9:52:08 PM	A41794
Sulfate	9100	480	2500		mg/L	5E+	4/7/2017 5:13:21 PM	R41969
Nitrate+Nitrite as N	ND	5.2	40		mg/L	200	4/7/2017 8:31:55 PM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.18	0.0085	0.020		mg/L	10	4/5/2017 9:27:24 PM	A41931
Cadmium	ND	0.010	0.020		mg/L	10	4/5/2017 9:27:24 PM	A41931
Calcium	1200	50	100		mg/L	100	4/27/2017 4:19:56 PM	A42438
Chromium	0.015	0.010	0.060	J	mg/L	10	4/5/2017 9:27:24 PM	A41931
Copper	ND	0.032	0.060		mg/L	10	4/5/2017 9:27:24 PM	A41931
Iron	ND	0.20	0.20		mg/L	10	4/5/2017 9:27:24 PM	A41931
Magnesium	1500	50	100		mg/L	100	4/27/2017 4:19:56 PM	A42438
Manganese	0.19	0.0038	0.020	*	mg/L	10	4/5/2017 9:27:24 PM	A41931
Potassium	1800	50	100		mg/L	100	4/27/2017 4:19:56 PM	A42438
Silver	ND	0.0088	0.050		mg/L	10	4/5/2017 9:27:24 PM	A41931
Sodium	50000	500	1000		mg/L	1E+	4/27/2017 4:21:21 PM	A42438
Zinc	0.053	0.011	0.10	J	mg/L	10	4/5/2017 9:27:24 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.16	0.0040	0.010		mg/L	5	4/7/2017 5:21:15 PM	31104
Cadmium	ND	0.0074	0.010		mg/L	5	4/7/2017 5:21:15 PM	31104
Chromium	ND	0.013	0.030		mg/L	5	4/7/2017 5:21:15 PM	31104
Copper	ND	0.015	0.030		mg/L	5	4/7/2017 5:21:15 PM	31104
Iron	0.72	0.20	0.20	*	mg/L	10	4/12/2017 7:34:39 PM	31177
Manganese	0.71	0.0014	0.010	*	mg/L	5	4/7/2017 5:21:15 PM	31104
Silver	ND	0.0077	0.025		mg/L	5	4/19/2017 8:17:09 PM	31177
Zinc	0.018	0.013	0.050	J	mg/L	5	4/19/2017 8:17:09 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.16	0.0089	0.050	*	mg/L	50	4/12/2017 6:38:23 PM	B42080
Lead	ND	0.0084	0.025		mg/L	50	4/12/2017 6:38:23 PM	B42080
Selenium	0.28	0.019	0.050	*	mg/L	50	4/12/2017 6:38:23 PM	B42080
Uranium	0.0053	0.0025	0.025	J	mg/L	50	4/12/2017 6:38:23 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.18	0.011	0.050	*	mg/L	50	4/12/2017 2:52:58 PM	31177
Lead	ND	0.0041	0.025		mg/L	50	4/12/2017 2:52:58 PM	31177
Selenium	0.30	0.0094	0.050	*	mg/L	50	4/12/2017 2:52:58 PM	31177

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-7
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:15:00 AM
Lab ID: 1703F34-008 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Uranium	ND	0.0087	0.025		mg/L	50	4/12/2017 2:52:58 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000040	0.000037	0.00020	J	mg/L	1	4/13/2017 8:28:48 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	18	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	<1	1.000	1.000		MPN/100	1	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Benzoic acid	36	20	100	JD	µg/L	1	4/14/2017 4:23:54 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Bis(2-ethylhexyl)phthalate	28	24	50	JD	µg/L	1	4/14/2017 4:23:54 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Dibenzofuran	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-7
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:15:00 AM
Lab ID: 1703F34-008 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
3+4-Methylphenol	ND	16	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Phenol	ND	16	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Pyridine	ND	11	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-7
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:15:00 AM
Lab ID: 1703F34-008
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/14/2017 4:23:54 PM	31059
Surr: 2-Fluorophenol	28.1	0	15-98.1	D	%Rec	1	4/14/2017 4:23:54 PM	31059
Surr: Phenol-d5	23.6	0	15-80.7	D	%Rec	1	4/14/2017 4:23:54 PM	31059
Surr: 2,4,6-Tribromophenol	31.8	0	15-112	D	%Rec	1	4/14/2017 4:23:54 PM	31059
Surr: Nitrobenzene-d5	53.8	0	27.2-90.7	D	%Rec	1	4/14/2017 4:23:54 PM	31059
Surr: 2-Fluorobiphenyl	31.2	0	23.3-85.6	D	%Rec	1	4/14/2017 4:23:54 PM	31059
Surr: 4-Terphenyl-d14	22.0	0	27.6-107	SD	%Rec	1	4/14/2017 4:23:54 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.96	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Toluene	ND	0.89	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2,4-Trimethylbenzene	2.3	1.0	5.0	JD	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Acetone	9.5	8.8	50	JD	µg/L	10	4/3/2017 8:15:42 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
2-Butanone	16	11	50	JD	µg/L	10	4/3/2017 8:15:42 PM	R41853
Carbon disulfide	ND	6.0	50	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-7
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:15:00 AM
Lab ID: 1703F34-008
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Xylenes, Total	ND	3.2	7.5	D	µg/L	10	4/3/2017 8:15:42 PM	R41853
Surr: 1,2-Dichloroethane-d4	91.9	0	70-130	D	%Rec	10	4/3/2017 8:15:42 PM	R41853
Surr: 4-Bromofluorobenzene	107	0	70-130	D	%Rec	10	4/3/2017 8:15:42 PM	R41853
Surr: Dibromofluoromethane	97.5	0	70-130	D	%Rec	10	4/3/2017 8:15:42 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-7
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:15:00 AM
Lab ID: 1703F34-008 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Toluene-d8	100	0	70-130	D	%Rec	10	4/3/2017 8:15:42 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	3150	200	200		mg/l	20	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	190000	100	100		µmhos/c	100	4/4/2017 2:35:52 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	8.07			H	pH units	1	4/3/2017 3:16:22 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	105000	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-11
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:25:00 AM
Lab ID: 1703F34-009 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	11	2.5	5.0	*	mg/L	50	4/7/2017 5:25:45 PM	R41969
Chloride	49000	1200	2500		mg/L	5E+	4/7/2017 5:38:10 PM	R41969
Bromide	34	0.61	2.0		mg/L	20	3/31/2017 10:41:47 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	5.0	10		mg/L	20	3/31/2017 10:41:47 PM	A41794
Sulfate	10000	480	2500		mg/L	5E+	4/7/2017 5:38:10 PM	R41969
Nitrate+Nitrite as N	ND	5.2	40		mg/L	200	4/7/2017 8:44:20 PM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.20	0.0085	0.020		mg/L	10	4/5/2017 9:31:12 PM	A41931
Cadmium	ND	0.010	0.020		mg/L	10	4/5/2017 9:31:12 PM	A41931
Calcium	1200	50	100		mg/L	100	4/27/2017 4:23:54 PM	A42438
Chromium	0.014	0.010	0.060	J	mg/L	10	4/5/2017 9:31:12 PM	A41931
Copper	ND	0.032	0.060		mg/L	10	4/5/2017 9:31:12 PM	A41931
Iron	ND	0.20	0.20		mg/L	10	4/5/2017 9:31:12 PM	A41931
Magnesium	1500	50	100		mg/L	100	4/27/2017 4:23:54 PM	A42438
Manganese	0.37	0.0038	0.020	*	mg/L	10	4/5/2017 9:31:12 PM	A41931
Potassium	1800	50	100		mg/L	100	4/27/2017 4:23:54 PM	A42438
Silver	ND	0.0088	0.050		mg/L	10	4/5/2017 9:31:12 PM	A41931
Sodium	53000	500	1000		mg/L	1E+	4/27/2017 4:25:18 PM	A42438
Zinc	0.055	0.011	0.10	J	mg/L	10	4/5/2017 9:31:12 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.18	0.0040	0.010		mg/L	5	4/7/2017 5:23:16 PM	31104
Cadmium	ND	0.0074	0.010		mg/L	5	4/7/2017 5:23:16 PM	31104
Chromium	0.018	0.013	0.030	J	mg/L	5	4/7/2017 5:23:16 PM	31104
Copper	ND	0.015	0.030		mg/L	5	4/7/2017 5:23:16 PM	31104
Iron	0.31	0.20	0.20	*	mg/L	10	4/12/2017 7:38:29 PM	31177
Manganese	0.59	0.0014	0.010	*	mg/L	5	4/7/2017 5:23:16 PM	31104
Silver	ND	0.0077	0.025		mg/L	5	4/19/2017 8:18:58 PM	31177
Zinc	0.019	0.013	0.050	J	mg/L	5	4/19/2017 8:18:58 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.15	0.0089	0.050	*	mg/L	50	4/12/2017 6:50:41 PM	B42080
Lead	ND	0.0084	0.025		mg/L	50	4/12/2017 6:50:41 PM	B42080
Selenium	0.27	0.019	0.050	*	mg/L	50	4/12/2017 6:50:41 PM	B42080
Uranium	0.0053	0.0025	0.025	J	mg/L	50	4/12/2017 6:50:41 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.17	0.011	0.050	*	mg/L	50	4/12/2017 3:05:04 PM	31177
Lead	ND	0.0041	0.025		mg/L	50	4/12/2017 3:05:04 PM	31177
Selenium	0.32	0.0094	0.050	*	mg/L	50	4/12/2017 3:05:04 PM	31177

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-11
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:25:00 AM
Lab ID: 1703F34-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Uranium	ND	0.0087	0.025		mg/L	50	4/12/2017 3:05:04 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000042	0.000037	0.00020	J	mg/L	1	4/13/2017 8:30:47 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	21	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	<1	1.000	1.000		MPN/100	1	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Benzoic acid	33	20	100	JD	µg/L	1	4/14/2017 4:52:02 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Bis(2-ethylhexyl)phthalate	30	24	50	JD	µg/L	1	4/14/2017 4:52:02 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Di-n-octyl phthalate	31	23	50	JD	µg/L	1	4/14/2017 4:52:02 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Dibenzofuran	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059

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Collection Date: 3/30/2017 10:25:00 AM
Lab ID: 1703F34-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
3+4-Methylphenol	ND	16	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Phenol	ND	16	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Pyridine	ND	11	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-11
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:25:00 AM
Lab ID: 1703F34-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/14/2017 4:52:02 PM	31059
Surr: 2-Fluorophenol	30.7	0	15-98.1	D	%Rec	1	4/14/2017 4:52:02 PM	31059
Surr: Phenol-d5	25.5	0	15-80.7	D	%Rec	1	4/14/2017 4:52:02 PM	31059
Surr: 2,4,6-Tribromophenol	41.4	0	15-112	D	%Rec	1	4/14/2017 4:52:02 PM	31059
Surr: Nitrobenzene-d5	64.8	0	27.2-90.7	D	%Rec	1	4/14/2017 4:52:02 PM	31059
Surr: 2-Fluorobiphenyl	37.4	0	23.3-85.6	D	%Rec	1	4/14/2017 4:52:02 PM	31059
Surr: 4-Terphenyl-d14	19.4	0	27.6-107	SD	%Rec	1	4/14/2017 4:52:02 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.96	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Toluene	ND	0.89	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2,4-Trimethylbenzene	2.5	1.0	5.0	JD	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Acetone	9.2	8.8	50	JD	µg/L	10	4/3/2017 8:45:01 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
2-Butanone	ND	11	50	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Carbon disulfide	ND	6.0	50	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-11
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:25:00 AM
Lab ID: 1703F34-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Xylenes, Total	ND	3.2	7.5	D	µg/L	10	4/3/2017 8:45:01 PM	R41853
Surr: 1,2-Dichloroethane-d4	91.3	0	70-130	D	%Rec	10	4/3/2017 8:45:01 PM	R41853
Surr: 4-Bromofluorobenzene	107	0	70-130	D	%Rec	10	4/3/2017 8:45:01 PM	R41853
Surr: Dibromofluoromethane	97.4	0	70-130	D	%Rec	10	4/3/2017 8:45:01 PM	R41853

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-11
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 10:25:00 AM
Lab ID: 1703F34-009 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Toluene-d8	94.1	0	70-130	D	%Rec	10	4/3/2017 8:45:01 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	4120	200	200		mg/l	20	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	190000	100	100		µmhos/c	100	4/4/2017 2:40:16 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	8.02			H	pH units	1	4/3/2017 3:20:19 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	104000	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12A
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:10:00 AM
Lab ID: 1703F34-010
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	21	1.0	2.0	*	mg/L	20	4/7/2017 5:50:34 PM	R41969
Chloride	4900	120	250		mg/L	500	4/7/2017 6:02:59 PM	R41969
Nitrogen, Nitrite (As N)	ND	0.39	2.0		mg/L	20	3/31/2017 11:06:37 PM	A41794
Bromide	4.6	0.15	0.50		mg/L	5	3/31/2017 10:54:12 PM	A41794
Nitrogen, Nitrate (As N)	ND	0.11	0.50		mg/L	5	3/31/2017 10:54:12 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	3/31/2017 10:54:12 PM	A41794
Sulfate	1600	48	250		mg/L	500	4/7/2017 6:02:59 PM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.12	0.00085	0.0020		mg/L	1	4/5/2017 9:33:03 PM	A41931
Cadmium	ND	0.0010	0.0020		mg/L	1	4/5/2017 9:33:03 PM	A41931
Calcium	370	5.0	10		mg/L	10	4/5/2017 9:34:52 PM	A41931
Chromium	0.010	0.0010	0.0060		mg/L	1	4/5/2017 9:33:03 PM	A41931
Copper	ND	0.0032	0.0060		mg/L	1	4/5/2017 9:33:03 PM	A41931
Iron	0.30	0.020	0.020		mg/L	1	4/5/2017 9:33:03 PM	A41931
Magnesium	130	5.0	10		mg/L	10	4/5/2017 9:34:52 PM	A41931
Manganese	0.36	0.00038	0.0020	*	mg/L	1	4/5/2017 9:33:03 PM	A41931
Potassium	270	5.0	10		mg/L	10	4/5/2017 9:34:52 PM	A41931
Silver	ND	0.00088	0.0050		mg/L	1	4/5/2017 9:33:03 PM	A41931
Sodium	3800	50	100		mg/L	100	4/6/2017 10:24:29 PM	C41953
Zinc	0.0076	0.0011	0.010	J	mg/L	1	4/5/2017 9:33:03 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.12	0.00079	0.0020		mg/L	1	4/7/2017 4:25:00 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:31:51 PM	31104
Chromium	0.0079	0.0027	0.0060		mg/L	1	4/7/2017 4:25:00 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 4:25:00 AM	31104
Iron	0.70	0.020	0.020	*	mg/L	1	4/12/2017 7:40:18 PM	31177
Manganese	0.41	0.00027	0.0020	*	mg/L	1	4/7/2017 4:25:00 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 4:25:00 AM	31104
Zinc	0.0074	0.0027	0.010	J	mg/L	1	4/12/2017 7:40:18 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.023	0.00089	0.0050	*	mg/L	5	4/11/2017 9:03:58 PM	C42036
Lead	ND	0.00084	0.0025		mg/L	5	4/11/2017 9:03:58 PM	C42036
Selenium	0.042	0.0019	0.0050		mg/L	5	4/11/2017 9:03:58 PM	C42036
Uranium	0.0012	0.00025	0.0025	J	mg/L	5	4/12/2017 6:56:47 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.026	0.0011	0.0050	*	mg/L	5	4/12/2017 3:08:05 PM	31177
Lead	0.00050	0.00041	0.0025	J	mg/L	5	4/12/2017 3:08:05 PM	31177

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12A
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:10:00 AM
Lab ID: 1703F34-010 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Selenium	0.048	0.00094	0.0050		mg/L	5	4/12/2017 3:08:05 PM	31177
Uranium	0.0011	0.00087	0.0025	J	mg/L	5	4/12/2017 3:08:05 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000060	0.000037	0.00020	J	mg/L	1	4/13/2017 8:32:45 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	59	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	10	10.00	10.00		MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Benzoic acid	32	20	100	JD	µg/L	1	4/6/2017 5:40:14 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Bis(2-ethylhexyl)phthalate	27	24	50	JD	µg/L	1	4/6/2017 5:40:14 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12A
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:10:00 AM
Lab ID: 1703F34-010 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
3+4-Methylphenol	ND	16	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Phenol	ND	16	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12A
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:10:00 AM
Lab ID: 1703F34-010 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 5:40:14 PM	31059
Surr: 2-Fluorophenol	39.6	0	15-98.1	D	%Rec	1	4/6/2017 5:40:14 PM	31059
Surr: Phenol-d5	29.8	0	15-80.7	D	%Rec	1	4/6/2017 5:40:14 PM	31059
Surr: 2,4,6-Tribromophenol	61.9	0	15-112	D	%Rec	1	4/6/2017 5:40:14 PM	31059
Surr: Nitrobenzene-d5	57.3	0	27.2-90.7	D	%Rec	1	4/6/2017 5:40:14 PM	31059
Surr: 2-Fluorobiphenyl	50.0	0	23.3-85.6	D	%Rec	1	4/6/2017 5:40:14 PM	31059
Surr: 4-Terphenyl-d14	53.3	0	27.6-107	D	%Rec	1	4/6/2017 5:40:14 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.96	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Toluene	ND	0.89	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2,4-Trimethylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Acetone	11	8.8	50	JD	µg/L	10	4/3/2017 9:14:10 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
2-Butanone	ND	11	50	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Carbon disulfide	ND	6.0	50	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 9:14:10 PM	R41853

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12A
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:10:00 AM
Lab ID: 1703F34-010 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Xylenes, Total	ND	3.2	7.5	D	µg/L	10	4/3/2017 9:14:10 PM	R41853
Surr: 1,2-Dichloroethane-d4	87.4	0	70-130	D	%Rec	10	4/3/2017 9:14:10 PM	R41853
Surr: 4-Bromofluorobenzene	104	0	70-130	D	%Rec	10	4/3/2017 9:14:10 PM	R41853

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12A
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:10:00 AM
Lab ID: 1703F34-010 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Dibromofluoromethane	96.3	0	70-130	D	%Rec	10	4/3/2017 9:14:10 PM	R41853
Surr: Toluene-d8	97.5	0	70-130	D	%Rec	10	4/3/2017 9:14:10 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	721	10	10		mg/l	1	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	26000	10	10		µmhos/c	10	4/4/2017 2:44:45 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.91			H	pH units	1	4/3/2017 3:24:15 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	13600	591	1000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12B
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:20:00 AM
Lab ID: 1703F34-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	20	1.0	2.0	*	mg/L	20	4/7/2017 6:15:24 PM	R41969
Chloride	4300	120	250		mg/L	500	4/7/2017 6:27:49 PM	R41969
Nitrogen, Nitrite (As N)	ND	0.39	2.0		mg/L	20	3/31/2017 11:31:26 PM	A41794
Bromide	2.7	0.15	0.50		mg/L	5	3/31/2017 11:19:01 PM	A41794
Nitrogen, Nitrate (As N)	ND	0.11	0.50		mg/L	5	3/31/2017 11:19:01 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	3/31/2017 11:19:01 PM	A41794
Sulfate	1400	48	250		mg/L	500	4/7/2017 6:27:49 PM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.19	0.00085	0.0020		mg/L	1	4/5/2017 9:36:55 PM	A41931
Cadmium	ND	0.0010	0.0020		mg/L	1	4/5/2017 9:36:55 PM	A41931
Calcium	340	5.0	10		mg/L	10	4/5/2017 9:38:45 PM	A41931
Chromium	0.0086	0.0010	0.0060		mg/L	1	4/5/2017 9:36:55 PM	A41931
Copper	ND	0.0032	0.0060		mg/L	1	4/5/2017 9:36:55 PM	A41931
Iron	0.49	0.020	0.020	*	mg/L	1	4/5/2017 9:36:55 PM	A41931
Magnesium	100	5.0	10		mg/L	10	4/5/2017 9:38:45 PM	A41931
Manganese	0.38	0.00038	0.0020	*	mg/L	1	4/5/2017 9:36:55 PM	A41931
Potassium	290	5.0	10		mg/L	10	4/5/2017 9:38:45 PM	A41931
Silver	ND	0.00088	0.0050		mg/L	1	4/5/2017 9:36:55 PM	A41931
Sodium	3100	50	100		mg/L	100	4/6/2017 10:27:14 PM	C41953
Zinc	0.017	0.0011	0.010		mg/L	1	4/5/2017 9:36:55 PM	A41931
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.21	0.00079	0.0020		mg/L	1	4/7/2017 4:30:23 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:33:59 PM	31104
Chromium	0.0083	0.0027	0.0060		mg/L	1	4/7/2017 4:30:23 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 4:30:23 AM	31104
Iron	0.93	0.020	0.020	*	mg/L	1	4/12/2017 7:42:08 PM	31177
Manganese	0.37	0.00027	0.0020	*	mg/L	1	4/7/2017 4:30:23 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 4:30:23 AM	31104
Zinc	0.018	0.0027	0.010		mg/L	1	4/12/2017 7:42:08 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.017	0.00089	0.0050	*	mg/L	5	4/12/2017 7:09:01 PM	B42080
Lead	ND	0.00084	0.0025		mg/L	5	4/12/2017 7:09:01 PM	B42080
Selenium	0.030	0.0019	0.0050		mg/L	5	4/12/2017 7:09:01 PM	B42080
Uranium	0.0021	0.00025	0.0025	J	mg/L	5	4/12/2017 7:09:01 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.017	0.0011	0.0050	*	mg/L	5	4/12/2017 3:14:06 PM	31177
Lead	0.00087	0.00041	0.0025	J	mg/L	5	4/12/2017 3:14:06 PM	31177

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12B
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:20:00 AM
Lab ID: 1703F34-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Selenium	0.030	0.00094	0.0050		mg/L	5	4/12/2017 3:14:06 PM	31177
Uranium	0.0012	0.00087	0.0025	J	mg/L	5	4/12/2017 3:14:06 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000096	0.000037	0.00020	J	mg/L	1	4/13/2017 8:59:36 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	260	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	>24196	10.00	10.00		MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Benzoic acid	44	20	100	JD	µg/L	1	4/6/2017 6:08:26 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Bis(2-ethylhexyl)phthalate	31	24	50	JD	µg/L	1	4/6/2017 6:08:26 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12B
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:20:00 AM
Lab ID: 1703F34-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
3+4-Methylphenol	41	16	50	JD	µg/L	1	4/6/2017 6:08:26 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Phenol	45	16	50	JD	µg/L	1	4/6/2017 6:08:26 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12B
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:20:00 AM
Lab ID: 1703F34-011 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 6:08:26 PM	31059
Surr: 2-Fluorophenol	26.2	0	15-98.1	D	%Rec	1	4/6/2017 6:08:26 PM	31059
Surr: Phenol-d5	22.4	0	15-80.7	D	%Rec	1	4/6/2017 6:08:26 PM	31059
Surr: 2,4,6-Tribromophenol	34.9	0	15-112	D	%Rec	1	4/6/2017 6:08:26 PM	31059
Surr: Nitrobenzene-d5	68.6	0	27.2-90.7	D	%Rec	1	4/6/2017 6:08:26 PM	31059
Surr: 2-Fluorobiphenyl	47.7	0	23.3-85.6	D	%Rec	1	4/6/2017 6:08:26 PM	31059
Surr: 4-Terphenyl-d14	49.8	0	27.6-107	D	%Rec	1	4/6/2017 6:08:26 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	6.8	0.96	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Toluene	12	0.89	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Ethylbenzene	4.2	1.1	5.0	JD	µg/L	10	4/3/2017 9:43:01 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2,4-Trimethylbenzene	5.5	1.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Acetone	87	8.8	50	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Bromomethane	9.1	7.8	15	JD	µg/L	10	4/3/2017 9:43:01 PM	R41853
2-Butanone	25	11	50	JD	µg/L	10	4/3/2017 9:43:01 PM	R41853
Carbon disulfide	23	6.0	50	JD	µg/L	10	4/3/2017 9:43:01 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 9:43:01 PM	R41853

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Lab ID: 1703F34-011 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Xylenes, Total	13	3.2	7.5	D	µg/L	10	4/3/2017 9:43:01 PM	R41853
Surr: 1,2-Dichloroethane-d4	90.8	0	70-130	D	%Rec	10	4/3/2017 9:43:01 PM	R41853
Surr: 4-Bromofluorobenzene	111	0	70-130	D	%Rec	10	4/3/2017 9:43:01 PM	R41853

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-12B
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:20:00 AM
Lab ID: 1703F34-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Dibromofluoromethane	96.9	0	70-130	D	%Rec	10	4/3/2017 9:43:01 PM	R41853
Surr: Toluene-d8	96.1	0	70-130	D	%Rec	10	4/3/2017 9:43:01 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	694	10	10		mg/l	1	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	20000	10	10		µmhos/c	10	4/4/2017 2:48:41 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.78			H	pH units	1	4/3/2017 3:28:09 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	10600	118	200	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-8
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:38:00 AM
Lab ID: 1703F34-012 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	11	2.5	5.0	*	mg/L	50	4/7/2017 6:40:13 PM	R41969
Chloride	64000	1200	2500		mg/L	5E+	4/7/2017 7:17:27 PM	R41969
Bromide	38	0.61	2.0		mg/L	20	3/31/2017 11:56:15 PM	A41794
Phosphorus, Orthophosphate (As P)	ND	5.0	10		mg/L	20	3/31/2017 11:56:15 PM	A41794
Sulfate	12000	480	2500		mg/L	5E+	4/7/2017 7:17:27 PM	R41969
Nitrate+Nitrite as N	ND	5.2	40		mg/L	200	4/12/2017 7:38:35 PM	R42066
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.20	0.0085	0.020		mg/L	10	4/6/2017 7:07:41 PM	A41953
Cadmium	ND	0.010	0.020		mg/L	10	4/6/2017 7:07:41 PM	A41953
Calcium	1200	50	100		mg/L	100	4/27/2017 4:27:50 PM	A42438
Chromium	0.017	0.010	0.060	J	mg/L	10	4/6/2017 7:07:41 PM	A41953
Copper	ND	0.032	0.060		mg/L	10	4/6/2017 7:07:41 PM	A41953
Iron	ND	0.20	0.20		mg/L	10	4/6/2017 7:07:41 PM	A41953
Magnesium	1500	50	100		mg/L	100	4/27/2017 4:27:50 PM	A42438
Manganese	0.13	0.0038	0.020	*	mg/L	10	4/6/2017 7:07:41 PM	A41953
Potassium	1900	50	100		mg/L	100	4/27/2017 4:27:50 PM	A42438
Silver	ND	0.0088	0.050		mg/L	10	4/6/2017 7:07:41 PM	A41953
Sodium	54000	500	1000		mg/L	1E+	4/27/2017 4:29:14 PM	A42438
Zinc	0.071	0.011	0.10	J	mg/L	10	4/6/2017 7:07:41 PM	A41953
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.17	0.0040	0.010		mg/L	5	4/7/2017 5:35:43 PM	31104
Cadmium	ND	0.0074	0.010		mg/L	5	4/7/2017 5:35:43 PM	31104
Chromium	ND	0.013	0.030		mg/L	5	4/7/2017 5:35:43 PM	31104
Copper	ND	0.015	0.030		mg/L	5	4/7/2017 5:35:43 PM	31104
Iron	0.31	0.20	0.20	*	mg/L	10	4/13/2017 6:15:07 PM	31177
Manganese	0.55	0.0014	0.010	*	mg/L	5	4/7/2017 5:35:43 PM	31104
Silver	ND	0.0077	0.025		mg/L	5	4/14/2017 4:22:14 PM	31177
Zinc	0.016	0.013	0.050	J	mg/L	5	4/19/2017 8:27:58 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.12	0.0089	0.050	*	mg/L	50	4/14/2017 3:27:04 PM	B42148
Lead	ND	0.0084	0.025		mg/L	50	4/14/2017 3:27:04 PM	B42148
Selenium	0.17	0.019	0.050	*	mg/L	50	4/14/2017 3:27:04 PM	B42148
Uranium	0.0061	0.0025	0.025	J	mg/L	50	4/14/2017 3:27:04 PM	B42148
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.17	0.011	0.050	*	mg/L	50	4/12/2017 3:26:08 PM	31177
Lead	ND	0.0041	0.025		mg/L	50	4/12/2017 3:26:08 PM	31177
Selenium	0.31	0.0094	0.050	*	mg/L	50	4/12/2017 3:26:08 PM	31177

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-8
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:38:00 AM
Lab ID: 1703F34-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Uranium	ND	0.0087	0.025		mg/L	50	4/12/2017 3:26:08 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000047	0.000037	0.00020	J	mg/L	1	4/13/2017 9:01:36 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	18	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	<10	10.00	10.00		MPN/100	10	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Acenaphthylene	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Aniline	ND	15	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Anthracene	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Azobenzene	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Benz(a)anthracene	ND	19	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Benzo(a)pyrene	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Benzo(b)fluoranthene	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Benzo(g,h,i)perylene	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Benzo(k)fluoranthene	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Benzoic acid	31	20	100	JD	µg/L	1	4/6/2017 6:36:39 PM	31059
Benzyl alcohol	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Bis(2-chloroethoxy)methane	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Bis(2-chloroethyl)ether	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Bis(2-chloroisopropyl)ether	ND	19	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Bis(2-ethylhexyl)phthalate	33	24	50	JD	µg/L	1	4/6/2017 6:36:39 PM	31059
4-Bromophenyl phenyl ether	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Butyl benzyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Carbazole	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
4-Chloro-3-methylphenol	ND	32	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
4-Chloroaniline	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2-Chloronaphthalene	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2-Chlorophenol	ND	38	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
4-Chlorophenyl phenyl ether	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Chrysene	ND	19	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Di-n-butyl phthalate	ND	25	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Di-n-octyl phthalate	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Dibenz(a,h)anthracene	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Dibenzofuran	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-8
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:38:00 AM
Lab ID: 1703F34-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	10	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
1,3-Dichlorobenzene	ND	9.1	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
1,4-Dichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
3,3´-Dichlorobenzidine	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Diethyl phthalate	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Dimethyl phthalate	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2,4-Dichlorophenol	ND	28	100	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2,4-Dimethylphenol	ND	14	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
4,6-Dinitro-2-methylphenol	ND	19	100	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2,4-Dinitrophenol	ND	13	100	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2,4-Dinitrotoluene	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2,6-Dinitrotoluene	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Fluoranthene	ND	21	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Fluorene	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Hexachlorobenzene	ND	19	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Hexachlorobutadiene	ND	6.7	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Hexachlorocyclopentadiene	ND	6.4	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Hexachloroethane	ND	6.0	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Indeno(1,2,3-cd)pyrene	ND	21	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Isophorone	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
1-Methylnaphthalene	ND	17	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2-Methylnaphthalene	ND	16	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2-Methylphenol	ND	17	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
3+4-Methylphenol	ND	16	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
N-Nitrosodi-n-propylamine	ND	23	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
N-Nitrosodimethylamine	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
N-Nitrosodiphenylamine	ND	19	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Naphthalene	ND	14	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2-Nitroaniline	ND	25	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
3-Nitroaniline	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
4-Nitroaniline	ND	20	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Nitrobenzene	ND	18	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2-Nitrophenol	ND	26	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
4-Nitrophenol	ND	27	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Pentachlorophenol	ND	25	100	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Phenanthrene	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Phenol	ND	16	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Pyrene	ND	22	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Pyridine	ND	11	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-8
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:38:00 AM
Lab ID: 1703F34-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	11	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2,4,5-Trichlorophenol	ND	26	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
2,4,6-Trichlorophenol	ND	27	50	D	µg/L	1	4/6/2017 6:36:39 PM	31059
Surr: 2-Fluorophenol	18.1	0	15-98.1	D	%Rec	1	4/6/2017 6:36:39 PM	31059
Surr: Phenol-d5	18.2	0	15-80.7	D	%Rec	1	4/6/2017 6:36:39 PM	31059
Surr: 2,4,6-Tribromophenol	31.5	0	15-112	D	%Rec	1	4/6/2017 6:36:39 PM	31059
Surr: Nitrobenzene-d5	55.6	0	27.2-90.7	D	%Rec	1	4/6/2017 6:36:39 PM	31059
Surr: 2-Fluorobiphenyl	38.5	0	23.3-85.6	D	%Rec	1	4/6/2017 6:36:39 PM	31059
Surr: 4-Terphenyl-d14	26.1	0	27.6-107	SD	%Rec	1	4/6/2017 6:36:39 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.96	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Toluene	ND	0.89	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2,4-Trimethylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Acetone	12	8.8	50	JD	µg/L	10	4/3/2017 10:12:12 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
2-Butanone	17	11	50	JD	µg/L	10	4/3/2017 10:12:12 PM	R41853
Carbon disulfide	ND	6.0	50	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-8
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:38:00 AM
Lab ID: 1703F34-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Xylenes, Total	ND	3.2	7.5	D	µg/L	10	4/3/2017 10:12:12 PM	R41853
Surr: 1,2-Dichloroethane-d4	90.0	0	70-130	D	%Rec	10	4/3/2017 10:12:12 PM	R41853
Surr: 4-Bromofluorobenzene	109	0	70-130	D	%Rec	10	4/3/2017 10:12:12 PM	R41853
Surr: Dibromofluoromethane	97.9	0	70-130	D	%Rec	10	4/3/2017 10:12:12 PM	R41853

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-8
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 11:38:00 AM
Lab ID: 1703F34-012 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Toluene-d8	101	0	70-130	D	%Rec	10	4/3/2017 10:12:12 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	5430	200	200		mg/l	20	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	190000	100	100		µmhos/c	100	4/4/2017 2:52:36 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	8.07			H	pH units	1	4/3/2017 3:32:09 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	99100	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-9
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:05:00 PM
Lab ID: 1703F34-013 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	13	2.5	5.0	*	mg/L	50	4/7/2017 7:29:52 PM	R41969
Chloride	58000	1200	2500		mg/L	5E+	4/7/2017 7:42:17 PM	R41969
Bromide	23	0.61	2.0		mg/L	20	4/1/2017 12:21:04 AM	A41794
Phosphorus, Orthophosphate (As P)	ND	5.0	10		mg/L	20	4/1/2017 12:21:04 AM	A41794
Sulfate	5600	480	2500		mg/L	5E+	4/7/2017 7:42:17 PM	R41969
Nitrate+Nitrite as N	ND	5.2	40		mg/L	200	4/7/2017 10:36:04 PM	R41969
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.27	0.0085	0.020		mg/L	10	4/11/2017 5:34:31 PM	A42051
Cadmium	ND	0.010	0.020		mg/L	10	4/11/2017 5:34:31 PM	A42051
Calcium	850	5.0	10		mg/L	10	4/11/2017 5:34:31 PM	A42051
Chromium	ND	0.010	0.060		mg/L	10	4/11/2017 5:34:31 PM	A42051
Copper	ND	0.032	0.060		mg/L	10	4/11/2017 5:34:31 PM	A42051
Iron	ND	0.20	0.20		mg/L	10	4/11/2017 5:34:31 PM	A42051
Magnesium	1300	50	100		mg/L	100	4/27/2017 4:36:06 PM	A42438
Manganese	1.1	0.0038	0.020	*	mg/L	10	4/11/2017 5:34:31 PM	A42051
Potassium	1500	50	100		mg/L	100	4/27/2017 4:36:06 PM	A42438
Silver	ND	0.0088	0.050		mg/L	10	4/11/2017 5:34:31 PM	A42051
Sodium	47000	500	1000		mg/L	1E+	4/27/2017 4:37:28 PM	A42438
Zinc	0.081	0.011	0.10	J	mg/L	10	4/11/2017 5:34:31 PM	A42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.26	0.0040	0.010		mg/L	5	4/7/2017 5:37:46 PM	31104
Cadmium	ND	0.0074	0.010		mg/L	5	4/7/2017 5:37:46 PM	31104
Chromium	ND	0.013	0.030		mg/L	5	4/7/2017 5:37:46 PM	31104
Copper	ND	0.015	0.030		mg/L	5	4/7/2017 5:37:46 PM	31104
Iron	1.8	0.20	0.20	*	mg/L	10	4/13/2017 6:17:34 PM	31177
Manganese	1.4	0.0027	0.020	*	mg/L	10	4/7/2017 4:52:54 AM	31104
Silver	ND	0.0077	0.025		mg/L	5	4/14/2017 4:25:39 PM	31177
Zinc	0.022	0.013	0.050	J	mg/L	5	4/19/2017 8:29:44 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.10	0.0089	0.050	*	mg/L	50	4/14/2017 3:34:42 PM	B42148
Lead	ND	0.0084	0.025		mg/L	50	4/14/2017 3:34:42 PM	B42148
Selenium	0.12	0.019	0.050	*	mg/L	50	4/14/2017 3:34:42 PM	B42148
Uranium	0.0025	0.0025	0.025	J	mg/L	50	4/14/2017 3:34:42 PM	B42148
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.13	0.011	0.050	*	mg/L	50	4/12/2017 3:38:13 PM	31177
Lead	ND	0.0041	0.025		mg/L	50	4/12/2017 3:38:13 PM	31177
Selenium	0.23	0.0094	0.050	*	mg/L	50	4/12/2017 3:38:13 PM	31177

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-9
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:05:00 PM
Lab ID: 1703F34-013
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Uranium	ND	0.0087	0.025		mg/L	50	4/12/2017 3:38:13 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000047	0.000037	0.00020	J	mg/L	1	4/13/2017 9:03:36 AM	31202
SM5210B: BOD							Analyst: **SMS**	
Biochemical Oxygen Demand	30	2.0	2.0		mg/L	1	4/5/2017 1:49:00 PM	31012
SM 9223B FECAL INDICATOR: E. COLI MPN							Analyst: **LGT**	
E. Coli	<1	1.000	1.000		MPN/100	1	3/31/2017 5:48:00 PM	31004
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Acenaphthylene	ND	3.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Aniline	ND	3.1	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Anthracene	ND	3.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Azobenzene	ND	4.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Benzoic acid	6.1	3.9	20	J	µg/L	1	4/6/2017 7:04:53 PM	31059
Benzyl alcohol	ND	4.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Bis(2-ethylhexyl)phthalate	6.2	4.8	10	J	µg/L	1	4/6/2017 7:04:53 PM	31059
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Carbazole	ND	4.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
4-Chloroaniline	ND	3.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2-Chlorophenol	ND	7.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Chrysene	ND	3.8	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Dibenzofuran	ND	4.1	10		µg/L	1	4/6/2017 7:04:53 PM	31059

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-9
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:05:00 PM
Lab ID: 1703F34-013
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/6/2017 7:04:53 PM	31059
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/6/2017 7:04:53 PM	31059
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Diethyl phthalate	ND	4.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/6/2017 7:04:53 PM	31059
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/6/2017 7:04:53 PM	31059
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/6/2017 7:04:53 PM	31059
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/6/2017 7:04:53 PM	31059
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Fluoranthene	ND	4.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Fluorene	ND	4.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Hexachloroethane	ND	1.2	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Isophorone	ND	4.4	10		µg/L	1	4/6/2017 7:04:53 PM	31059
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2-Methylphenol	ND	3.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/6/2017 7:04:53 PM	31059
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Naphthalene	ND	2.9	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2-Nitroaniline	ND	4.9	10		µg/L	1	4/6/2017 7:04:53 PM	31059
3-Nitroaniline	ND	4.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
4-Nitroaniline	ND	4.0	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Nitrobenzene	ND	3.6	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2-Nitrophenol	ND	5.2	10		µg/L	1	4/6/2017 7:04:53 PM	31059
4-Nitrophenol	ND	5.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Pentachlorophenol	ND	4.9	20		µg/L	1	4/6/2017 7:04:53 PM	31059
Phenanthrene	ND	4.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Phenol	ND	3.1	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Pyrene	ND	4.4	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Pyridine	ND	2.3	10		µg/L	1	4/6/2017 7:04:53 PM	31059

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-9
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:05:00 PM
Lab ID: 1703F34-013
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/6/2017 7:04:53 PM	31059
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/6/2017 7:04:53 PM	31059
Surr: 2-Fluorophenol	15.1	0	15-98.1		%Rec	1	4/6/2017 7:04:53 PM	31059
Surr: Phenol-d5	23.6	0	15-80.7		%Rec	1	4/6/2017 7:04:53 PM	31059
Surr: 2,4,6-Tribromophenol	20.3	0	15-112		%Rec	1	4/6/2017 7:04:53 PM	31059
Surr: Nitrobenzene-d5	63.9	0	27.2-90.7		%Rec	1	4/6/2017 7:04:53 PM	31059
Surr: 2-Fluorobiphenyl	34.3	0	23.3-85.6		%Rec	1	4/6/2017 7:04:53 PM	31059
Surr: 4-Terphenyl-d14	26.1	0	27.6-107	S	%Rec	1	4/6/2017 7:04:53 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.96	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Toluene	ND	0.89	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Ethylbenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2,4-Trimethylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,3,5-Trimethylbenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2-Dichloroethane (EDC)	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2-Dibromoethane (EDB)	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Naphthalene	ND	0.83	10	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1-Methylnaphthalene	ND	1.6	20	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
2-Methylnaphthalene	ND	1.5	20	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Acetone	12	8.8	50	JD	µg/L	10	4/3/2017 10:41:31 PM	R41853
Bromobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Bromodichloromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Bromoform	ND	2.1	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Bromomethane	ND	7.8	15	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
2-Butanone	ND	11	50	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Carbon disulfide	ND	6.0	50	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Carbon Tetrachloride	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Chlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Chloroethane	ND	2.3	10	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Chloroform	ND	0.89	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Chloromethane	ND	2.1	15	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
2-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
4-Chlorotoluene	ND	4.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
cis-1,2-DCE	ND	2.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
cis-1,3-Dichloropropene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2-Dibromo-3-chloropropane	ND	14	10	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Dibromochloromethane	ND	0.78	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-9
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:05:00 PM
Lab ID: 1703F34-013
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromomethane	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2-Dichlorobenzene	ND	1.2	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,3-Dichlorobenzene	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,4-Dichlorobenzene	ND	4.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Dichlorodifluoromethane	ND	3.2	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,1-Dichloroethane	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,1-Dichloroethene	ND	0.81	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2-Dichloropropane	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,3-Dichloropropane	ND	1.6	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
2,2-Dichloropropane	ND	1.2	10	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,1-Dichloropropene	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Hexachlorobutadiene	ND	3.7	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
2-Hexanone	ND	6.6	50	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Isopropylbenzene	ND	0.98	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
4-Isopropyltoluene	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
4-Methyl-2-pentanone	ND	7.1	50	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Methylene Chloride	ND	1.1	15	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
n-Butylbenzene	ND	1.6	15	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
n-Propylbenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
sec-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Styrene	ND	1.6	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
tert-Butylbenzene	ND	1.0	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,1,1,2-Tetrachloroethane	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,1,2,2-Tetrachloroethane	ND	1.4	10	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Tetrachloroethene (PCE)	ND	1.5	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
trans-1,2-DCE	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
trans-1,3-Dichloropropene	ND	0.89	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2,3-Trichlorobenzene	ND	1.1	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2,4-Trichlorobenzene	ND	1.3	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,1,1-Trichloroethane	ND	0.73	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,1,2-Trichloroethane	ND	1.4	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Trichloroethene (TCE)	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Trichlorofluoromethane	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
1,2,3-Trichloropropane	ND	3.9	10	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Vinyl chloride	ND	1.8	5.0	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Xylenes, Total	ND	3.2	7.5	D	µg/L	10	4/3/2017 10:41:31 PM	R41853
Surr: 1,2-Dichloroethane-d4	90.9	0	70-130	D	%Rec	10	4/3/2017 10:41:31 PM	R41853
Surr: 4-Bromofluorobenzene	104	0	70-130	D	%Rec	10	4/3/2017 10:41:31 PM	R41853
Surr: Dibromofluoromethane	100	0	70-130	D	%Rec	10	4/3/2017 10:41:31 PM	R41853

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EP-9
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:05:00 PM
Lab ID: 1703F34-013 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Toluene-d8	100	0	70-130	D	%Rec	10	4/3/2017 10:41:31 PM	R41853
EPA METHOD 410.4: COD							Analyst: **SUB**	
Chemical Oxygen Demand	5590	200	200		mg/l	20	4/4/2017	R42566
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	180000	100	100		µmhos/c	100	4/4/2017 2:57:04 PM	R41894
SM4500-H+B / 9040C: PH							Analyst: **JRR**	
pH	7.65			H	pH units	1	4/3/2017 3:36:02 PM	R41861
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	88800	1180	2000	*D	mg/L	1	4/8/2017 2:06:00 PM	31114

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: PW-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:20:00 PM
Lab ID: 1703F34-014
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Nitrogen, Nitrate (As N)	0.51	0.022	0.10		mg/L	1	4/1/2017 12:58:18 AM	A41794
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.013	0.00085	0.0020		mg/L	1	4/6/2017 10:53:02 PM	C41953
Cadmium	ND	0.0010	0.0020		mg/L	1	4/6/2017 10:53:02 PM	C41953
Chromium	ND	0.0010	0.0060		mg/L	1	4/6/2017 10:53:02 PM	C41953
Copper	ND	0.0032	0.0060		mg/L	1	4/6/2017 10:53:02 PM	C41953
Iron	0.074	0.020	0.020		mg/L	1	4/6/2017 10:53:02 PM	C41953
Manganese	0.00088	0.00038	0.0020	J	mg/L	1	4/6/2017 10:53:02 PM	C41953
Silver	ND	0.00088	0.0050		mg/L	1	4/6/2017 10:53:02 PM	C41953
Zinc	0.031	0.0011	0.010		mg/L	1	4/6/2017 10:53:02 PM	C41953
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.012	0.00079	0.0020		mg/L	1	4/7/2017 4:55:26 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:39:47 PM	31104
Chromium	ND	0.0027	0.0060		mg/L	1	4/7/2017 4:55:26 AM	31104
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 5:39:47 PM	31104
Iron	0.15	0.020	0.020		mg/L	1	4/12/2017 7:57:26 PM	31177
Manganese	0.00087	0.00027	0.0020	J	mg/L	1	4/7/2017 4:55:26 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 4:55:26 AM	31104
Zinc	ND	0.0027	0.010		mg/L	1	4/12/2017 7:57:26 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0030	0.00018	0.0010		mg/L	1	4/12/2017 7:36:34 PM	B42080
Lead	ND	0.00017	0.00050		mg/L	1	4/12/2017 7:36:34 PM	B42080
Selenium	0.0018	0.00039	0.0010		mg/L	1	4/12/2017 7:36:34 PM	B42080
Uranium	0.0015	0.000050	0.00050		mg/L	1	4/12/2017 7:36:34 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0032	0.00021	0.0010		mg/L	1	4/12/2017 2:06:36 PM	31177
Lead	ND	0.000081	0.00050		mg/L	1	4/12/2017 2:06:36 PM	31177
Selenium	0.0013	0.00094	0.0050	J	mg/L	5	4/12/2017 3:41:14 PM	31177
Uranium	0.0015	0.00017	0.00050		mg/L	1	4/12/2017 2:06:36 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000052	0.000037	0.00020	J	mg/L	1	4/13/2017 9:05:36 AM	31202
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Acenaphthylene	ND	3.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Aniline	ND	3.1	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Anthracene	ND	3.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: PW-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:20:00 PM
Lab ID: 1703F34-014
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Azobenzene	ND	4.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Benzoic acid	7.4	3.9	20	J	µg/L	1	4/6/2017 7:33:02 PM	31059
Benzyl alcohol	ND	4.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Bis(2-ethylhexyl)phthalate	6.9	4.8	10	J	µg/L	1	4/6/2017 7:33:02 PM	31059
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Carbazole	ND	4.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
4-Chloroaniline	ND	3.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2-Chlorophenol	ND	7.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Chrysene	ND	3.8	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Dibenzofuran	ND	4.1	10		µg/L	1	4/6/2017 7:33:02 PM	31059
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/6/2017 7:33:02 PM	31059
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/6/2017 7:33:02 PM	31059
3,3′-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Diethyl phthalate	ND	4.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/6/2017 7:33:02 PM	31059
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/6/2017 7:33:02 PM	31059
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/6/2017 7:33:02 PM	31059
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/6/2017 7:33:02 PM	31059
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Fluoranthene	ND	4.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Fluorene	ND	4.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059

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Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: PW-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:20:00 PM
Lab ID: 1703F34-014
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Hexachloroethane	ND	1.2	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Isophorone	ND	4.4	10		µg/L	1	4/6/2017 7:33:02 PM	31059
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2-Methylphenol	ND	3.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/6/2017 7:33:02 PM	31059
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Naphthalene	ND	2.9	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2-Nitroaniline	ND	4.9	10		µg/L	1	4/6/2017 7:33:02 PM	31059
3-Nitroaniline	ND	4.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
4-Nitroaniline	ND	4.0	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Nitrobenzene	ND	3.6	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2-Nitrophenol	ND	5.2	10		µg/L	1	4/6/2017 7:33:02 PM	31059
4-Nitrophenol	ND	5.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Pentachlorophenol	ND	4.9	20		µg/L	1	4/6/2017 7:33:02 PM	31059
Phenanthrene	ND	4.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Phenol	ND	3.1	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Pyrene	ND	4.4	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Pyridine	ND	2.3	10		µg/L	1	4/6/2017 7:33:02 PM	31059
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/6/2017 7:33:02 PM	31059
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/6/2017 7:33:02 PM	31059
Surr: 2-Fluorophenol	30.1	0	15-98.1		%Rec	1	4/6/2017 7:33:02 PM	31059
Surr: Phenol-d5	25.1	0	15-80.7		%Rec	1	4/6/2017 7:33:02 PM	31059
Surr: 2,4,6-Tribromophenol	39.5	0	15-112		%Rec	1	4/6/2017 7:33:02 PM	31059
Surr: Nitrobenzene-d5	68.6	0	27.2-90.7		%Rec	1	4/6/2017 7:33:02 PM	31059
Surr: 2-Fluorobiphenyl	61.9	0	23.3-85.6		%Rec	1	4/6/2017 7:33:02 PM	31059
Surr: 4-Terphenyl-d14	35.2	0	27.6-107		%Rec	1	4/6/2017 7:33:02 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	ND	0.096	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Toluene	ND	0.089	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Ethylbenzene	ND	0.11	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Methyl tert-butyl ether (MTBE)	ND	0.15	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: PW-4
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:20:00 PM
Lab ID: 1703F34-014
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
1,2,4-Trimethylbenzene	ND	0.10	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,3,5-Trimethylbenzene	ND	0.12	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2-Dichloroethane (EDC)	ND	0.12	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2-Dibromoethane (EDB)	ND	0.13	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Naphthalene	ND	0.083	1.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
1-Methylnaphthalene	ND	0.16	2.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
2-Methylnaphthalene	ND	0.15	2.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Acetone	1.2	0.88	5.0	J	µg/L	1	4/3/2017 11:10:38 PM	R41853
Bromobenzene	ND	0.14	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Bromodichloromethane	ND	0.18	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Bromoform	ND	0.21	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Bromomethane	ND	0.78	1.5		µg/L	1	4/3/2017 11:10:38 PM	R41853
2-Butanone	ND	1.1	5.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Carbon disulfide	ND	0.60	5.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Carbon Tetrachloride	ND	0.11	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Chlorobenzene	ND	0.11	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Chloroethane	ND	0.23	1.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Chloroform	ND	0.089	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Chloromethane	ND	0.21	1.5		µg/L	1	4/3/2017 11:10:38 PM	R41853
2-Chlorotoluene	ND	0.40	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
4-Chlorotoluene	ND	0.40	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
cis-1,2-DCE	ND	0.20	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
cis-1,3-Dichloropropene	ND	0.10	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2-Dibromo-3-chloropropane	ND	1.4	1.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Dibromochloromethane	ND	0.078	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Dibromomethane	ND	0.12	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2-Dichlorobenzene	ND	0.12	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,3-Dichlorobenzene	ND	0.14	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,4-Dichlorobenzene	ND	0.40	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Dichlorodifluoromethane	ND	0.32	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,1-Dichloroethane	ND	0.10	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,1-Dichloroethene	ND	0.081	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2-Dichloropropane	ND	0.10	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,3-Dichloropropane	ND	0.16	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
2,2-Dichloropropane	ND	0.12	1.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,1-Dichloropropene	ND	0.13	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Hexachlorobutadiene	ND	0.37	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
2-Hexanone	ND	0.66	5.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Isopropylbenzene	ND	0.098	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853

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Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
4-Isopropyltoluene	ND	0.14	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
4-Methyl-2-pentanone	ND	0.71	5.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Methylene Chloride	ND	0.11	1.5		µg/L	1	4/3/2017 11:10:38 PM	R41853
n-Butylbenzene	ND	0.16	1.5		µg/L	1	4/3/2017 11:10:38 PM	R41853
n-Propylbenzene	ND	0.13	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
sec-Butylbenzene	ND	0.10	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Styrene	ND	0.16	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
tert-Butylbenzene	ND	0.10	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,1,1,2-Tetrachloroethane	ND	0.11	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,1,2,2-Tetrachloroethane	ND	0.14	1.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Tetrachloroethene (PCE)	ND	0.15	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
trans-1,2-DCE	ND	0.18	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
trans-1,3-Dichloropropene	ND	0.089	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2,3-Trichlorobenzene	ND	0.11	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2,4-Trichlorobenzene	ND	0.13	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,1,1-Trichloroethane	ND	0.073	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,1,2-Trichloroethane	ND	0.14	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Trichloroethene (TCE)	ND	0.18	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Trichlorofluoromethane	ND	0.18	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
1,2,3-Trichloropropane	ND	0.39	1.0		µg/L	1	4/3/2017 11:10:38 PM	R41853
Vinyl chloride	ND	0.18	0.50		µg/L	1	4/3/2017 11:10:38 PM	R41853
Xylenes, Total	ND	0.32	0.75		µg/L	1	4/3/2017 11:10:38 PM	R41853
Surr: 1,2-Dichloroethane-d4	85.6	0	70-130		%Rec	1	4/3/2017 11:10:38 PM	R41853
Surr: 4-Bromofluorobenzene	112	0	70-130		%Rec	1	4/3/2017 11:10:38 PM	R41853
Surr: Dibromofluoromethane	96.2	0	70-130		%Rec	1	4/3/2017 11:10:38 PM	R41853
Surr: Toluene-d8	98.8	0	70-130		%Rec	1	4/3/2017 11:10:38 PM	R41853
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: **SUB**	
Cyanide	ND	0.00500	0.00500		mg/l	1	4/5/2017	R42566

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-57
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:40:00 PM
Lab ID: 1703F34-015
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **MAB**	
Diesel Range Organics (DRO)	5.8	0.36	1.0		mg/L	1	4/6/2017 1:41:01 PM	31110
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	4/6/2017 1:41:01 PM	31110
Surr: DNOP	104	0	72.4-157		%Rec	1	4/6/2017 1:41:01 PM	31110
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	0.27	0.050	0.10		mg/L	1	4/7/2017 7:54:41 PM	R41969
Chloride	160	5.0	10		mg/L	20	4/1/2017 2:00:22 AM	A41794
Nitrogen, Nitrite (As N)	ND	0.019	0.10		mg/L	1	4/1/2017 1:23:07 AM	A41794
Bromide	2.2	0.031	0.10		mg/L	1	4/1/2017 1:23:07 AM	A41794
Nitrogen, Nitrate (As N)	0.064	0.022	0.10	J	mg/L	1	4/1/2017 1:23:07 AM	A41794
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50		mg/L	1	4/1/2017 1:23:07 AM	A41794
Sulfate	4.1	0.096	0.50		mg/L	1	4/1/2017 1:23:07 AM	A41794
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	1.4	0.0085	0.020		mg/L	10	4/6/2017 11:04:34 PM	C41953
Cadmium	ND	0.0010	0.0020		mg/L	1	4/6/2017 11:01:42 PM	C41953
Calcium	39	0.50	1.0		mg/L	1	4/6/2017 11:01:42 PM	C41953
Chromium	ND	0.0010	0.0060		mg/L	1	4/6/2017 11:01:42 PM	C41953
Copper	ND	0.0032	0.0060		mg/L	1	4/6/2017 11:01:42 PM	C41953
Iron	0.50	0.020	0.020	*	mg/L	1	4/6/2017 11:01:42 PM	C41953
Magnesium	6.2	0.50	1.0		mg/L	1	4/6/2017 11:01:42 PM	C41953
Manganese	0.69	0.00038	0.0020	*	mg/L	1	4/6/2017 11:01:42 PM	C41953
Potassium	4.8	0.50	1.0		mg/L	1	4/6/2017 11:01:42 PM	C41953
Silver	ND	0.00088	0.0050		mg/L	1	4/6/2017 11:01:42 PM	C41953
Sodium	260	5.0	10		mg/L	10	4/6/2017 11:04:34 PM	C41953
Zinc	0.030	0.0011	0.010		mg/L	1	4/6/2017 11:01:42 PM	C41953
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	2.4	0.0079	0.020	*	mg/L	10	4/7/2017 5:01:59 AM	31104
Cadmium	ND	0.0015	0.0020		mg/L	1	4/7/2017 5:41:48 PM	31104
Chromium	0.0061	0.0027	0.0060		mg/L	1	4/7/2017 5:00:15 AM	31104
Copper	0.0069	0.0030	0.0060		mg/L	1	4/7/2017 5:41:48 PM	31104
Iron	6.3	0.20	0.20	*	mg/L	10	4/12/2017 8:01:09 PM	31177
Manganese	2.5	0.0027	0.020	*	mg/L	10	4/7/2017 5:01:59 AM	31104
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 5:00:15 AM	31104
Zinc	0.014	0.0027	0.010		mg/L	1	4/12/2017 7:59:29 PM	31177
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0084	0.00089	0.0050		mg/L	5	4/12/2017 7:45:43 PM	B42080
Lead	0.00053	0.00017	0.00050		mg/L	1	4/12/2017 7:42:40 PM	B42080
Selenium	ND	0.0077	0.020		mg/L	20	4/14/2017 3:38:23 PM	B42148

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Client Sample ID: OW-57
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Collection Date: 3/30/2017 12:40:00 PM
Lab ID: 1703F34-015
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Uranium	0.0028	0.000050	0.00050		mg/L	1	4/12/2017 7:42:40 PM	B42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.010	0.0011	0.0050	*	mg/L	5	4/12/2017 3:44:14 PM	31177
Lead	0.0092	0.000081	0.00050		mg/L	1	4/12/2017 2:09:37 PM	31177
Selenium	0.013	0.00094	0.0050		mg/L	5	4/12/2017 3:44:14 PM	31177
Uranium	0.0042	0.00017	0.00050		mg/L	1	4/12/2017 2:09:37 PM	31177
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000062	0.000037	0.00020	J	mg/L	1	4/13/2017 9:11:32 AM	31202
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Acenaphthylene	ND	3.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Aniline	ND	3.1	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Anthracene	ND	3.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Azobenzene	ND	4.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Benzoic acid	19	3.9	20	J	µg/L	1	4/6/2017 8:01:07 PM	31059
Benzyl alcohol	ND	4.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Bis(2-ethylhexyl)phthalate	6.7	4.8	10	J	µg/L	1	4/6/2017 8:01:07 PM	31059
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Carbazole	ND	4.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
4-Chloroaniline	ND	3.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2-Chlorophenol	ND	7.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Chrysene	ND	3.8	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Di-n-octyl phthalate	5.1	4.7	10	J	µg/L	1	4/6/2017 8:01:07 PM	31059
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Dibenzofuran	ND	4.1	10		µg/L	1	4/6/2017 8:01:07 PM	31059

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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-57
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:40:00 PM
Lab ID: 1703F34-015 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/6/2017 8:01:07 PM	31059
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/6/2017 8:01:07 PM	31059
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Diethyl phthalate	ND	4.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/6/2017 8:01:07 PM	31059
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/6/2017 8:01:07 PM	31059
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/6/2017 8:01:07 PM	31059
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/6/2017 8:01:07 PM	31059
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Fluoranthene	ND	4.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Fluorene	ND	4.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Hexachloroethane	ND	1.2	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Isophorone	ND	4.4	10		µg/L	1	4/6/2017 8:01:07 PM	31059
1-Methylnaphthalene	45	3.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2-Methylnaphthalene	28	3.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2-Methylphenol	ND	3.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/6/2017 8:01:07 PM	31059
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Naphthalene	58	2.9	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2-Nitroaniline	ND	4.9	10		µg/L	1	4/6/2017 8:01:07 PM	31059
3-Nitroaniline	ND	4.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
4-Nitroaniline	ND	4.0	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Nitrobenzene	ND	3.6	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2-Nitrophenol	ND	5.2	10		µg/L	1	4/6/2017 8:01:07 PM	31059
4-Nitrophenol	ND	5.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Pentachlorophenol	ND	4.9	20		µg/L	1	4/6/2017 8:01:07 PM	31059
Phenanthrene	ND	4.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Phenol	7.1	3.1	10	J	µg/L	1	4/6/2017 8:01:07 PM	31059
Pyrene	ND	4.4	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Pyridine	ND	2.3	10		µg/L	1	4/6/2017 8:01:07 PM	31059

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-57
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:40:00 PM
Lab ID: 1703F34-015 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/6/2017 8:01:07 PM	31059
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/6/2017 8:01:07 PM	31059
Surr: 2-Fluorophenol	24.2	0	15-98.1		%Rec	1	4/6/2017 8:01:07 PM	31059
Surr: Phenol-d5	19.6	0	15-80.7		%Rec	1	4/6/2017 8:01:07 PM	31059
Surr: 2,4,6-Tribromophenol	31.3	0	15-112		%Rec	1	4/6/2017 8:01:07 PM	31059
Surr: Nitrobenzene-d5	63.6	0	27.2-90.7		%Rec	1	4/6/2017 8:01:07 PM	31059
Surr: 2-Fluorobiphenyl	40.3	0	23.3-85.6		%Rec	1	4/6/2017 8:01:07 PM	31059
Surr: 4-Terphenyl-d14	39.1	0	27.6-107		%Rec	1	4/6/2017 8:01:07 PM	31059
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Benzene	8600	9.6	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Toluene	24	8.9	50	JD	µg/L	100	4/4/2017 12:09:13 AM	R41853
Ethylbenzene	380	11	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Methyl tert-butyl ether (MTBE)	100	15	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2,4-Trimethylbenzene	ND	10	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,3,5-Trimethylbenzene	ND	12	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2-Dichloroethane (EDC)	ND	12	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2-Dibromoethane (EDB)	ND	13	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Naphthalene	130	8.3	100	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1-Methylnaphthalene	88	16	200	JD	µg/L	100	4/4/2017 12:09:13 AM	R41853
2-Methylnaphthalene	61	15	200	JD	µg/L	100	4/4/2017 12:09:13 AM	R41853
Acetone	ND	88	500	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Bromobenzene	ND	14	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Bromodichloromethane	ND	18	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Bromoform	ND	21	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Bromomethane	ND	78	150	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
2-Butanone	ND	110	500	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Carbon disulfide	ND	60	500	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Carbon Tetrachloride	ND	11	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Chlorobenzene	ND	11	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Chloroethane	ND	23	100	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Chloroform	ND	8.9	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Chloromethane	ND	21	150	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
2-Chlorotoluene	ND	40	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
4-Chlorotoluene	ND	40	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
cis-1,2-DCE	ND	20	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
cis-1,3-Dichloropropene	ND	10	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2-Dibromo-3-chloropropane	ND	140	100	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Dibromochloromethane	ND	7.8	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-57
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:40:00 PM
Lab ID: 1703F34-015
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Dibromomethane	ND	12	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2-Dichlorobenzene	ND	12	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,3-Dichlorobenzene	ND	14	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,4-Dichlorobenzene	ND	40	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Dichlorodifluoromethane	ND	32	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,1-Dichloroethane	ND	10	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,1-Dichloroethene	ND	8.1	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2-Dichloropropane	ND	10	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,3-Dichloropropane	ND	16	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
2,2-Dichloropropane	ND	12	100	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,1-Dichloropropene	ND	13	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Hexachlorobutadiene	ND	37	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
2-Hexanone	ND	66	500	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Isopropylbenzene	20	9.8	50	JD	µg/L	100	4/4/2017 12:09:13 AM	R41853
4-Isopropyltoluene	ND	14	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
4-Methyl-2-pentanone	ND	71	500	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Methylene Chloride	ND	11	150	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
n-Butylbenzene	ND	16	150	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
n-Propylbenzene	45	13	50	JD	µg/L	100	4/4/2017 12:09:13 AM	R41853
sec-Butylbenzene	ND	10	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Styrene	ND	16	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
tert-Butylbenzene	ND	10	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,1,1,2-Tetrachloroethane	ND	11	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,1,2,2-Tetrachloroethane	ND	14	100	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Tetrachloroethene (PCE)	ND	15	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
trans-1,2-DCE	ND	18	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
trans-1,3-Dichloropropene	ND	8.9	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2,3-Trichlorobenzene	ND	11	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2,4-Trichlorobenzene	ND	13	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,1,1-Trichloroethane	ND	7.3	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,1,2-Trichloroethane	ND	14	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Trichloroethene (TCE)	ND	18	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Trichlorofluoromethane	ND	18	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
1,2,3-Trichloropropane	ND	39	100	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Vinyl chloride	ND	18	50	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Xylenes, Total	100	32	75	D	µg/L	100	4/4/2017 12:09:13 AM	R41853
Surr: 1,2-Dichloroethane-d4	88.4	0	70-130	D	%Rec	100	4/4/2017 12:09:13 AM	R41853
Surr: 4-Bromofluorobenzene	104	0	70-130	D	%Rec	100	4/4/2017 12:09:13 AM	R41853
Surr: Dibromofluoromethane	102	0	70-130	D	%Rec	100	4/4/2017 12:09:13 AM	R41853

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-57
Project: 2017 1st QTR Ground Water
Collection Date: 3/30/2017 12:40:00 PM
Lab ID: 1703F34-015 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **AG**	
Surr: Toluene-d8	98.0	0	70-130	D	%Rec	100	4/4/2017 12:09:13 AM	R41853
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **AG**	
Gasoline Range Organics (GRO)	26	0.97	5.0	D	mg/L	100	4/4/2017 12:09:13 AM	R41853
Surr: BFB	97.9	0	70-130	D	%Rec	100	4/4/2017 12:09:13 AM	R41853

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Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	1330		20.0	2	04/04/2017 16:00	WG967032

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	1030		20.0	2	04/05/2017 15:19	WG967407

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	717		10.0	1	04/04/2017 16:01	WG967032

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	802		10.0	1	04/04/2017 16:01	WG967032

Wet Chemistry by Method 410.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
COD	990		10.0	1	04/04/2017 16:01	WG967032

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	981		10.0	1	04/04/2017 16:03	WG967032

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	3150		200	20	04/04/2017 16:03	WG967032

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	4120		200	20	04/04/2017 18:16	WG967150

2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Wet Chemistry by Method 410.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
COD	721		10.0	1	04/04/2017 18:16	WG967150

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	694		10.0	1	04/04/2017 18:16	WG967150

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
COD	5430		200	20	04/04/2017 18:16	WG967150

Wet Chemistry by Method 410.4

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
COD	5590		200	20	04/04/2017 18:16	WG967150

Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Cyanide	ND		0.00500	1	04/05/2017 16:42	WG967152

Method Blank (MB)

(MB) R3208168-1 04/04/17 15:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
COD	U		3	10.0

L899935-01 Original Sample (OS) • Duplicate (DUP)

(OS) L899935-01 04/04/17 15:57 • (DUP) R3208168-6 04/04/17 15:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
COD	80.8	81.9	1	1		20

L900009-01 Original Sample (OS) • Duplicate (DUP)

(OS) L900009-01 04/04/17 15:59 • (DUP) R3208168-7 04/04/17 15:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
COD	211	215	1	2		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3208168-2 04/04/17 15:56 • (LCSD) R3208168-3 04/04/17 15:56

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
COD	242	252	252	104	104	90-110			0	20

L899728-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L899728-01 04/04/17 15:56 • (MS) R3208168-4 04/04/17 15:56 • (MSD) R3208168-5 04/04/17 15:56

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	400	16.8	429	432	103	104	1	80-120			0	20

Method Blank (MB)

(MB) R3208215-1 04/04/17 18:14

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U		3	10.0

L900033-02 Original Sample (OS) • Duplicate (DUP)

(OS) L900033-02 04/04/17 18:17 • (DUP) R3208215-6 04/04/17 18:17

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	ND	7.99	1	0		20

L900094-01 Original Sample (OS) • Duplicate (DUP)

(OS) L900094-01 04/04/17 18:19 • (DUP) R3208215-7 04/04/17 18:19

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	76.2	75.9	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3208215-2 04/04/17 18:15 • (LCSD) R3208215-3 04/04/17 18:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
COD	242	252	252	104	104	90-110			0	20

L900033-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L900033-01 04/04/17 18:16 • (MS) R3208215-4 04/04/17 18:17 • (MSD) R3208215-5 04/04/17 18:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
COD	400	14.6	396	392	95	94	1	80-120			1	20

Method Blank (MB)

(MB) R3208484-1 04/05/17 15:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
COD	U		3	10.0

L900276-01 Original Sample (OS) • Duplicate (DUP)

(OS) L900276-01 04/05/17 15:22 • (DUP) R3208484-6 04/05/17 15:22

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
COD	15.2	15.3	1	0		20

L900361-01 Original Sample (OS) • Duplicate (DUP)

(OS) L900361-01 04/05/17 15:24 • (DUP) R3208484-7 04/05/17 15:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
COD	63.2	65.8	1	4		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3208484-2 04/05/17 15:18 • (LCSD) R3208484-3 04/05/17 15:19

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
COD	242	233	235	96	97	90-110			1	20

L900199-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L900199-01 04/05/17 15:19 • (MS) R3208484-4 04/05/17 15:19 • (MSD) R3208484-5 04/05/17 15:20

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
COD	400	ND	415	415	101	101	1	80-120			0	20

Method Blank (MB)

(MB) R3208541-1 04/05/17 16:12

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Cyanide	U		0.0018	0.00500

L899920-02 Original Sample (OS) • Duplicate (DUP)

(OS) L899920-02 04/05/17 16:21 • (DUP) R3208541-4 04/05/17 16:22

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Cyanide	ND	0.000	1	0		20

L900032-13 Original Sample (OS) • Duplicate (DUP)

(OS) L900032-13 04/05/17 16:42 • (DUP) R3208541-7 04/05/17 16:46

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Cyanide	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3208541-2 04/05/17 16:14 • (LCSD) R3208541-3 04/05/17 16:15

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Cyanide	0.100	0.102	0.103	102	103	85-115			1	20

L900029-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L900029-01 04/05/17 16:36 • (MS) R3208541-5 04/05/17 16:37 • (MSD) R3208541-6 04/05/17 16:39

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Cyanide	0.100	ND	ND	ND	0	0	1	75-125	J5	J5	0	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A41931**	RunNo: **41931**
Prep Date:	Analysis Date: **4/5/2017**	SeqNo: **1316627** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCSLL-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A41931**	RunNo: **41931**
Prep Date:	Analysis Date: **4/5/2017**	SeqNo: **1316628** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0022	0.0020	0.002000	0	109	50	150			
Cadmium	0.0020	0.0020	0.002000	0	102	50	150			
Calcium	0.53	1.0	0.5000	0	105	50	150			J
Chromium	0.0070	0.0060	0.006000	0	117	50	150			
Copper	0.0066	0.0060	0.006000	0	110	50	150			
Iron	0.022	0.020	0.02000	0	110	50	150			
Magnesium	0.54	1.0	0.5000	0	107	50	150			J
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Potassium	0.52	1.0	0.5000	0	103	50	150			J
Silver	0.0050	0.0050	0.005000	0	101	50	150			
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A41931**	RunNo: **41931**
Prep Date:	Analysis Date: **4/5/2017**	SeqNo: **1316629** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	99.0	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Calcium	50	1.0	50.00	0	101	85	115			
Chromium	0.50	0.0060	0.5000	0	99.5	85	115			
Copper	0.50	0.0060	0.5000	0	99.3	85	115			
Iron	0.50	0.020	0.5000	0	99.1	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A41931**	RunNo: **41931**
Prep Date:	Analysis Date: **4/5/2017**	SeqNo: **1316629** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	51	1.0	50.00	0	102	85	115			
Manganese	0.48	0.0020	0.5000	0	96.2	85	115			
Potassium	50	1.0	50.00	0	99.1	85	115			
Silver	0.10	0.0050	0.1000	0	100	85	115			
Zinc	0.48	0.010	0.5000	0	96.7	85	115			

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A41953**	RunNo: **41953**
Prep Date:	Analysis Date: **4/6/2017**	SeqNo: **1317443** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID **LCSLL-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A41953**	RunNo: **41953**
Prep Date:	Analysis Date: **4/6/2017**	SeqNo: **1317444** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0019	0.0020	0.002000	0	95.0	50	150			J
Cadmium	0.0029	0.0020	0.002000	0	144	50	150			
Chromium	0.0062	0.0060	0.006000	0	104	50	150			
Copper	0.0073	0.0060	0.006000	0	121	50	150			
Iron	0.019	0.020	0.02000	0	93.2	50	150			J
Manganese	0.0019	0.0020	0.002000	0	95.5	50	150			J
Silver	0.0044	0.0050	0.005000	0	87.0	50	150			J
Sodium	0.46	1.0	0.5000	0	91.1	50	150			J
Zinc	0.0056	0.010	0.005000	0	111	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A41953**	RunNo: **41953**
Prep Date:	Analysis Date: **4/6/2017**	SeqNo: **1317445** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.5	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.2	85	115			
Chromium	0.48	0.0060	0.5000	0	95.5	85	115			
Copper	0.49	0.0060	0.5000	0	98.5	85	115			
Iron	0.48	0.020	0.5000	0	96.4	85	115			
Manganese	0.47	0.0020	0.5000	0	94.3	85	115			
Silver	0.097	0.0050	0.1000	0	96.6	85	115			
Sodium	49	1.0	50.00	0	98.3	85	115			
Zinc	0.47	0.010	0.5000	0	93.0	85	115			

Sample ID **MB-C**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C41953**	RunNo: **41953**
Prep Date:	Analysis Date: **4/6/2017**	SeqNo: **1317488** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID **LCSLL-C**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C41953**	RunNo: **41953**
Prep Date:	Analysis Date: **4/6/2017**	SeqNo: **1317489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0024	0.0020	0.002000	0	118	50	150			
Cadmium	0.0015	0.0020	0.002000	0	74.5	50	150			J
Calcium	0.50	1.0	0.5000	0	101	50	150			J
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Copper	0.0066	0.0060	0.006000	0	110	50	150			
Iron	0.025	0.020	0.02000	0	124	50	150			
Magnesium	0.53	1.0	0.5000	0	105	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **LCSLL-C**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C41953**	RunNo: **41953**
Prep Date:	Analysis Date: **4/6/2017**	SeqNo: **1317489** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0020	0.0020	0.002000	0	97.5	50	150			J
Potassium	0.51	1.0	0.5000	0	102	50	150			J
Silver	0.0050	0.0050	0.005000	0	99.6	50	150			J
Sodium	0.41	1.0	0.5000	0	81.6	50	150			J
Zinc	0.0050	0.010	0.005000	0	101	50	150			J

Sample ID **LCS-C**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **C41953**	RunNo: **41953**
Prep Date:	Analysis Date: **4/6/2017**	SeqNo: **1317490** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.1	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.3	85	115			
Calcium	48	1.0	50.00	0	95.7	85	115			
Chromium	0.48	0.0060	0.5000	0	96.5	85	115			
Copper	0.49	0.0060	0.5000	0	98.4	85	115			
Iron	0.48	0.020	0.5000	0	95.7	85	115			
Magnesium	49	1.0	50.00	0	98.4	85	115			
Manganese	0.47	0.0020	0.5000	0	94.2	85	115			
Potassium	48	1.0	50.00	0	96.2	85	115			
Silver	0.097	0.0050	0.1000	0	97.5	85	115			
Sodium	49	1.0	50.00	0	98.4	85	115			
Zinc	0.47	0.010	0.5000	0	93.9	85	115			

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A42051**	RunNo: **42051**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1320627** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **LCSLL-A** SampType: **LCSLL** TestCode: **EPA Method 200.7: Dissolved Metals**

Client ID: **BatchQC** Batch ID: **A42051** RunNo: **42051**

Prep Date: Analysis Date: **4/11/2017** SeqNo: **1320628** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0018	0.0020	0.002000	0	92.0	50	150			J
Cadmium	0.0021	0.0020	0.002000	0	105	50	150			
Calcium	0.53	1.0	0.5000	0	106	50	150			J
Chromium	0.0060	0.0060	0.006000	0	100	50	150			
Copper	0.0067	0.0060	0.006000	0	112	50	150			
Iron	0.017	0.020	0.02000	0	84.5	50	150			J
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Silver	0.0049	0.0050	0.005000	0	98.0	50	150			J
Zinc	0.0054	0.010	0.005000	0	109	50	150			J

Sample ID **LCS-A** SampType: **LCS** TestCode: **EPA Method 200.7: Dissolved Metals**

Client ID: **LCSW** Batch ID: **A42051** RunNo: **42051**

Prep Date: Analysis Date: **4/11/2017** SeqNo: **1320629** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.1	85	115			
Cadmium	0.48	0.0020	0.5000	0	95.6	85	115			
Calcium	50	1.0	50.00	0	99.0	85	115			
Chromium	0.48	0.0060	0.5000	0	95.1	85	115			
Copper	0.47	0.0060	0.5000	0	94.2	85	115			
Iron	0.47	0.020	0.5000	0	94.2	85	115			
Manganese	0.47	0.0020	0.5000	0	93.2	85	115			
Silver	0.097	0.0050	0.1000	0	97.0	85	115			
Zinc	0.47	0.010	0.5000	0	93.1	85	115			

Sample ID **MB-A** SampType: **MBLK** TestCode: **EPA Method 200.7: Dissolved Metals**

Client ID: **PBW** Batch ID: **A42438** RunNo: **42438**

Prep Date: Analysis Date: **4/27/2017** SeqNo: **1334323** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LLLCS-A** SampType: **LCSLL** TestCode: **EPA Method 200.7: Dissolved Metals**

Client ID: **BatchQC** Batch ID: **A42438** RunNo: **42438**

Prep Date: Analysis Date: **4/27/2017** SeqNo: **1334324** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A42438**	RunNo: **42438**
Prep Date:	Analysis Date: **4/27/2017**	SeqNo: **1334324** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	0.52	1.0	0.5000	0	104	50	150			J
Magnesium	0.52	1.0	0.5000	0	104	50	150			J
Potassium	0.53	1.0	0.5000	0	106	50	150			J
Sodium	0.36	1.0	0.5000	0	72.4	50	150			J

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A42438**	RunNo: **42438**
Prep Date:	Analysis Date: **4/27/2017**	SeqNo: **1334325** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	97.1	85	115			
Magnesium	51	1.0	50.00	0	101	85	115			
Potassium	50	1.0	50.00	0	99.7	85	115			
Sodium	51	1.0	50.00	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID	**MB-31104**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**PBW**	Batch ID:	**31104**	RunNo:	**41953**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1317918**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Manganese	ND	0.0020								
Silver	ND	0.0050								

Sample ID	**LCSLL-31104**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**BatchQC**	Batch ID:	**31104**	RunNo:	**41953**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1317919**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0021	0.0020	0.002000	0	106	50	150			
Chromium	0.0058	0.0060	0.006000	0	97.3	50	150			J
Copper	0.0057	0.0060	0.006000	0	95.3	50	150			J
Manganese	0.0019	0.0020	0.002000	0	94.0	50	150			J
Silver	0.0052	0.0050	0.005000	0	103	50	150			

Sample ID	**LCS-31104**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**LCSW**	Batch ID:	**31104**	RunNo:	**41953**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1317920**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	102	85	115			
Chromium	0.51	0.0060	0.5000	0	102	85	115			
Copper	0.50	0.0060	0.5000	0	100	85	115			
Manganese	0.49	0.0020	0.5000	0	98.4	85	115			
Silver	0.11	0.0050	0.1000	0	113	85	115			

Sample ID	**MB-31104**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**PBW**	Batch ID:	**31104**	RunNo:	**41999**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1319218**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								

Sample ID	**LCSLL-31104**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**BatchQC**	Batch ID:	**31104**	RunNo:	**41999**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1319219**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID	**LCSLL-31104**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**BatchQC**	Batch ID:	**31104**	RunNo:	**41999**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1319219**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.0018	0.0020	0.002000	0	90.0	50	150			J

Sample ID	**LCS-31104**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**LCSW**	Batch ID:	**31104**	RunNo:	**41999**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1319220**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.52	0.0020	0.5000	0	105	85	115			

Sample ID	**MB-31177**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**PBW**	Batch ID:	**31177**	RunNo:	**42088**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1321925**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	**LCSLL-31177**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**BatchQC**	Batch ID:	**31177**	RunNo:	**42088**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1321926**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.025	0.020	0.02000	0	123	50	150			
Silver	0.0049	0.0050	0.005000	0	98.4	50	150			J
Zinc	0.0050	0.010	0.005000	0	100	50	150			J

Sample ID	**LCS-31177**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**LCSW**	Batch ID:	**31177**	RunNo:	**42088**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1321927**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.47	0.020	0.5000	0	93.5	85	115			
Silver	0.097	0.0050	0.1000	0	97.3	85	115			
Zinc	0.45	0.010	0.5000	0	90.0	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID	**1703F34-003EMSLL**	SampType:	**MS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**EP-2**	Batch ID:	**C42036**		RunNo:	**42036**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320317**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.14	0.0050	0.1250	0.01503	104	70	130			
Lead	0.072	0.0025	0.06250	0	115	70	130			
Selenium	0.14	0.0050	0.1250	0.02650	93.3	70	130			

Sample ID	**1703F34-005GMSDL**	SampType:	**MSD**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**EP-4**	Batch ID:	**C42036**		RunNo:	**42036**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320320**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.15	0.0050	0.1250	0.01530	105	70	130	0.563	20	
Lead	0.074	0.0025	0.06250	0	118	70	130	0.776	20	
Selenium	0.15	0.0050	0.1250	0.02876	97.1	70	130	0.956	20	

Sample ID	**1703F34-005GMSLL**	SampType:	**MS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**EP-4**	Batch ID:	**C42036**		RunNo:	**42036**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320322**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.15	0.0050	0.1250	0.01530	105	70	130			
Lead	0.073	0.0025	0.06250	0	117	70	130			
Selenium	0.15	0.0050	0.1250	0.02876	95.9	70	130			

Sample ID	**LCS**	SampType:	**LCS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**C42036**		RunNo:	**42036**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320333**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026	0.0010	0.02500	0	103	85	115			
Lead	0.013	0.00050	0.01250	0	102	85	115			
Selenium	0.026	0.0010	0.02500	0	104	85	115			

Sample ID	**LCSLL**	SampType:	**LCSLL**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**C42036**		RunNo:	**42036**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320334**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00093	0.0010	0.001000	0	93.4	50	150			J
Lead	0.00048	0.00050	0.0005000	0	96.6	50	150			J
Selenium	0.0010	0.0010	0.001000	0	100	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C42036**	RunNo: **42036**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1320335** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID **1703F34-003EMSLL**	SampType: **MS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **EP-2**	Batch ID: **B42080**	RunNo: **42080**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1321670** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.075	0.0025	0.06250	0.001294	118	70	130			

Sample ID **1703F34-011GMSDL**	SampType: **MSD**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **EP-12B**	Batch ID: **B42080**	RunNo: **42080**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1321682** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.14	0.0050	0.1250	0.01667	96.1	70	130	0.0244	20	
Lead	0.067	0.0025	0.06250	0	107	70	130	0.400	20	
Selenium	0.14	0.0050	0.1250	0.03017	84.7	70	130	0.225	20	
Uranium	0.076	0.0025	0.06250	0.002124	117	70	130	0.330	20	

Sample ID **1703F34-011GMSLL**	SampType: **MS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **EP-12B**	Batch ID: **B42080**	RunNo: **42080**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1321685** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.14	0.0050	0.1250	0.01667	96.1	70	130			
Lead	0.067	0.0025	0.06250	0	107	70	130			
Selenium	0.14	0.0050	0.1250	0.03017	84.5	70	130			
Uranium	0.075	0.0025	0.06250	0.002124	117	70	130			

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B42080**	RunNo: **42080**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1321717** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	94.6	85	115			
Lead	0.012	0.00050	0.01250	0	96.4	85	115			
Selenium	0.023	0.0010	0.02500	0	93.7	85	115			
Uranium	0.012	0.00050	0.01250	0	96.7	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B42080**	RunNo: **42080**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1321719** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00088	0.0010	0.001000	0	87.9	50	150			J
Lead	0.00046	0.00050	0.0005000	0	92.1	50	150			J
Selenium	0.00079	0.0010	0.001000	0	78.9	50	150			J
Uranium	0.00043	0.00050	0.0005000	0	85.5	50	150			J

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B42080**	RunNo: **42080**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1321721** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B42148**	RunNo: **42148**
Prep Date:	Analysis Date: **4/14/2017**	SeqNo: **1323907** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	99.1	85	115			
Lead	0.012	0.00050	0.01250	0	95.5	85	115			
Selenium	0.024	0.0010	0.02500	0	95.3	85	115			
Uranium	0.012	0.00050	0.01250	0	97.2	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B42148**	RunNo: **42148**
Prep Date:	Analysis Date: **4/14/2017**	SeqNo: **1323908** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00080	0.0010	0.001000	0	80.0	50	150			J
Lead	0.00046	0.00050	0.0005000	0	92.9	50	150			J
Selenium	0.00083	0.0010	0.001000	0	83.3	50	150			J
Uranium	0.00042	0.00050	0.0005000	0	84.1	50	150			J

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B42148**	RunNo: **42148**
Prep Date:	Analysis Date: **4/14/2017**	SeqNo: **1323909** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B42148**	RunNo: **42148**
Prep Date:	Analysis Date: **4/14/2017**	SeqNo: **1323909** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID	**MB-31177**	SampType:	**MBLK**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**PBW**	Batch ID:	**31177**	RunNo:	**42058**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1321024**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	**MSLCS-31177**	SampType:	**LCS**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**LCSW**	Batch ID:	**31177**	RunNo:	**42058**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1321026**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	96.7	85	115			
Lead	0.012	0.00050	0.01250	0	98.2	85	115			
Selenium	0.023	0.0010	0.02500	0	90.7	85	115			
Uranium	0.012	0.00050	0.01250	0	97.4	85	115			

Sample ID	**MSLCSLL-31177**	SampType:	**LCSLL**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**BatchQC**	Batch ID:	**31177**	RunNo:	**42058**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1321028**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00089	0.0010	0.001000	0	88.6	50	150			J
Lead	0.00049	0.00050	0.0005000	0	97.5	50	150			J
Selenium	0.00096	0.0010	0.001000	0	96.0	50	150			J
Uranium	0.00041	0.00050	0.0005000	0	81.8	50	150			J

Sample ID	**1703F34-011BMSLL**	SampType:	**MSLL**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**EP-12B**	Batch ID:	**31177**	RunNo:	**42058**					
Prep Date:	**4/11/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1321408**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.043	0.0050	0.02500	0.01682	106	70	130			
Lead	0.015	0.0025	0.01250	0.0008673	110	70	130			
Selenium	0.048	0.0050	0.02500	0.03008	73.3	70	130			
Uranium	0.016	0.0025	0.01250	0.001224	121	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID	**MB-31202**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**31202**	RunNo:	**42090**					
Prep Date:	**4/12/2017**	Analysis Date:	**4/13/2017**	SeqNo:	**1322045**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000055	0.00020								J

Sample ID	**LCS-31202**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**31202**	RunNo:	**42090**					
Prep Date:	**4/12/2017**	Analysis Date:	**4/13/2017**	SeqNo:	**1322046**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.4	80	120			

Sample ID	**1703F34-014EMS**	SampType:	**MS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PW-4**	Batch ID:	**31202**	RunNo:	**42090**					
Prep Date:	**4/12/2017**	Analysis Date:	**4/13/2017**	SeqNo:	**1322061**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	.00005244	105	75	125			

Sample ID	**1703F34-014EMSD**	SampType:	**MSD**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PW-4**	Batch ID:	**31202**	RunNo:	**42090**					
Prep Date:	**4/12/2017**	Analysis Date:	**4/13/2017**	SeqNo:	**1322062**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	.00005244	107	75	125	2.27	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A41794**	RunNo: **41794**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1313464** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A41794**	RunNo: **41794**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1313465** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	93.0	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	92.6	90	110			
Bromide	2.3	0.10	2.500	0	92.9	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.1	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.4	0.50	10.00	0	93.7	90	110			

Sample ID **1703F34-015DMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **OW-57**	Batch ID: **A41794**	RunNo: **41794**
Prep Date:	Analysis Date: **4/1/2017**	SeqNo: **1313497** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.2	0.10	1.000	0	121	76.7	103			S
Bromide	4.5	0.10	2.500	2.222	90.5	80.8	108			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0.06400	96.8	84.9	115			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	100	77.3	106			
Sulfate	14	0.50	10.00	4.117	97.1	83.1	118			

Sample ID **1703F34-015DMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **OW-57**	Batch ID: **A41794**	RunNo: **41794**
Prep Date:	Analysis Date: **4/1/2017**	SeqNo: **1313498** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.2	0.10	1.000	0	121	76.7	103	0.505	20	S
Bromide	4.5	0.10	2.500	2.222	89.4	80.8	108	0.575	20	
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0.06400	96.8	84.9	115	0.0282	20	
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	77.3	106	0.468	20	
Sulfate	14	0.50	10.00	4.117	97.1	83.1	118	0.00519	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R41934**	RunNo: **41934**							
Prep Date:	Analysis Date: **4/5/2017**	SeqNo: **1316753**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R41934**	RunNo: **41934**							
Prep Date:	Analysis Date: **4/5/2017**	SeqNo: **1316754**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.9	90	110			
Bromide	2.4	0.10	2.500	0	94.7	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R41969**	RunNo: **41969**							
Prep Date:	Analysis Date: **4/7/2017**	SeqNo: **1318733**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R41969**	RunNo: **41969**							
Prep Date:	Analysis Date: **4/7/2017**	SeqNo: **1318734**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	103	90	110			
Chloride	4.9	0.50	5.000	0	97.3	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.8	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.3	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R42002**	RunNo: **42002**							
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319670**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R42002**	RunNo: **42002**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319671** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R42066**	RunNo: **42066**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1322122** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R42066**	RunNo: **42066**
Prep Date:	Analysis Date: **4/12/2017**	SeqNo: **1322123** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	96.3	90	110			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **MB-31110**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **31110**	RunNo: **41932**
Prep Date: **4/6/2017**	Analysis Date: **4/6/2017**	SeqNo: **1316692** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.98		1.000		98.2	72.4	157			

Sample ID **LCS-31110**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **31110**	RunNo: **41932**
Prep Date: **4/6/2017**	Analysis Date: **4/6/2017**	SeqNo: **1316693** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.2	1.0	5.000	0	105	82.8	146			
Surr: DNOP	0.51		0.5000		101	72.4	157			

Sample ID **1703F34-002BMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **STP-1 to EP-2**	Batch ID: **31110**	RunNo: **41932**
Prep Date: **4/6/2017**	Analysis Date: **4/6/2017**	SeqNo: **1316960** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	17	1.0	5.000	10.93	118	87.2	145			
Surr: DNOP	0.52		0.5000		105	72.4	157			

Sample ID **1703F34-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **STP-1 to EP-2**	Batch ID: **31110**	RunNo: **41932**
Prep Date: **4/6/2017**	Analysis Date: **4/6/2017**	SeqNo: **1316977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	17	1.0	5.000	10.93	116	87.2	145	0.642	20	
Surr: DNOP	0.53		0.5000		106	72.4	157	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R41853**	RunNo: **41853**
Prep Date:	Analysis Date: **4/3/2017**	SeqNo: **1313950** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	0.12	1.0								J
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	0.21	1.0								J
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	0.15	1.0								J
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R41853**	RunNo: **41853**
Prep Date:	Analysis Date: **4/3/2017**	SeqNo: **1313950** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R41853**	RunNo: **41853**
Prep Date:	Analysis Date: **4/3/2017**	SeqNo: **1313954** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	97.8	70	130			
Chlorobenzene	19	1.0	20.00	0	93.8	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R41853** RunNo: **41853**
Prep Date: Analysis Date: **4/3/2017** SeqNo: **1313954** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	19	1.0	20.00	0	94.7	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	87.9	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.3	70	130			
Surr: Toluene-d8	9.6		10.00		96.2	70	130			

Sample ID **1703f34-003a ms** SampType: **MS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **EP-2** Batch ID: **R41853** RunNo: **41853**
Prep Date: Analysis Date: **4/4/2017** SeqNo: **1313960** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	210	10	200.0	13.45	99.2	70	130			
Toluene	200	10	200.0	22.37	88.0	70	130			
Chlorobenzene	170	10	200.0	0	87.2	70	130			
1,1-Dichloroethene	170	10	200.0	0	86.7	70	130			
Trichloroethene (TCE)	170	10	200.0	0	84.7	70	130			
Surr: 1,2-Dichloroethane-d4	90		100.0		90.1	70	130			
Surr: 4-Bromofluorobenzene	100		100.0		104	70	130			
Surr: Dibromofluoromethane	97		100.0		96.5	70	130			
Surr: Toluene-d8	92		100.0		91.8	70	130			

Sample ID **1703f34-003a msd** SampType: **MSD** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **EP-2** Batch ID: **R41853** RunNo: **41853**
Prep Date: Analysis Date: **4/4/2017** SeqNo: **1313961** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	210	10	200.0	13.45	97.3	70	130	1.78	20	
Toluene	200	10	200.0	22.37	87.1	70	130	0.932	20	
Chlorobenzene	170	10	200.0	0	85.4	70	130	2.09	20	
1,1-Dichloroethene	170	10	200.0	0	85.4	70	130	1.61	20	
Trichloroethene (TCE)	160	10	200.0	0	80.2	70	130	5.45	20	
Surr: 1,2-Dichloroethane-d4	90		100.0		90.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	110		100.0		108	70	130	0	0	
Surr: Dibromofluoromethane	96		100.0		96.2	70	130	0	0	
Surr: Toluene-d8	93		100.0		93.1	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID **lcs-31059**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **31059**	RunNo: **42041**
Prep Date: **4/4/2017**	Analysis Date: **4/6/2017**	SeqNo: **1320415** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	65	10	100.0	0	64.6	42.9	100			
4-Chloro-3-methylphenol	160	10	200.0	0	78.9	36.2	110			
2-Chlorophenol	150	10	200.0	0	74.7	33.4	97.8			
1,4-Dichlorobenzene	58	10	100.0	0	57.6	32.8	79.3			
2,4-Dinitrotoluene	63	10	100.0	0	63.0	34.9	107			
N-Nitrosodi-n-propylamine	83	10	100.0	0	82.8	30.7	111			
4-Nitrophenol	95	10	200.0	0	47.4	15	91.9			
Pentachlorophenol	120	20	200.0	0	58.6	33.3	93.5			
Phenol	110	10	200.0	0	56.0	20.9	86.4			
Pyrene	73	10	100.0	0	73.3	45.6	111			
1,2,4-Trichlorobenzene	60	10	100.0	0	59.9	38.7	88.2			
Surr: 2-Fluorophenol	130		200.0		63.8	15	98.1			
Surr: Phenol-d5	110		200.0		56.2	15	80.7			
Surr: 2,4,6-Tribromophenol	150		200.0		74.8	15	112			
Surr: Nitrobenzene-d5	73		100.0		73.1	27.2	90.7			
Surr: 2-Fluorobiphenyl	69		100.0		68.7	23.3	85.6			
Surr: 4-Terphenyl-d14	64		100.0		63.6	27.6	107			

Sample ID **mb-31059**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **31059**	RunNo: **42041**
Prep Date: **4/4/2017**	Analysis Date: **4/6/2017**	SeqNo: **1320416** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	6.4	20								J
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	6.7	10								J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **mb-31059**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **31059**	RunNo: **42041**
Prep Date: **4/4/2017**	Analysis Date: **4/6/2017**	SeqNo: **1320416** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **mb-31059**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **31059**	RunNo: **42041**
Prep Date: **4/4/2017**	Analysis Date: **4/6/2017**	SeqNo: **1320416** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	130		200.0		64.7	15	98.1			
Surr: Phenol-d5	92		200.0		45.9	15	80.7			
Surr: 2,4,6-Tribromophenol	160		200.0		80.0	15	112			
Surr: Nitrobenzene-d5	86		100.0		86.4	27.2	90.7			
Surr: 2-Fluorobiphenyl	74		100.0		73.9	23.3	85.6			
Surr: 4-Terphenyl-d14	68		100.0		67.7	27.6	107			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **MB-31012** SampType: **MBLK** TestCode: **SM5210B: BOD**
Client ID: **PBW** Batch ID: **31012** RunNo: **41921**
Prep Date: **3/31/2017** Analysis Date: **4/5/2017** SeqNo: **1316447** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.0								

Sample ID **MB--31012** SampType: **MBLK** TestCode: **SM5210B: BOD**
Client ID: **PBW** Batch ID: **31012** RunNo: **41921**
Prep Date: **3/31/2017** Analysis Date: **4/5/2017** SeqNo: **1316448** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.0								

Sample ID **LCS-31012** SampType: **LCS** TestCode: **SM5210B: BOD**
Client ID: **LCSW** Batch ID: **31012** RunNo: **41921**
Prep Date: **3/31/2017** Analysis Date: **4/5/2017** SeqNo: **1316449** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	130	2.0	198.0	0	67.2	46.8	115			

Sample ID **LCSD-31012** SampType: **LCSD** TestCode: **SM5210B: BOD**
Client ID: **LCSS02** Batch ID: **31012** RunNo: **41921**
Prep Date: **3/31/2017** Analysis Date: **4/5/2017** SeqNo: **1316450** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	130	2.0	198.0	0	64.9	46.8	115	3.44	30.1	

Sample ID **1703F34-002CDUP** SampType: **DUP** TestCode: **SM5210B: BOD**
Client ID: **STP-1 to EP-2** Batch ID: **31012** RunNo: **41921**
Prep Date: **3/31/2017** Analysis Date: **4/5/2017** SeqNo: **1316452** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	400	2.0						16.3	20	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **MB-31004**	SampType: **MBLK**		TestCode: **SM 9223B Fecal Indicator: E. coli MPN**		
Client ID: **PBW**	Batch ID: **31004**		RunNo: **41829**		
Prep Date: **3/30/2017**	Analysis Date: **3/31/2017**		SeqNo: **1313068**	Units: **MPN/100mL**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
E. Coli	<1	1.000								

Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID	**1703f34-004f dup**	SampType:	**dup**	TestCode:	**SM2510B: Specific Conductance**					
Client ID:	**EP-3**	Batch ID:	**R41894**	RunNo:	**41894**					
Prep Date:		Analysis Date:	**4/4/2017**	SeqNo:	**1315556**	Units:	**µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	20000	10						14.7	20	

Sample ID	**1703f34-003g dup**	SampType:	**dup**	TestCode:	**SM2510B: Specific Conductance**					
Client ID:	**EP-2**	Batch ID:	**R41894**	RunNo:	**41894**					
Prep Date:		Analysis Date:	**4/4/2017**	SeqNo:	**1315576**	Units:	**µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	17000	10						1.31	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**

12-Jun-18

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR Ground Water

Sample ID	**rb**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBW**	Batch ID:	**A41853**	RunNo:	**41853**					
Prep Date:		Analysis Date:	**4/3/2017**	SeqNo:	**1313998**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	9.6		10.00		96.1	70	130			

Sample ID	**2.5ug gro lcs**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSW**	Batch ID:	**A41853**	RunNo:	**41853**					
Prep Date:		Analysis Date:	**4/3/2017**	SeqNo:	**1314001**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	10		10.00		101	70	130			

Sample ID	**1703f34-002a ms**	SampType:	**MS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**STP-1 to EP-2**	Batch ID:	**A41853**	RunNo:	**41853**					
Prep Date:		Analysis Date:	**4/4/2017**	SeqNo:	**1314010**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	98		100.0		98.2	70	130			

Sample ID	**1703f34-002a msd**	SampType:	**MSD**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**STP-1 to EP-2**	Batch ID:	**A41853**	RunNo:	**41853**					
Prep Date:		Analysis Date:	**4/4/2017**	SeqNo:	**1314011**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	98		100.0		98.3	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID	**1703f34-004f dup**	SampType:	**dup**	TestCode:	**SM4500-H+B / 9040C: pH**					
Client ID:	**EP-3**	Batch ID:	**R41861**	RunNo:	**41861**					
Prep Date:		Analysis Date:	**4/3/2017**	SeqNo:	**1314280**	Units:	**pH units**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.93									H

Sample ID	**1703f34-003g dup**	SampType:	**dup**	TestCode:	**SM4500-H+B / 9040C: pH**					
Client ID:	**EP-2**	Batch ID:	**R41894**	RunNo:	**41894**					
Prep Date:		Analysis Date:	**4/4/2017**	SeqNo:	**1315584**	Units:	**pH units**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.59									H

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F34**
12-Jun-18

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR Ground Water

Sample ID **MB-31114**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **31114**	RunNo: **41979**
Prep Date: **4/6/2017**	Analysis Date: **4/8/2017**	SeqNo: **1318231** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	14.0	20.0								J

Sample ID **LCS-31114**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **31114**	RunNo: **41979**
Prep Date: **4/6/2017**	Analysis Date: **4/8/2017**	SeqNo: **1318232** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1703F34 RcptNo: 1

Received By: Andy Jansson 3/30/2017 4:55:00 PM

Completed By: Ashley Gallegos 3/30/2017 5:32:45 PM

Reviewed By: aJ 04/03/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✓
2. Is Chain of Custody complete?	Yes ✓	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✓	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✓	No	NA
6. Sample(s) in proper container(s)?	Yes ✓	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✓	No	
8. Are samples (except VOA and ONG) properly preserved?	aJ ~~Yes~~ ✓	No ✓	
9. Was preservative added to bottles?	Yes ✓	~~No~~ ✓ aJ	NA
10. VOA vials have zero headspace?	Yes ✓	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✓	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✓	No	# of preserved bottles checked for pH: 4 0 1 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✓	No	Adjusted? yes
14. Is it clear what analyses were requested?	Yes ✓	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✓	No	Checked by: aJ/ENM

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✓

Person Notified: ____ Date: ____

By Whom: ____ Via: eMail Phone Fax In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks: For metals analysis: added 1mL HNO3 to -004B, -005B, -011B for acceptable pH. Held 24 hours prior to analysis.

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

~~3/30/17~~ @ ~~aJ~~

03/31/17 @ 0952 ~~aJ~~ FNM

Chain-of-Custody Record

Corrected COC

Client:	Western Refining Company
	GALLUP REFINERY
Mailing Address:	92 Giant Crossing Road, Gallup, NM 87301
Phone #:	505-722-3833
Email or Fax#:	505-863-0930
QA/QC Package:	☐ Standard ☐ Level 4 (Full Validation)
Accreditation:	☐ NELAP ☐ Other
☐ EDD (Type)	

Turn-Around Time:	X Standard ☐ Rush
Project Name:	2017 1ST QTR GROUND WATER
Project #:	
Project Manager:	C. JOHNSON (cheryl.johnson@wnr.com)
Sampler:	
On Ice:	☒ Yes ☐ No
Sample Temperature:	2.4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1703534	Analysis Request: 8260+MTBE	WQCC Metals - Total	WQCC Metals - Dissolved - Filtered	8015D (GRO/DRO/MRO)	8270	MAJOR CATIONS/ANIONS	CYANIDE	BOD/COD/TDS	GENERAL CHEMISTRY	E-COLI	NITRATES		Air Bubbles (Y or N)
03/30/17																			
10/30/2017	700	aqueous	FIELD BLANK	3-40ML VOAS	HCL	-001	X												
10/30/2017	840	aqueous	STP-1 TO EP-2	Misc	Misc	-002	X			X				X					
10/30/2017	845	aqueous	EP-2	Misc	Misc	-003	X	X	X		X			X	X	X			
10/30/2017	910	aqueous	EP-3	Misc	Misc	-004	X	X	X	X	X			X	X	X			
10/30/2017	920	aqueous	EP-4	Misc	Misc	-005	X			X	X			X	X	X			
10/30/2017	945	aqueous	EP-5	Misc	Misc	-006	X			X	X			X	X	X			
10/30/2017	955	aqueous	EP-6	Misc	Misc	-007	X			X	X			X	X	X			
10/30/2017	1015	aqueous	EP-7	Misc	Misc	-008	X			X	X			X	X	X			
10/30/2017	1025	aqueous	EP-11	Misc	Misc	-009	X			X	X			X	X	X			
10/30/2017	1110	aqueous	EP-12A	Misc	Misc	-010	X			X	X			X	X	X			
10/30/2017	1120	aqueous	EP-12B	Misc	Misc	-011	X			X	X			X	X	X			
10/30/2017	1138	aqueous	EP-8	Misc	Misc	-012	X			X	X			X	X	X			
10/30/2017	1205	aqueous	EP-9	Misc	Misc	-013	X			X	X			X	X	X			
10/30/2017	1220	aqueous	PW-4	Misc	Misc	-014	X	X	X		X		X				X		
10/30/2017	1240	aqueous	OW-57	Misc	Misc	-015	X	X	X	X	X	X							

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/30/17	1400			3/30/17	1400
Date:	Time:	Relinquished by:	Received by:	Date	Time
3/30/17	1655			03/30/17	1655

Remarks: GENERAL CHEMISTRY TO INCLUDE pH, specific conductance, cations/anions. ON THE "EP" SAMPLES - PLEASE PLACE ALL THE TDS ON A SEPARATE FORM - DO NOT COMBINE WITH THE QUARTERLY.

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

April 25, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: 2017 1st QTR MKTF Wells OrderNo.: 1703F35

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 13 sample(s) on 3/30/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 7:00:00 AM
Lab ID: 1703F35-001 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Toluene	0.12	0.089	1.0	J	µg/L	1	3/31/2017 4:30:47 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Methyl tert-butyl ether (MTBE)	ND	0.15	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Acetone	ND	0.88	10		µg/L	1	3/31/2017 4:30:47 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 4:30:47 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 4:30:47 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,1-Dichloroethane	ND	0.10	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 4:30:47 PM	W41801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 7:00:00 AM
Lab ID: 1703F35-001 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 4:30:47 PM	W41801
Isopropylbenzene	ND	0.098	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 4:30:47 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 4:30:47 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 4:30:47 PM	W41801
Surr: 1,2-Dichloroethane-d4	107	0	70-130		%Rec	1	3/31/2017 4:30:47 PM	W41801
Surr: 4-Bromofluorobenzene	92.1	0	70-130		%Rec	1	3/31/2017 4:30:47 PM	W41801
Surr: Dibromofluoromethane	110	0	70-130		%Rec	1	3/31/2017 4:30:47 PM	W41801
Surr: Toluene-d8	105	0	70-130		%Rec	1	3/31/2017 4:30:47 PM	W41801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-30
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:20:00 AM
Lab ID: 1703F35-002
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: **JME**	
1,2-Dibromoethane	ND	0.0064	0.010		µg/L	1	4/5/2017 5:10:48 PM	31085
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	0.36	1.0		mg/L	1	3/31/2017 9:27:01 PM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	3/31/2017 9:27:01 PM	31011
Surr: DNOP	132	0	72.4-157		%Rec	1	3/31/2017 9:27:01 PM	31011
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	0.80	0.050	0.10		mg/L	1	3/31/2017 6:10:57 PM	R41802
Chloride	740	25	50		mg/L	100	4/7/2017 11:10:30 PM	A41988
Bromide	0.37	0.031	0.10		mg/L	1	3/31/2017 6:10:57 PM	R41802
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/31/2017 6:10:57 PM	R41802
Sulfate	360	9.6	50		mg/L	100	4/7/2017 11:10:30 PM	A41988
Nitrate+Nitrite as N	0.24	0.13	1.0	J	mg/L	5	4/10/2017 8:10:37 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.039	0.00085	0.0020		mg/L	1	4/10/2017 9:32:23 PM	B42022
Cadmium	ND	0.0010	0.0020		mg/L	1	4/10/2017 9:32:23 PM	B42022
Calcium	88	2.5	5.0		mg/L	5	4/10/2017 9:46:40 PM	B42022
Chromium	ND	0.0010	0.0060		mg/L	1	4/10/2017 9:32:23 PM	B42022
Copper	ND	0.0032	0.0060		mg/L	1	4/10/2017 9:32:23 PM	B42022
Iron	0.087	0.020	0.020		mg/L	1	4/10/2017 9:32:23 PM	B42022
Magnesium	17	0.50	1.0		mg/L	1	4/10/2017 9:32:23 PM	B42022
Manganese	0.044	0.00038	0.0020		mg/L	1	4/10/2017 9:32:23 PM	B42022
Potassium	0.53	0.50	1.0	J	mg/L	1	4/10/2017 9:32:23 PM	B42022
Silver	ND	0.00088	0.0050		mg/L	1	4/10/2017 9:32:23 PM	B42022
Sodium	860	5.0	10		mg/L	10	4/10/2017 9:52:45 PM	B42022
Zinc	0.021	0.0011	0.010		mg/L	1	4/10/2017 9:32:23 PM	B42022
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.33	0.00079	0.0020		mg/L	1	4/7/2017 5:45:42 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/14/2017 4:03:01 PM	31124
Chromium	0.0078	0.0027	0.0060		mg/L	1	4/7/2017 5:45:42 PM	31124
Copper	0.0043	0.0030	0.0060	J	mg/L	1	4/7/2017 5:45:42 PM	31124
Iron	7.9	0.20	0.20	*	mg/L	10	4/14/2017 4:04:43 PM	31124
Manganese	0.50	0.00027	0.0020	*	mg/L	1	4/7/2017 5:45:42 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 5:45:42 PM	31124
Zinc	0.021	0.0027	0.010		mg/L	1	4/7/2017 5:45:42 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0013	0.00089	0.0050	J	mg/L	5	4/14/2017 3:41:27 PM	B42148
Lead	0.00037	0.00017	0.00050	J	mg/L	1	4/12/2017 8:04:07 PM	C42080

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-30
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:20:00 AM
Lab ID: 1703F35-002
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Selenium	0.0055	0.0019	0.0050		mg/L	5	4/14/2017 3:41:27 PM	B42148
Uranium	0.033	0.00025	0.0025	*	mg/L	5	4/14/2017 3:41:27 PM	B42148
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0035	0.00021	0.0010		mg/L	1	4/10/2017 6:03:16 PM	31124
Lead	0.0093	0.00041	0.0025		mg/L	5	4/10/2017 6:06:16 PM	31124
Selenium	0.0073	0.00019	0.0010		mg/L	1	4/10/2017 6:03:16 PM	31124
Uranium	0.033	0.00087	0.0025	*	mg/L	5	4/10/2017 6:06:16 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000042	0.000037	0.00020	J	mg/L	1	4/14/2017 8:24:48 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Benzoic acid	6.3	3.9	20	J	µg/L	1	4/5/2017 11:30:39 AM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Bis(2-ethylhexyl)phthalate	6.1	4.8	10	J	µg/L	1	4/5/2017 11:30:39 AM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035

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Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: MKTF-30
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:20:00 AM
Lab ID: 1703F35-002
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 11:30:39 AM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 11:30:39 AM	31035
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 11:30:39 AM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 11:30:39 AM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 11:30:39 AM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 11:30:39 AM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 11:30:39 AM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 11:30:39 AM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 11:30:39 AM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 11:30:39 AM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 11:30:39 AM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 11:30:39 AM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Phenol	ND	3.1	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 11:30:39 AM	31035

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-30
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:20:00 AM
Lab ID: 1703F35-002
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 11:30:39 AM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 11:30:39 AM	31035
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 11:30:39 AM	31035
Surr: 2-Fluorophenol	15.9	0	15-98.1		%Rec	1	4/5/2017 11:30:39 AM	31035
Surr: Phenol-d5	15.3	0	15-80.7		%Rec	1	4/5/2017 11:30:39 AM	31035
Surr: 2,4,6-Tribromophenol	33.4	0	15-112		%Rec	1	4/5/2017 11:30:39 AM	31035
Surr: Nitrobenzene-d5	46.9	0	27.2-90.7		%Rec	1	4/5/2017 11:30:39 AM	31035
Surr: 2-Fluorobiphenyl	50.2	0	23.3-85.6		%Rec	1	4/5/2017 11:30:39 AM	31035
Surr: 4-Terphenyl-d14	29.8	0	27.6-107		%Rec	1	4/5/2017 11:30:39 AM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Toluene	ND	0.089	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Methyl tert-butyl ether (MTBE)	2.8	0.15	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2-Dichloroethane (EDC)	3.8	0.12	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Acetone	ND	0.88	10		µg/L	1	3/31/2017 7:22:30 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 7:22:30 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 7:22:30 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Chloroform	0.27	0.089	1.0	J	µg/L	1	3/31/2017 7:22:30 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
cis-1,2-DCE	8.8	0.20	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 7:22:30 PM	W41801

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-30
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:20:00 AM
Lab ID: 1703F35-002
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,1-Dichloroethane	97	1.0	10		µg/L	10	3/31/2017 6:53:56 PM	W41801
1,1-Dichloroethene	6.6	0.081	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 7:22:30 PM	W41801
Isopropylbenzene	ND	0.098	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 7:22:30 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Tetrachloroethene (PCE)	0.22	0.15	1.0	J	µg/L	1	3/31/2017 7:22:30 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,1,1-Trichloroethane	1.6	0.073	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,1,2-Trichloroethane	0.89	0.14	1.0	J	µg/L	1	3/31/2017 7:22:30 PM	W41801
Trichloroethene (TCE)	5.9	0.18	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 7:22:30 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 7:22:30 PM	W41801
Surr: 1,2-Dichloroethane-d4	112	0	70-130		%Rec	1	3/31/2017 7:22:30 PM	W41801
Surr: 4-Bromofluorobenzene	93.7	0	70-130		%Rec	1	3/31/2017 7:22:30 PM	W41801

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-30
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:20:00 AM
Lab ID: 1703F35-002
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Surr: Dibromofluoromethane	109	0	70-130		%Rec	1	3/31/2017 7:22:30 PM	W41801
Surr: Toluene-d8	104	0	70-130		%Rec	1	3/31/2017 7:22:30 PM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.14	0.0097	0.050		mg/L	1	3/31/2017 7:22:30 PM	R41801
Surr: BFB	92.7	0	70-130		%Rec	1	3/31/2017 7:22:30 PM	R41801

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-29
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:44:00 AM
Lab ID: 1703F35-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	0.43	0.36	1.0	J	mg/L	1	3/31/2017 10:32:30 PM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	3/31/2017 10:32:30 PM	31011
Surr: DNOP	134	0	72.4-157		%Rec	1	3/31/2017 10:32:30 PM	31011
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	0.75	0.050	0.10		mg/L	1	3/31/2017 6:35:46 PM	R41802
Chloride	100	5.0	10		mg/L	20	3/31/2017 6:48:10 PM	R41802
Bromide	0.40	0.031	0.10		mg/L	1	3/31/2017 6:35:46 PM	R41802
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/31/2017 6:35:46 PM	R41802
Sulfate	640	1.9	10		mg/L	20	3/31/2017 6:48:10 PM	R41802
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	4/10/2017 8:23:02 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.032	0.00085	0.0020		mg/L	1	4/10/2017 9:54:42 PM	B42022
Cadmium	ND	0.0010	0.0020		mg/L	1	4/10/2017 9:54:42 PM	B42022
Calcium	72	0.50	1.0		mg/L	1	4/11/2017 5:40:28 PM	A42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/10/2017 9:54:42 PM	B42022
Copper	0.0053	0.0032	0.0060	J	mg/L	1	4/10/2017 9:54:42 PM	B42022
Iron	0.034	0.020	0.020		mg/L	1	4/10/2017 9:54:42 PM	B42022
Magnesium	10	0.50	1.0		mg/L	1	4/11/2017 5:40:28 PM	A42051
Manganese	0.35	0.00038	0.0020	*	mg/L	1	4/10/2017 9:54:42 PM	B42022
Potassium	ND	0.50	1.0		mg/L	1	4/11/2017 5:40:28 PM	A42051
Silver	ND	0.00088	0.0050		mg/L	1	4/10/2017 9:54:42 PM	B42022
Sodium	510	5.0	10		mg/L	10	4/11/2017 5:54:49 PM	A42051
Zinc	0.021	0.0011	0.010		mg/L	1	4/10/2017 9:54:42 PM	B42022
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.10	0.00079	0.0020		mg/L	1	4/7/2017 5:49:11 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/14/2017 4:06:28 PM	31124
Chromium	0.0040	0.0027	0.0060	J	mg/L	1	4/7/2017 5:49:11 PM	31124
Copper	0.0034	0.0030	0.0060	J	mg/L	1	4/7/2017 5:49:11 PM	31124
Iron	2.8	0.20	0.20	*	mg/L	10	4/14/2017 4:08:21 PM	31124
Manganese	0.47	0.00027	0.0020	*	mg/L	1	4/7/2017 5:49:11 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 5:49:11 PM	31124
Zinc	0.0059	0.0027	0.010	J	mg/L	1	4/7/2017 5:49:11 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0019	0.00018	0.0010		mg/L	1	4/12/2017 8:13:17 PM	C42080
Lead	0.00017	0.00017	0.00050	J	mg/L	1	4/12/2017 8:13:17 PM	C42080
Selenium	0.0038	0.00039	0.0010		mg/L	1	4/12/2017 8:13:17 PM	C42080
Uranium	0.012	0.000050	0.00050		mg/L	1	4/12/2017 8:13:17 PM	C42080

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-29
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:44:00 AM
Lab ID: 1703F35-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0019	0.00021	0.0010		mg/L	1	4/10/2017 6:09:17 PM	31124
Lead	0.0016	0.000081	0.00050		mg/L	1	4/10/2017 6:09:17 PM	31124
Selenium	0.0022	0.00019	0.0010		mg/L	1	4/10/2017 6:09:17 PM	31124
Uranium	0.012	0.00017	0.00050		mg/L	1	4/10/2017 6:09:17 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	ND	0.000037	0.00020		mg/L	1	4/14/2017 8:26:49 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Benzoic acid	6.2	3.9	20	J	µg/L	1	4/5/2017 11:58:18 AM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Bis(2-ethylhexyl)phthalate	6.1	4.8	10	J	µg/L	1	4/5/2017 11:58:18 AM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 11:58:18 AM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 11:58:18 AM	31035

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-29
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:44:00 AM
Lab ID: 1703F35-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 11:58:18 AM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 11:58:18 AM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 11:58:18 AM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 11:58:18 AM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 11:58:18 AM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 11:58:18 AM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 11:58:18 AM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 11:58:18 AM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 11:58:18 AM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 11:58:18 AM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Phenol	ND	3.1	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 11:58:18 AM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 11:58:18 AM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 11:58:18 AM	31035

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-29
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:44:00 AM
Lab ID: 1703F35-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 11:58:18 AM	31035
Surr: 2-Fluorophenol	20.9	0	15-98.1		%Rec	1	4/5/2017 11:58:18 AM	31035
Surr: Phenol-d5	17.3	0	15-80.7		%Rec	1	4/5/2017 11:58:18 AM	31035
Surr: 2,4,6-Tribromophenol	39.2	0	15-112		%Rec	1	4/5/2017 11:58:18 AM	31035
Surr: Nitrobenzene-d5	62.0	0	27.2-90.7		%Rec	1	4/5/2017 11:58:18 AM	31035
Surr: 2-Fluorobiphenyl	54.8	0	23.3-85.6		%Rec	1	4/5/2017 11:58:18 AM	31035
Surr: 4-Terphenyl-d14	38.7	0	27.6-107		%Rec	1	4/5/2017 11:58:18 AM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Toluene	ND	0.089	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Methyl tert-butyl ether (MTBE)	9.4	0.15	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Acetone	ND	0.88	10		µg/L	1	3/31/2017 4:59:13 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 4:59:13 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 4:59:13 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-29
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:44:00 AM
Lab ID: 1703F35-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,1-Dichloroethane	ND	0.10	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 4:59:13 PM	W41801
Isopropylbenzene	ND	0.098	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 4:59:13 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 4:59:13 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 4:59:13 PM	W41801
Surr: 1,2-Dichloroethane-d4	110	0	70-130		%Rec	1	3/31/2017 4:59:13 PM	W41801
Surr: 4-Bromofluorobenzene	95.4	0	70-130		%Rec	1	3/31/2017 4:59:13 PM	W41801
Surr: Dibromofluoromethane	106	0	70-130		%Rec	1	3/31/2017 4:59:13 PM	W41801
Surr: Toluene-d8	105	0	70-130		%Rec	1	3/31/2017 4:59:13 PM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-29
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:44:00 AM
Lab ID: 1703F35-003
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.012	0.0097	0.050	J	mg/L	1	3/31/2017 4:59:13 PM	R41801
Surr: BFB	93.0	0	70-130		%Rec	1	3/31/2017 4:59:13 PM	R41801

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-27
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:20:00 AM
Lab ID: 1703F35-004
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	0.36	1.0		mg/L	1	3/31/2017 10:54:13 PM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	3/31/2017 10:54:13 PM	31011
Surr: DNOP	136	0	72.4-157		%Rec	1	3/31/2017 10:54:13 PM	31011
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.050	0.10		mg/L	1	3/31/2017 7:00:34 PM	R41802
Chloride	5000	120	250		mg/L	500	4/7/2017 11:35:19 PM	A41988
Bromide	2.3	0.31	1.0		mg/L	10	4/7/2017 11:22:55 PM	A41988
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/31/2017 7:00:34 PM	R41802
Sulfate	600	1.9	10		mg/L	20	3/31/2017 7:12:59 PM	R41802
Nitrate+Nitrite as N	3.7	0.52	4.0	J	mg/L	20	4/10/2017 8:35:27 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.097	0.00085	0.0020		mg/L	1	4/11/2017 5:56:48 PM	A42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 5:56:48 PM	A42051
Calcium	500	5.0	10		mg/L	10	4/11/2017 5:58:43 PM	A42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 5:56:48 PM	A42051
Copper	ND	0.0032	0.0060		mg/L	1	4/11/2017 5:56:48 PM	A42051
Iron	0.034	0.020	0.020		mg/L	1	4/11/2017 5:56:48 PM	A42051
Magnesium	87	0.50	1.0		mg/L	1	4/11/2017 5:56:48 PM	A42051
Manganese	0.49	0.00038	0.0020	*	mg/L	1	4/11/2017 5:56:48 PM	A42051
Potassium	15	0.50	1.0		mg/L	1	4/11/2017 5:56:48 PM	A42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 5:56:48 PM	A42051
Sodium	3300	25	50		mg/L	50	4/21/2017 1:55:16 PM	A42290
Zinc	0.022	0.0011	0.010		mg/L	1	4/11/2017 5:56:48 PM	A42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.26	0.00079	0.0020		mg/L	1	4/7/2017 6:00:31 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/14/2017 4:15:27 PM	31124
Chromium	0.0054	0.0027	0.0060	J	mg/L	1	4/7/2017 6:00:31 PM	31124
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 6:00:31 PM	31124
Iron	9.8	0.20	0.20	*	mg/L	10	4/14/2017 4:17:03 PM	31124
Manganese	1.5	0.0027	0.020	*	mg/L	10	4/7/2017 6:02:47 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:00:31 PM	31124
Zinc	0.032	0.0027	0.010		mg/L	1	4/7/2017 6:00:31 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0040	0.00089	0.0050	J	mg/L	5	4/14/2017 3:50:37 PM	B42148
Lead	ND	0.00084	0.0025		mg/L	5	4/14/2017 3:50:37 PM	B42148
Selenium	0.015	0.0019	0.0050		mg/L	5	4/14/2017 3:50:37 PM	B42148
Uranium	0.077	0.0025	0.025	*	mg/L	50	4/14/2017 4:02:46 PM	B42148

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Lab ID: 1703F35-004
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.015	0.0042	0.020	*J	mg/L	20	4/12/2017 12:37:57 PM	31124
Lead	0.0096	0.00041	0.0025		mg/L	5	4/10/2017 6:18:18 PM	31124
Selenium	0.022	0.00094	0.0050		mg/L	5	4/10/2017 6:18:18 PM	31124
Uranium	0.097	0.00087	0.0025	*	mg/L	5	4/10/2017 6:18:18 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000071	0.000037	0.00020	J	mg/L	1	4/14/2017 8:28:51 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Benzoic acid	6.4	3.9	20	J	µg/L	1	4/5/2017 12:25:46 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Bis(2-ethylhexyl)phthalate	6.3	4.8	10	J	µg/L	1	4/5/2017 12:25:46 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 12:25:46 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 12:25:46 PM	31035

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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 12:25:46 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 12:25:46 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 12:25:46 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 12:25:46 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 12:25:46 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 12:25:46 PM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 12:25:46 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 12:25:46 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 12:25:46 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 12:25:46 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Phenol	ND	3.1	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 12:25:46 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 12:25:46 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 12:25:46 PM	31035

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Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 12:25:46 PM	31035
Surr: 2-Fluorophenol	22.6	0	15-98.1		%Rec	1	4/5/2017 12:25:46 PM	31035
Surr: Phenol-d5	18.8	0	15-80.7		%Rec	1	4/5/2017 12:25:46 PM	31035
Surr: 2,4,6-Tribromophenol	53.8	0	15-112		%Rec	1	4/5/2017 12:25:46 PM	31035
Surr: Nitrobenzene-d5	65.5	0	27.2-90.7		%Rec	1	4/5/2017 12:25:46 PM	31035
Surr: 2-Fluorobiphenyl	57.5	0	23.3-85.6		%Rec	1	4/5/2017 12:25:46 PM	31035
Surr: 4-Terphenyl-d14	30.8	0	27.6-107		%Rec	1	4/5/2017 12:25:46 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Toluene	ND	0.089	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Methyl tert-butyl ether (MTBE)	22	0.15	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2-Dichloroethane (EDC)	0.59	0.12	1.0	J	µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Acetone	1.8	0.88	10	J	µg/L	1	3/31/2017 5:27:54 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 5:27:54 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 5:27:54 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801

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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,1-Dichloroethane	1.5	0.10	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,1-Dichloroethene	0.36	0.081	1.0	J	µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 5:27:54 PM	W41801
Isopropylbenzene	ND	0.098	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 5:27:54 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 5:27:54 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 5:27:54 PM	W41801
Surr: 1,2-Dichloroethane-d4	110	0	70-130		%Rec	1	3/31/2017 5:27:54 PM	W41801
Surr: 4-Bromofluorobenzene	92.3	0	70-130		%Rec	1	3/31/2017 5:27:54 PM	W41801
Surr: Dibromofluoromethane	108	0	70-130		%Rec	1	3/31/2017 5:27:54 PM	W41801
Surr: Toluene-d8	104	0	70-130		%Rec	1	3/31/2017 5:27:54 PM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-27
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:20:00 AM
Lab ID: 1703F35-004
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.022	0.0097	0.050	J	mg/L	1	3/31/2017 5:27:54 PM	R41801
Surr: BFB	91.3	0	70-130		%Rec	1	3/31/2017 5:27:54 PM	R41801

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-24
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:15:00 AM
Lab ID: 1703F35-005
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: **JME**	
1,2-Dibromoethane	0.026	0.0064	0.010		µg/L	1	4/5/2017 5:25:58 PM	31085
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	0.74	0.36	1.0	J	mg/L	1	3/31/2017 11:16:11 PM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	3/31/2017 11:16:11 PM	31011
Surr: DNOP	137	0	72.4-157		%Rec	1	3/31/2017 11:16:11 PM	31011
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.050	0.10		mg/L	1	3/31/2017 7:50:12 PM	R41802
Chloride	800	25	50		mg/L	100	4/7/2017 11:47:44 PM	A41988
Bromide	0.78	0.031	0.10		mg/L	1	3/31/2017 7:50:12 PM	R41802
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/31/2017 7:50:12 PM	R41802
Sulfate	59	1.9	10		mg/L	20	3/31/2017 8:02:37 PM	R41802
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	4/10/2017 8:47:52 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.29	0.00085	0.0020		mg/L	1	4/11/2017 6:00:47 PM	A42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 6:00:47 PM	A42051
Calcium	180	5.0	10		mg/L	10	4/11/2017 6:02:46 PM	A42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 6:00:47 PM	A42051
Copper	ND	0.0032	0.0060		mg/L	1	4/11/2017 6:00:47 PM	A42051
Iron	0.55	0.020	0.020	*	mg/L	1	4/11/2017 6:00:47 PM	A42051
Magnesium	30	0.50	1.0		mg/L	1	4/11/2017 6:00:47 PM	A42051
Manganese	1.6	0.0038	0.020	*	mg/L	10	4/11/2017 6:02:46 PM	A42051
Potassium	3.5	0.50	1.0		mg/L	1	4/11/2017 6:00:47 PM	A42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 6:00:47 PM	A42051
Sodium	620	5.0	10		mg/L	10	4/11/2017 6:02:46 PM	A42051
Zinc	0.018	0.0011	0.010		mg/L	1	4/11/2017 6:00:47 PM	A42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	1.4	0.0079	0.020		mg/L	10	4/7/2017 6:07:56 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/12/2017 8:33:26 PM	31124
Chromium	0.028	0.0027	0.0060		mg/L	1	4/7/2017 6:05:28 PM	31124
Copper	0.037	0.0030	0.0060		mg/L	1	4/7/2017 6:05:28 PM	31124
Iron	24	1.0	1.0	*	mg/L	50	4/10/2017 8:36:20 PM	31124
Manganese	3.9	0.0027	0.020	*	mg/L	10	4/7/2017 6:07:56 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:05:28 PM	31124
Zinc	0.061	0.0027	0.010		mg/L	1	4/7/2017 6:05:28 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0031	0.00089	0.0050	J	mg/L	5	4/14/2017 4:05:49 PM	B42148
Lead	0.0012	0.00017	0.00050		mg/L	1	4/12/2017 8:19:24 PM	C42080

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-24
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:15:00 AM
Lab ID: 1703F35-005
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Selenium	0.0057	0.0019	0.0050		mg/L	5	4/14/2017 4:05:49 PM	B42148
Uranium	0.033	0.00025	0.0025	*	mg/L	5	4/14/2017 4:05:49 PM	B42148
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0060	0.00021	0.0010		mg/L	1	4/10/2017 6:21:19 PM	31124
Lead	0.043	0.00041	0.0025	*	mg/L	5	4/10/2017 6:24:19 PM	31124
Selenium	0.010	0.00094	0.0050		mg/L	5	4/10/2017 6:24:19 PM	31124
Uranium	0.030	0.00087	0.0025		mg/L	5	4/10/2017 6:24:19 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.00013	0.000037	0.00020	J	mg/L	1	4/14/2017 8:30:44 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Benzoic acid	ND	3.9	20		µg/L	1	4/5/2017 12:53:32 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Bis(2-ethylhexyl)phthalate	7.6	4.8	10	J	µg/L	1	4/5/2017 12:53:32 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-24
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:15:00 AM
Lab ID: 1703F35-005
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 12:53:32 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 12:53:32 PM	31035
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 12:53:32 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 12:53:32 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 12:53:32 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 12:53:32 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 12:53:32 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 12:53:32 PM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 12:53:32 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 12:53:32 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 12:53:32 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 12:53:32 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Phenol	4.7	3.1	10	J	µg/L	1	4/5/2017 12:53:32 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 12:53:32 PM	31035

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-24
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:15:00 AM
Lab ID: 1703F35-005
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 12:53:32 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 12:53:32 PM	31035
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 12:53:32 PM	31035
Surr: 2-Fluorophenol	16.4	0	15-98.1		%Rec	1	4/5/2017 12:53:32 PM	31035
Surr: Phenol-d5	11.1	0	15-80.7	S	%Rec	1	4/5/2017 12:53:32 PM	31035
Surr: 2,4,6-Tribromophenol	30.5	0	15-112		%Rec	1	4/5/2017 12:53:32 PM	31035
Surr: Nitrobenzene-d5	54.1	0	27.2-90.7		%Rec	1	4/5/2017 12:53:32 PM	31035
Surr: 2-Fluorobiphenyl	48.8	0	23.3-85.6		%Rec	1	4/5/2017 12:53:32 PM	31035
Surr: 4-Terphenyl-d14	29.4	0	27.6-107		%Rec	1	4/5/2017 12:53:32 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	3000	19	200		µg/L	200	4/1/2017 1:34:17 AM	W41801
Toluene	15	1.8	20	J	µg/L	20	4/1/2017 2:02:50 AM	W41801
Ethylbenzene	42	2.2	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Methyl tert-butyl ether (MTBE)	190	3.0	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2,4-Trimethylbenzene	ND	2.1	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,3,5-Trimethylbenzene	ND	2.3	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2-Dichloroethane (EDC)	10	2.3	20	J	µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2-Dibromoethane (EDB)	ND	2.6	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Naphthalene	ND	1.7	40		µg/L	20	4/1/2017 2:02:50 AM	W41801
1-Methylnaphthalene	ND	3.2	80		µg/L	20	4/1/2017 2:02:50 AM	W41801
2-Methylnaphthalene	ND	3.0	80		µg/L	20	4/1/2017 2:02:50 AM	W41801
Acetone	ND	18	200		µg/L	20	4/1/2017 2:02:50 AM	W41801
Bromobenzene	ND	2.8	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Bromodichloromethane	ND	3.5	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Bromoform	ND	4.2	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Bromomethane	ND	16	60		µg/L	20	4/1/2017 2:02:50 AM	W41801
2-Butanone	ND	23	200		µg/L	20	4/1/2017 2:02:50 AM	W41801
Carbon disulfide	ND	12	200		µg/L	20	4/1/2017 2:02:50 AM	W41801
Carbon Tetrachloride	ND	2.2	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Chlorobenzene	ND	2.1	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Chloroethane	ND	4.7	40		µg/L	20	4/1/2017 2:02:50 AM	W41801
Chloroform	ND	1.8	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Chloromethane	ND	4.3	60		µg/L	20	4/1/2017 2:02:50 AM	W41801
2-Chlorotoluene	ND	8.0	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
4-Chlorotoluene	ND	8.0	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
cis-1,2-DCE	22	4.1	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
cis-1,3-Dichloropropene	ND	2.0	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2-Dibromo-3-chloropropane	ND	28	40		µg/L	20	4/1/2017 2:02:50 AM	W41801

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-24
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:15:00 AM
Lab ID: 1703F35-005
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Dibromochloromethane	ND	1.6	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Dibromomethane	ND	2.4	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2-Dichlorobenzene	ND	2.4	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,3-Dichlorobenzene	ND	2.9	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,4-Dichlorobenzene	ND	8.0	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Dichlorodifluoromethane	ND	6.5	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,1-Dichloroethane	79	2.1	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,1-Dichloroethene	35	1.6	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2-Dichloropropane	ND	2.0	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,3-Dichloropropane	ND	3.1	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
2,2-Dichloropropane	ND	2.4	40		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,1-Dichloropropene	ND	2.7	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Hexachlorobutadiene	ND	7.4	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
2-Hexanone	ND	13	200		µg/L	20	4/1/2017 2:02:50 AM	W41801
Isopropylbenzene	10	2.0	20	J	µg/L	20	4/1/2017 2:02:50 AM	W41801
4-Isopropyltoluene	ND	2.8	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
4-Methyl-2-pentanone	ND	14	200		µg/L	20	4/1/2017 2:02:50 AM	W41801
Methylene Chloride	ND	2.2	60		µg/L	20	4/1/2017 2:02:50 AM	W41801
n-Butylbenzene	ND	3.2	60		µg/L	20	4/1/2017 2:02:50 AM	W41801
n-Propylbenzene	18	2.6	20	J	µg/L	20	4/1/2017 2:02:50 AM	W41801
sec-Butylbenzene	6.9	2.0	20	J	µg/L	20	4/1/2017 2:02:50 AM	W41801
Styrene	ND	3.1	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
tert-Butylbenzene	ND	2.1	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,1,1,2-Tetrachloroethane	ND	2.2	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,1,2,2-Tetrachloroethane	ND	2.7	40		µg/L	20	4/1/2017 2:02:50 AM	W41801
Tetrachloroethene (PCE)	ND	3.0	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
trans-1,2-DCE	ND	3.7	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
trans-1,3-Dichloropropene	ND	1.8	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2,3-Trichlorobenzene	ND	2.3	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2,4-Trichlorobenzene	ND	2.7	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,1,1-Trichloroethane	3.1	1.5	20	J	µg/L	20	4/1/2017 2:02:50 AM	W41801
1,1,2-Trichloroethane	ND	2.8	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Trichloroethene (TCE)	ND	3.5	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
Trichlorofluoromethane	ND	3.7	20		µg/L	20	4/1/2017 2:02:50 AM	W41801
1,2,3-Trichloropropane	ND	7.8	40		µg/L	20	4/1/2017 2:02:50 AM	W41801
Vinyl chloride	16	3.6	20	J	µg/L	20	4/1/2017 2:02:50 AM	W41801
Xylenes, Total	ND	6.5	30		µg/L	20	4/1/2017 2:02:50 AM	W41801
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	20	4/1/2017 2:02:50 AM	W41801
Surr: 4-Bromofluorobenzene	88.1	0	70-130		%Rec	20	4/1/2017 2:02:50 AM	W41801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-24
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:15:00 AM
Lab ID: 1703F35-005 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Surr: Dibromofluoromethane	99.0	0	70-130		%Rec	20	4/1/2017 2:02:50 AM	W41801
Surr: Toluene-d8	105	0	70-130		%Rec	20	4/1/2017 2:02:50 AM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	8.2	0.19	1.0		mg/L	20	4/1/2017 2:02:50 AM	R41801
Surr: BFB	87.2	0	70-130		%Rec	20	4/1/2017 2:02:50 AM	R41801

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-25
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:54:00 AM
Lab ID: 1703F35-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: **JME**	
1,2-Dibromoethane	ND	0.0064	0.010		µg/L	1	4/5/2017 5:41:11 PM	31085
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	0.95	0.36	1.0	J	mg/L	1	3/31/2017 11:37:52 PM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	3/31/2017 11:37:52 PM	31011
Surr: DNOP	136	0	72.4-157		%Rec	1	3/31/2017 11:37:52 PM	31011
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	0.095	0.050	0.10	J	mg/L	1	3/31/2017 8:15:01 PM	R41802
Chloride	380	12	25		mg/L	50	4/11/2017 1:51:52 PM	R42053
Bromide	0.56	0.031	0.10		mg/L	1	3/31/2017 8:15:01 PM	R41802
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/31/2017 8:15:01 PM	R41802
Sulfate	100	1.9	10		mg/L	20	3/31/2017 8:27:26 PM	R41802
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	4/10/2017 9:00:16 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.27	0.00085	0.0020		mg/L	1	4/11/2017 6:04:45 PM	R42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 6:04:45 PM	R42051
Calcium	120	5.0	10		mg/L	10	4/11/2017 6:06:41 PM	R42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 6:04:45 PM	R42051
Copper	ND	0.0032	0.0060		mg/L	1	4/11/2017 6:04:45 PM	R42051
Iron	0.56	0.020	0.020	*	mg/L	1	4/11/2017 6:04:45 PM	R42051
Magnesium	21	0.50	1.0		mg/L	1	4/11/2017 6:04:45 PM	R42051
Manganese	2.6	0.0038	0.020	*	mg/L	10	4/11/2017 6:06:41 PM	R42051
Potassium	0.96	0.50	1.0	J	mg/L	1	4/11/2017 6:04:45 PM	R42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 6:04:45 PM	R42051
Sodium	540	5.0	10		mg/L	10	4/11/2017 6:06:41 PM	R42051
Zinc	0.020	0.0011	0.010		mg/L	1	4/11/2017 6:04:45 PM	R42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.58	0.00079	0.0020		mg/L	1	4/7/2017 6:10:23 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/14/2017 4:18:49 PM	31124
Chromium	0.0091	0.0027	0.0060		mg/L	1	4/7/2017 6:10:23 PM	31124
Copper	0.019	0.0030	0.0060		mg/L	1	4/7/2017 6:10:23 PM	31124
Iron	8.7	0.20	0.20	*	mg/L	10	4/14/2017 4:20:31 PM	31124
Manganese	3.7	0.0027	0.020	*	mg/L	10	4/7/2017 6:12:47 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:10:23 PM	31124
Zinc	0.021	0.0027	0.010		mg/L	1	4/7/2017 6:10:23 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0054	0.00018	0.0010		mg/L	1	4/12/2017 8:28:39 PM	C42080
Lead	0.00082	0.00017	0.00050		mg/L	1	4/12/2017 8:28:39 PM	C42080

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-25
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:54:00 AM
Lab ID: 1703F35-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Selenium	0.0076	0.00039	0.0010		mg/L	1	4/12/2017 8:28:39 PM	C42080
Uranium	0.029	0.00025	0.0025		mg/L	5	4/14/2017 4:11:56 PM	B42148
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0059	0.00021	0.0010		mg/L	1	4/10/2017 6:27:20 PM	31124
Lead	0.020	0.000081	0.00050	*	mg/L	1	4/10/2017 6:27:20 PM	31124
Selenium	0.0050	0.00019	0.0010		mg/L	1	4/10/2017 6:27:20 PM	31124
Uranium	0.028	0.00087	0.0025		mg/L	5	4/10/2017 6:36:25 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000070	0.000037	0.00020	J	mg/L	1	4/14/2017 8:32:39 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Benzoic acid	8.0	3.9	20	J	µg/L	1	4/5/2017 1:21:27 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Bis(2-ethylhexyl)phthalate	6.1	4.8	10	J	µg/L	1	4/5/2017 1:21:27 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-25
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:54:00 AM
Lab ID: 1703F35-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 1:21:27 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 1:21:27 PM	31035
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 1:21:27 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 1:21:27 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 1:21:27 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 1:21:27 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 1:21:27 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 1:21:27 PM	31035
1-Methylnaphthalene	3.5	3.3	10	J	µg/L	1	4/5/2017 1:21:27 PM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 1:21:27 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 1:21:27 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 1:21:27 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 1:21:27 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Phenol	5.3	3.1	10	J	µg/L	1	4/5/2017 1:21:27 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 1:21:27 PM	31035

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-25
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:54:00 AM
Lab ID: 1703F35-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 1:21:27 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 1:21:27 PM	31035
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 1:21:27 PM	31035
Surr: 2-Fluorophenol	17.8	0	15-98.1		%Rec	1	4/5/2017 1:21:27 PM	31035
Surr: Phenol-d5	12.8	0	15-80.7	S	%Rec	1	4/5/2017 1:21:27 PM	31035
Surr: 2,4,6-Tribromophenol	40.9	0	15-112		%Rec	1	4/5/2017 1:21:27 PM	31035
Surr: Nitrobenzene-d5	58.3	0	27.2-90.7		%Rec	1	4/5/2017 1:21:27 PM	31035
Surr: 2-Fluorobiphenyl	52.2	0	23.3-85.6		%Rec	1	4/5/2017 1:21:27 PM	31035
Surr: 4-Terphenyl-d14	41.1	0	27.6-107		%Rec	1	4/5/2017 1:21:27 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	780	4.8	50		µg/L	50	4/1/2017 2:31:35 AM	W41801
Toluene	4.5	0.45	5.0	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
Ethylbenzene	24	0.56	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Methyl tert-butyl ether (MTBE)	120	0.74	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2,4-Trimethylbenzene	1.4	0.52	5.0	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
1,3,5-Trimethylbenzene	ND	0.58	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2-Dichloroethane (EDC)	5.7	0.58	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2-Dibromoethane (EDB)	ND	0.65	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Naphthalene	2.8	0.42	10	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
1-Methylnaphthalene	3.5	0.80	20	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
2-Methylnaphthalene	ND	0.76	20		µg/L	5	4/1/2017 2:59:59 AM	W41801
Acetone	ND	4.4	50		µg/L	5	4/1/2017 2:59:59 AM	W41801
Bromobenzene	ND	0.70	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Bromodichloromethane	ND	0.88	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Bromoform	ND	1.1	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Bromomethane	ND	3.9	15		µg/L	5	4/1/2017 2:59:59 AM	W41801
2-Butanone	ND	5.7	50		µg/L	5	4/1/2017 2:59:59 AM	W41801
Carbon disulfide	ND	3.0	50		µg/L	5	4/1/2017 2:59:59 AM	W41801
Carbon Tetrachloride	ND	0.55	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Chlorobenzene	ND	0.53	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Chloroethane	ND	1.2	10		µg/L	5	4/1/2017 2:59:59 AM	W41801
Chloroform	ND	0.44	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Chloromethane	ND	1.1	15		µg/L	5	4/1/2017 2:59:59 AM	W41801
2-Chlorotoluene	ND	2.0	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
4-Chlorotoluene	ND	2.0	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
cis-1,2-DCE	20	1.0	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
cis-1,3-Dichloropropene	ND	0.50	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2-Dibromo-3-chloropropane	ND	6.9	10		µg/L	5	4/1/2017 2:59:59 AM	W41801

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-25
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:54:00 AM
Lab ID: 1703F35-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Dibromochloromethane	ND	0.39	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Dibromomethane	ND	0.60	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2-Dichlorobenzene	ND	0.60	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,3-Dichlorobenzene	ND	0.72	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,4-Dichlorobenzene	ND	2.0	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Dichlorodifluoromethane	ND	1.6	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,1-Dichloroethane	150	0.52	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,1-Dichloroethene	74	0.40	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2-Dichloropropane	ND	0.51	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,3-Dichloropropane	ND	0.78	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
2,2-Dichloropropane	ND	0.60	10		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,1-Dichloropropene	ND	0.67	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Hexachlorobutadiene	ND	1.9	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
2-Hexanone	ND	3.3	50		µg/L	5	4/1/2017 2:59:59 AM	W41801
Isopropylbenzene	27	0.49	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
4-Isopropyltoluene	ND	0.70	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
4-Methyl-2-pentanone	ND	3.5	50		µg/L	5	4/1/2017 2:59:59 AM	W41801
Methylene Chloride	ND	0.54	15		µg/L	5	4/1/2017 2:59:59 AM	W41801
n-Butylbenzene	11	0.80	15	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
n-Propylbenzene	25	0.66	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
sec-Butylbenzene	5.3	0.51	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Styrene	ND	0.78	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
tert-Butylbenzene	ND	0.52	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,1,1,2-Tetrachloroethane	ND	0.56	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,1,2,2-Tetrachloroethane	ND	0.68	10		µg/L	5	4/1/2017 2:59:59 AM	W41801
Tetrachloroethene (PCE)	0.84	0.76	5.0	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
trans-1,2-DCE	ND	0.92	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
trans-1,3-Dichloropropene	ND	0.45	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2,3-Trichlorobenzene	ND	0.56	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2,4-Trichlorobenzene	ND	0.66	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,1,1-Trichloroethane	21	0.36	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,1,2-Trichloroethane	1.3	0.70	5.0	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
Trichloroethene (TCE)	17	0.88	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
Trichlorofluoromethane	ND	0.91	5.0		µg/L	5	4/1/2017 2:59:59 AM	W41801
1,2,3-Trichloropropane	ND	1.9	10		µg/L	5	4/1/2017 2:59:59 AM	W41801
Vinyl chloride	2.7	0.89	5.0	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
Xylenes, Total	4.3	1.6	7.5	J	µg/L	5	4/1/2017 2:59:59 AM	W41801
Surr: 1,2-Dichloroethane-d4	81.4	0	70-130		%Rec	5	4/1/2017 2:59:59 AM	W41801
Surr: 4-Bromofluorobenzene	86.7	0	70-130		%Rec	5	4/1/2017 2:59:59 AM	W41801

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-25
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 10:54:00 AM
Lab ID: 1703F35-006
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Surr: Dibromofluoromethane	76.4	0	70-130		%Rec	5	4/1/2017 2:59:59 AM	W41801
Surr: Toluene-d8	105	0	70-130		%Rec	5	4/1/2017 2:59:59 AM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	7.8	0.048	0.25		mg/L	5	4/1/2017 2:59:59 AM	R41801
Surr: BFB	90.0	0	70-130		%Rec	5	4/1/2017 2:59:59 AM	R41801

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-28
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:51:00 AM
Lab ID: 1703F35-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	0.36	1.0		mg/L	1	3/31/2017 11:59:45 PM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	3/31/2017 11:59:45 PM	31011
Surr: DNOP	137	0	72.4-157		%Rec	1	3/31/2017 11:59:45 PM	31011
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	0.87	0.050	0.10		mg/L	1	3/31/2017 8:39:50 PM	R41802
Chloride	410	12	25		mg/L	50	4/8/2017 12:24:59 AM	A41988
Bromide	2.2	0.031	0.10		mg/L	1	3/31/2017 8:39:50 PM	R41802
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	3/31/2017 8:39:50 PM	R41802
Sulfate	160	1.9	10		mg/L	20	3/31/2017 8:52:15 PM	R41802
Nitrate+Nitrite as N	1.0	0.13	1.0		mg/L	5	4/10/2017 9:12:41 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.049	0.00085	0.0020		mg/L	1	4/11/2017 6:08:40 PM	A42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 6:08:40 PM	A42051
Calcium	43	0.50	1.0		mg/L	1	4/11/2017 6:08:40 PM	A42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 6:08:40 PM	A42051
Copper	ND	0.0032	0.0060		mg/L	1	4/11/2017 6:08:40 PM	A42051
Iron	0.11	0.020	0.020		mg/L	1	4/11/2017 6:08:40 PM	A42051
Magnesium	8.5	0.50	1.0		mg/L	1	4/11/2017 6:08:40 PM	A42051
Manganese	0.011	0.00038	0.0020		mg/L	1	4/11/2017 6:08:40 PM	A42051
Potassium	1.9	0.50	1.0		mg/L	1	4/11/2017 6:08:40 PM	A42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 6:08:40 PM	A42051
Sodium	550	5.0	10		mg/L	10	4/11/2017 6:10:38 PM	A42051
Zinc	0.016	0.0011	0.010		mg/L	1	4/11/2017 6:08:40 PM	A42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.36	0.00079	0.0020		mg/L	1	4/7/2017 6:15:24 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/12/2017 8:35:17 PM	31124
Chromium	0.0093	0.0027	0.0060		mg/L	1	4/7/2017 6:15:24 PM	31124
Copper	0.013	0.0030	0.0060		mg/L	1	4/7/2017 6:15:24 PM	31124
Iron	21	1.0	1.0	*	mg/L	50	4/10/2017 8:38:16 PM	31124
Manganese	0.89	0.00027	0.0020	*	mg/L	1	4/7/2017 6:15:24 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:15:24 PM	31124
Zinc	0.079	0.0027	0.010		mg/L	1	4/7/2017 6:15:24 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0029	0.00089	0.0050	J	mg/L	5	4/14/2017 4:14:59 PM	B42148
Lead	0.00042	0.00017	0.00050	J	mg/L	1	4/12/2017 8:31:42 PM	C42080
Selenium	0.0081	0.0039	0.010	J	mg/L	10	4/14/2017 4:18:02 PM	B42148
Uranium	0.16	0.00050	0.0050	*	mg/L	10	4/14/2017 4:18:02 PM	B42148

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-28
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:51:00 AM
Lab ID: 1703F35-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0089	0.0011	0.0050		mg/L	5	4/10/2017 6:42:26 PM	31124
Lead	0.025	0.00041	0.0025	*	mg/L	5	4/10/2017 6:42:26 PM	31124
Selenium	0.014	0.00094	0.0050		mg/L	5	4/10/2017 6:42:26 PM	31124
Uranium	0.16	0.0017	0.0050	*	mg/L	10	4/12/2017 12:34:55 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000088	0.000037	0.00020	J	mg/L	1	4/14/2017 8:34:34 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Benzoic acid	6.5	3.9	20	J	µg/L	1	4/5/2017 1:49:24 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Bis(2-ethylhexyl)phthalate	6.6	4.8	10	J	µg/L	1	4/5/2017 1:49:24 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 1:49:24 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 1:49:24 PM	31035

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-28
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:51:00 AM
Lab ID: 1703F35-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 1:49:24 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 1:49:24 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 1:49:24 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 1:49:24 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 1:49:24 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 1:49:24 PM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 1:49:24 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 1:49:24 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 1:49:24 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 1:49:24 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Phenol	ND	3.1	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 1:49:24 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 1:49:24 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 1:49:24 PM	31035

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-28
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:51:00 AM
Lab ID: 1703F35-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 1:49:24 PM	31035
Surr: 2-Fluorophenol	56.8	0	15-98.1		%Rec	1	4/5/2017 1:49:24 PM	31035
Surr: Phenol-d5	38.9	0	15-80.7		%Rec	1	4/5/2017 1:49:24 PM	31035
Surr: 2,4,6-Tribromophenol	76.3	0	15-112		%Rec	1	4/5/2017 1:49:24 PM	31035
Surr: Nitrobenzene-d5	81.7	0	27.2-90.7		%Rec	1	4/5/2017 1:49:24 PM	31035
Surr: 2-Fluorobiphenyl	71.9	0	23.3-85.6		%Rec	1	4/5/2017 1:49:24 PM	31035
Surr: 4-Terphenyl-d14	65.0	0	27.6-107		%Rec	1	4/5/2017 1:49:24 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Toluene	ND	0.089	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Methyl tert-butyl ether (MTBE)	0.97	0.15	1.0	J	µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Acetone	1.9	0.88	10	J	µg/L	1	3/31/2017 5:56:36 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 5:56:36 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 5:56:36 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-28
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:51:00 AM
Lab ID: 1703F35-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,1-Dichloroethane	ND	0.10	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 5:56:36 PM	W41801
Isopropylbenzene	ND	0.098	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 5:56:36 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 5:56:36 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 5:56:36 PM	W41801
Surr: 1,2-Dichloroethane-d4	109	0	70-130		%Rec	1	3/31/2017 5:56:36 PM	W41801
Surr: 4-Bromofluorobenzene	93.5	0	70-130		%Rec	1	3/31/2017 5:56:36 PM	W41801
Surr: Dibromofluoromethane	107	0	70-130		%Rec	1	3/31/2017 5:56:36 PM	W41801
Surr: Toluene-d8	103	0	70-130		%Rec	1	3/31/2017 5:56:36 PM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: MKTF-28
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 8:51:00 AM
Lab ID: 1703F35-007
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	3/31/2017 5:56:36 PM	R41801
Surr: BFB	92.0	0	70-130		%Rec	1	3/31/2017 5:56:36 PM	R41801

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: DUPLICATE
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:50:00 AM
Lab ID: 1703F35-008 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: **JME**	
1,2-Dibromoethane	ND	0.0064	0.010		µg/L	1	4/5/2017 5:56:27 PM	31085
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	0.43	0.36	1.0	J	mg/L	1	4/1/2017 12:21:39 AM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	4/1/2017 12:21:39 AM	31011
Surr: DNOP	137	0	72.4-157		%Rec	1	4/1/2017 12:21:39 AM	31011
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	0.61	0.050	0.10		mg/L	1	4/10/2017 10:02:20 PM	R42002
Chloride	110	5.0	10		mg/L	20	4/10/2017 10:14:45 PM	R42002
Bromide	0.38	0.031	0.10		mg/L	1	4/10/2017 10:02:20 PM	R42002
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	4/10/2017 10:02:20 PM	R42002
Sulfate	680	1.9	10		mg/L	20	4/10/2017 10:14:45 PM	R42002
Nitrate+Nitrite as N	0.21	0.13	1.0	J	mg/L	5	4/10/2017 11:16:49 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.027	0.00085	0.0020		mg/L	1	4/11/2017 6:12:33 PM	R42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 6:12:33 PM	R42051
Calcium	72	0.50	1.0		mg/L	1	4/11/2017 6:12:33 PM	R42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 6:12:33 PM	R42051
Copper	ND	0.0032	0.0060		mg/L	1	4/11/2017 6:12:33 PM	R42051
Iron	ND	0.020	0.020		mg/L	1	4/11/2017 6:12:33 PM	R42051
Magnesium	10	0.50	1.0		mg/L	1	4/11/2017 6:12:33 PM	R42051
Manganese	0.37	0.00038	0.0020	*	mg/L	1	4/11/2017 6:12:33 PM	R42051
Potassium	ND	0.50	1.0		mg/L	1	4/11/2017 6:12:33 PM	R42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 6:12:33 PM	R42051
Sodium	520	5.0	10		mg/L	10	4/11/2017 6:21:00 PM	R42051
Zinc	0.018	0.0011	0.010		mg/L	1	4/11/2017 6:12:33 PM	R42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.080	0.00079	0.0020		mg/L	1	4/7/2017 6:20:25 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/12/2017 8:37:05 PM	31124
Chromium	ND	0.0027	0.0060		mg/L	1	4/7/2017 6:20:25 PM	31124
Copper	ND	0.0030	0.0060		mg/L	1	4/7/2017 6:20:25 PM	31124
Iron	1.8	0.20	0.20	*	mg/L	10	4/10/2017 8:52:53 PM	31124
Manganese	0.48	0.00027	0.0020	*	mg/L	1	4/7/2017 6:20:25 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:20:25 PM	31124
Zinc	0.0048	0.0027	0.010	J	mg/L	1	4/7/2017 6:20:25 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0018	0.00018	0.0010		mg/L	1	4/12/2017 8:34:46 PM	C42080
Lead	ND	0.00017	0.00050		mg/L	1	4/12/2017 8:34:46 PM	C42080

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: DUPLICATE
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:50:00 AM
Lab ID: 1703F35-008
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Selenium	0.0037	0.00039	0.0010		mg/L	1	4/12/2017 8:34:46 PM	C42080
Uranium	0.013	0.000050	0.00050		mg/L	1	4/12/2017 8:34:46 PM	C42080
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0016	0.00021	0.0010		mg/L	1	4/10/2017 6:45:26 PM	31124
Lead	0.0010	0.000081	0.00050		mg/L	1	4/10/2017 6:45:26 PM	31124
Selenium	0.0024	0.00019	0.0010		mg/L	1	4/10/2017 6:45:26 PM	31124
Uranium	0.012	0.00017	0.00050		mg/L	1	4/10/2017 6:45:26 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	ND	0.000037	0.00020		mg/L	1	4/14/2017 8:36:30 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Benzoic acid	6.3	3.9	20	J	µg/L	1	4/5/2017 2:17:23 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Bis(2-ethylhexyl)phthalate	6.4	4.8	10	J	µg/L	1	4/5/2017 2:17:23 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: DUPLICATE
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:50:00 AM
Lab ID: 1703F35-008
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 2:17:23 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 2:17:23 PM	31035
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 2:17:23 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 2:17:23 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 2:17:23 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 2:17:23 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 2:17:23 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 2:17:23 PM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 2:17:23 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 2:17:23 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 2:17:23 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 2:17:23 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Phenol	ND	3.1	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 2:17:23 PM	31035

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: DUPLICATE
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:50:00 AM
Lab ID: 1703F35-008
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 2:17:23 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 2:17:23 PM	31035
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 2:17:23 PM	31035
Surr: 2-Fluorophenol	41.7	0	15-98.1		%Rec	1	4/5/2017 2:17:23 PM	31035
Surr: Phenol-d5	27.0	0	15-80.7		%Rec	1	4/5/2017 2:17:23 PM	31035
Surr: 2,4,6-Tribromophenol	64.5	0	15-112		%Rec	1	4/5/2017 2:17:23 PM	31035
Surr: Nitrobenzene-d5	66.3	0	27.2-90.7		%Rec	1	4/5/2017 2:17:23 PM	31035
Surr: 2-Fluorobiphenyl	60.0	0	23.3-85.6		%Rec	1	4/5/2017 2:17:23 PM	31035
Surr: 4-Terphenyl-d14	57.1	0	27.6-107		%Rec	1	4/5/2017 2:17:23 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Toluene	ND	0.089	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Methyl tert-butyl ether (MTBE)	9.6	0.15	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Acetone	2.5	0.88	10	J	µg/L	1	3/31/2017 11:39:47 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 11:39:47 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 11:39:47 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 11:39:47 PM	W41801

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: DUPLICATE
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:50:00 AM
Lab ID: 1703F35-008 **Matrix:** AQUEOUS **Received Date:** 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,1-Dichloroethane	ND	0.10	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 11:39:47 PM	W41801
Isopropylbenzene	ND	0.098	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 11:39:47 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 11:39:47 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 11:39:47 PM	W41801
Surr: 1,2-Dichloroethane-d4	113	0	70-130		%Rec	1	3/31/2017 11:39:47 PM	W41801
Surr: 4-Bromofluorobenzene	88.5	0	70-130		%Rec	1	3/31/2017 11:39:47 PM	W41801

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: DUPLICATE
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 9:50:00 AM
Lab ID: 1703F35-008
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Surr: Dibromofluoromethane	110	0	70-130		%Rec	1	3/31/2017 11:39:47 PM	W41801
Surr: Toluene-d8	104	0	70-130		%Rec	1	3/31/2017 11:39:47 PM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.013	0.0097	0.050	J	mg/L	1	3/31/2017 11:39:47 PM	R41801
Surr: BFB	89.0	0	70-130		%Rec	1	3/31/2017 11:39:47 PM	R41801

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-56
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 11:46:00 AM
Lab ID: 1703F35-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	0.52	0.36	1.0	J	mg/L	1	4/1/2017 12:43:23 AM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	4/1/2017 12:43:23 AM	31011
Surr: DNOP	140	0	72.4-157		%Rec	1	4/1/2017 12:43:23 AM	31011
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	0.10	0.050	0.10		mg/L	1	4/10/2017 10:27:10 PM	R42002
Chloride	630	12	25		mg/L	50	4/11/2017 2:04:16 PM	R42053
Bromide	1.8	0.031	0.10		mg/L	1	4/10/2017 10:27:10 PM	R42002
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	4/10/2017 10:27:10 PM	R42002
Sulfate	24	0.096	0.50		mg/L	1	4/10/2017 10:27:10 PM	R42002
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	4/10/2017 11:29:13 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.30	0.00085	0.0020		mg/L	1	4/11/2017 6:23:01 PM	A42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 6:23:01 PM	A42051
Calcium	95	0.50	1.0		mg/L	1	4/11/2017 6:23:01 PM	A42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 6:23:01 PM	A42051
Copper	0.0066	0.0032	0.0060		mg/L	1	4/11/2017 6:23:01 PM	A42051
Iron	0.085	0.020	0.020		mg/L	1	4/11/2017 6:23:01 PM	A42051
Magnesium	18	0.50	1.0		mg/L	1	4/11/2017 6:23:01 PM	A42051
Manganese	0.10	0.00038	0.0020	*	mg/L	1	4/11/2017 6:23:01 PM	A42051
Potassium	1.5	0.50	1.0		mg/L	1	4/11/2017 6:23:01 PM	A42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 6:23:01 PM	A42051
Sodium	490	5.0	10		mg/L	10	4/11/2017 6:25:00 PM	A42051
Zinc	0.039	0.0011	0.010		mg/L	1	4/11/2017 6:23:01 PM	A42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.46	0.00079	0.0020		mg/L	1	4/10/2017 8:54:48 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/12/2017 8:39:07 PM	31124
Chromium	0.010	0.0027	0.0060		mg/L	1	4/10/2017 8:54:48 PM	31124
Copper	0.010	0.0030	0.0060		mg/L	1	4/7/2017 6:37:13 PM	31124
Iron	6.4	0.20	0.20	*	mg/L	10	4/10/2017 8:56:32 PM	31124
Manganese	0.33	0.00027	0.0020	*	mg/L	1	4/10/2017 8:54:48 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:37:13 PM	31124
Zinc	0.025	0.0027	0.010		mg/L	1	4/10/2017 8:54:48 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0035	0.00089	0.0050	J	mg/L	5	4/14/2017 4:21:06 PM	B42148
Lead	0.00041	0.00017	0.00050	J	mg/L	1	4/12/2017 8:37:49 PM	C42080
Selenium	ND	0.0077	0.020		mg/L	20	4/14/2017 4:24:09 PM	B42148
Uranium	0.022	0.000050	0.00050		mg/L	1	4/12/2017 8:37:49 PM	C42080

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-56
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 11:46:00 AM
Lab ID: 1703F35-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0074	0.0011	0.0050		mg/L	5	4/10/2017 6:54:28 PM	31124
Lead	0.0069	0.000081	0.00050		mg/L	1	4/10/2017 6:51:27 PM	31124
Selenium	0.013	0.00094	0.0050		mg/L	5	4/10/2017 6:54:28 PM	31124
Uranium	0.022	0.00087	0.0025		mg/L	5	4/10/2017 6:54:28 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000041	0.000037	0.00020	J	mg/L	1	4/14/2017 8:42:28 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Benzoic acid	7.7	3.9	20	J	µg/L	1	4/5/2017 2:45:26 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Bis(2-ethylhexyl)phthalate	5.6	4.8	10	J	µg/L	1	4/5/2017 2:45:26 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 2:45:26 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 2:45:26 PM	31035

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Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: OW-56
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 11:46:00 AM
Lab ID: 1703F35-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 2:45:26 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 2:45:26 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 2:45:26 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 2:45:26 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 2:45:26 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 2:45:26 PM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 2:45:26 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 2:45:26 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 2:45:26 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 2:45:26 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Phenol	ND	3.1	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 2:45:26 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 2:45:26 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 2:45:26 PM	31035

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-56
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 11:46:00 AM
Lab ID: 1703F35-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 2:45:26 PM	31035
Surr: 2-Fluorophenol	17.8	0	15-98.1		%Rec	1	4/5/2017 2:45:26 PM	31035
Surr: Phenol-d5	15.6	0	15-80.7		%Rec	1	4/5/2017 2:45:26 PM	31035
Surr: 2,4,6-Tribromophenol	33.4	0	15-112		%Rec	1	4/5/2017 2:45:26 PM	31035
Surr: Nitrobenzene-d5	51.3	0	27.2-90.7		%Rec	1	4/5/2017 2:45:26 PM	31035
Surr: 2-Fluorobiphenyl	47.5	0	23.3-85.6		%Rec	1	4/5/2017 2:45:26 PM	31035
Surr: 4-Terphenyl-d14	32.9	0	27.6-107		%Rec	1	4/5/2017 2:45:26 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	0.24	0.096	1.0	J	µg/L	1	3/31/2017 6:25:21 PM	W41801
Toluene	ND	0.089	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Methyl tert-butyl ether (MTBE)	120	0.15	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2-Dichloroethane (EDC)	4.7	0.12	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Acetone	ND	0.88	10		µg/L	1	3/31/2017 6:25:21 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 6:25:21 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 6:25:21 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801

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Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,1-Dichloroethane	0.64	0.10	1.0	J	µg/L	1	3/31/2017 6:25:21 PM	W41801
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 6:25:21 PM	W41801
Isopropylbenzene	0.52	0.098	1.0	J	µg/L	1	3/31/2017 6:25:21 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 6:25:21 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
sec-Butylbenzene	0.34	0.10	1.0	J	µg/L	1	3/31/2017 6:25:21 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 6:25:21 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 6:25:21 PM	W41801
Surr: 1,2-Dichloroethane-d4	112	0	70-130		%Rec	1	3/31/2017 6:25:21 PM	W41801
Surr: 4-Bromofluorobenzene	91.9	0	70-130		%Rec	1	3/31/2017 6:25:21 PM	W41801
Surr: Dibromofluoromethane	105	0	70-130		%Rec	1	3/31/2017 6:25:21 PM	W41801
Surr: Toluene-d8	107	0	70-130		%Rec	1	3/31/2017 6:25:21 PM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

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Collection Date: 3/29/2017 11:46:00 AM
Lab ID: 1703F35-009
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.15	0.0097	0.050		mg/L	1	3/31/2017 6:25:21 PM	R41801
Surr: BFB	92.9	0	70-130		%Rec	1	3/31/2017 6:25:21 PM	R41801

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CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-55
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:15:00 PM
Lab ID: 1703F35-010
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	5.4	0.36	1.0		mg/L	1	4/1/2017 1:05:12 AM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	4/1/2017 1:05:12 AM	31011
Surr: DNOP	140	0	72.4-157		%Rec	1	4/1/2017 1:05:12 AM	31011
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	0.050	0.10		mg/L	1	4/10/2017 10:51:59 PM	R42002
Chloride	410	12	25		mg/L	50	4/11/2017 2:41:29 PM	R42053
Bromide	1.1	0.031	0.10		mg/L	1	4/10/2017 10:51:59 PM	R42002
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50	H	mg/L	1	4/10/2017 10:51:59 PM	R42002
Sulfate	1.2	0.096	0.50		mg/L	1	4/10/2017 10:51:59 PM	R42002
Nitrate+Nitrite as N	0.73	0.13	1.0	J	mg/L	5	4/10/2017 11:41:38 PM	R42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.63	0.00085	0.0020		mg/L	1	4/11/2017 6:26:56 PM	A42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 6:26:56 PM	A42051
Calcium	130	5.0	10		mg/L	10	4/11/2017 6:28:39 PM	A42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 6:26:56 PM	A42051
Copper	ND	0.0032	0.0060		mg/L	1	4/11/2017 6:26:56 PM	A42051
Iron	5.0	0.20	0.20	*	mg/L	10	4/11/2017 6:28:39 PM	A42051
Magnesium	35	0.50	1.0		mg/L	1	4/11/2017 6:26:56 PM	A42051
Manganese	4.2	0.0038	0.020	*	mg/L	10	4/11/2017 6:28:39 PM	A42051
Potassium	ND	0.50	1.0		mg/L	1	4/11/2017 6:26:56 PM	A42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 6:26:56 PM	A42051
Sodium	410	5.0	10		mg/L	10	4/11/2017 6:28:39 PM	A42051
Zinc	0.0083	0.0011	0.010	J	mg/L	1	4/11/2017 6:26:56 PM	A42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.81	0.00079	0.0020		mg/L	1	4/10/2017 8:58:28 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/12/2017 8:40:50 PM	31124
Chromium	0.012	0.0027	0.0060		mg/L	1	4/10/2017 8:58:28 PM	31124
Copper	0.010	0.0030	0.0060		mg/L	1	4/7/2017 6:42:21 PM	31124
Iron	15	1.0	1.0	*	mg/L	50	4/10/2017 8:40:08 PM	31124
Manganese	4.6	0.0027	0.020	*	mg/L	10	4/10/2017 9:00:18 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:42:21 PM	31124
Zinc	0.026	0.0027	0.010		mg/L	1	4/10/2017 8:58:28 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0058	0.00089	0.0050		mg/L	5	4/14/2017 4:27:12 PM	B42148
Lead	0.00091	0.00017	0.00050		mg/L	1	4/12/2017 8:40:53 PM	C42080
Selenium	0.0047	0.0019	0.0050	J	mg/L	5	4/14/2017 4:27:12 PM	B42148
Uranium	0.0047	0.000050	0.00050		mg/L	1	4/12/2017 8:40:53 PM	C42080

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200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0079	0.00021	0.0010		mg/L	1	4/10/2017 6:57:28 PM	31124
Lead	0.018	0.000081	0.00050	*	mg/L	1	4/10/2017 6:57:28 PM	31124
Selenium	0.0075	0.00019	0.0010		mg/L	1	4/10/2017 6:57:28 PM	31124
Uranium	0.0056	0.00017	0.00050		mg/L	1	4/10/2017 6:57:28 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000037	0.000037	0.00020	J	mg/L	1	4/14/2017 8:44:24 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Benzoic acid	ND	3.9	20		µg/L	1	4/5/2017 3:13:28 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Bis(2-ethylhexyl)phthalate	6.7	4.8	10	J	µg/L	1	4/5/2017 3:13:28 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 3:13:28 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 3:13:28 PM	31035

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EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 3:13:28 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 3:13:28 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 3:13:28 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 3:13:28 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 3:13:28 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 3:13:28 PM	31035
1-Methylnaphthalene	11	3.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2-Methylnaphthalene	15	3.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
3+4-Methylphenol	3.9	3.2	10	J	µg/L	1	4/5/2017 3:13:28 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Naphthalene	35	2.9	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 3:13:28 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 3:13:28 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 3:13:28 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Phenol	26	3.1	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 3:13:28 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 3:13:28 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 3:13:28 PM	31035

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EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 3:13:28 PM	31035
Surr: 2-Fluorophenol	25.3	0	15-98.1		%Rec	1	4/5/2017 3:13:28 PM	31035
Surr: Phenol-d5	19.9	0	15-80.7		%Rec	1	4/5/2017 3:13:28 PM	31035
Surr: 2,4,6-Tribromophenol	44.4	0	15-112		%Rec	1	4/5/2017 3:13:28 PM	31035
Surr: Nitrobenzene-d5	61.2	0	27.2-90.7		%Rec	1	4/5/2017 3:13:28 PM	31035
Surr: 2-Fluorobiphenyl	52.8	0	23.3-85.6		%Rec	1	4/5/2017 3:13:28 PM	31035
Surr: 4-Terphenyl-d14	33.2	0	27.6-107		%Rec	1	4/5/2017 3:13:28 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	14000	48	500		µg/L	500	4/1/2017 3:28:36 AM	W41801
Toluene	1100	4.5	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Ethylbenzene	740	5.6	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Methyl tert-butyl ether (MTBE)	2000	7.4	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2,4-Trimethylbenzene	390	5.2	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,3,5-Trimethylbenzene	100	5.8	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2-Dichloroethane (EDC)	ND	5.8	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2-Dibromoethane (EDB)	ND	6.5	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Naphthalene	70	4.2	100	J	µg/L	50	4/1/2017 3:57:11 AM	W41801
1-Methylnaphthalene	27	8.0	200	J	µg/L	50	4/1/2017 3:57:11 AM	W41801
2-Methylnaphthalene	21	7.6	200	J	µg/L	50	4/1/2017 3:57:11 AM	W41801
Acetone	ND	44	500		µg/L	50	4/1/2017 3:57:11 AM	W41801
Bromobenzene	ND	7.0	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Bromodichloromethane	ND	8.8	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Bromoform	ND	11	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Bromomethane	ND	39	150		µg/L	50	4/1/2017 3:57:11 AM	W41801
2-Butanone	ND	57	500		µg/L	50	4/1/2017 3:57:11 AM	W41801
Carbon disulfide	ND	30	500		µg/L	50	4/1/2017 3:57:11 AM	W41801
Carbon Tetrachloride	ND	5.5	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Chlorobenzene	ND	5.3	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Chloroethane	ND	12	100		µg/L	50	4/1/2017 3:57:11 AM	W41801
Chloroform	ND	4.4	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Chloromethane	ND	11	150		µg/L	50	4/1/2017 3:57:11 AM	W41801
2-Chlorotoluene	ND	20	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
4-Chlorotoluene	ND	20	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
cis-1,2-DCE	ND	10	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
cis-1,3-Dichloropropene	ND	5.0	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2-Dibromo-3-chloropropane	ND	69	100		µg/L	50	4/1/2017 3:57:11 AM	W41801
Dibromochloromethane	ND	3.9	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Dibromomethane	ND	6.0	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2-Dichlorobenzene	ND	6.0	50		µg/L	50	4/1/2017 3:57:11 AM	W41801

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EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	7.2	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,4-Dichlorobenzene	ND	20	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Dichlorodifluoromethane	ND	16	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,1-Dichloroethane	ND	5.2	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,1-Dichloroethene	ND	4.0	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2-Dichloropropane	ND	5.1	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,3-Dichloropropane	ND	7.8	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
2,2-Dichloropropane	ND	6.0	100		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,1-Dichloropropene	ND	6.7	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Hexachlorobutadiene	ND	19	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
2-Hexanone	ND	33	500		µg/L	50	4/1/2017 3:57:11 AM	W41801
Isopropylbenzene	20	4.9	50	J	µg/L	50	4/1/2017 3:57:11 AM	W41801
4-Isopropyltoluene	ND	7.0	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
4-Methyl-2-pentanone	ND	35	500		µg/L	50	4/1/2017 3:57:11 AM	W41801
Methylene Chloride	ND	5.4	150		µg/L	50	4/1/2017 3:57:11 AM	W41801
n-Butylbenzene	ND	8.0	150		µg/L	50	4/1/2017 3:57:11 AM	W41801
n-Propylbenzene	83	6.6	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
sec-Butylbenzene	17	5.1	50	J	µg/L	50	4/1/2017 3:57:11 AM	W41801
Styrene	ND	7.8	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
tert-Butylbenzene	ND	5.2	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,1,1,2-Tetrachloroethane	ND	5.6	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,1,2,2-Tetrachloroethane	ND	6.8	100		µg/L	50	4/1/2017 3:57:11 AM	W41801
Tetrachloroethene (PCE)	ND	7.6	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
trans-1,2-DCE	ND	9.2	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
trans-1,3-Dichloropropene	ND	4.5	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2,3-Trichlorobenzene	ND	5.6	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2,4-Trichlorobenzene	ND	6.6	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,1,1-Trichloroethane	ND	3.6	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,1,2-Trichloroethane	ND	7.0	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Trichloroethene (TCE)	ND	8.8	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Trichlorofluoromethane	ND	9.1	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
1,2,3-Trichloropropane	ND	19	100		µg/L	50	4/1/2017 3:57:11 AM	W41801
Vinyl chloride	ND	8.9	50		µg/L	50	4/1/2017 3:57:11 AM	W41801
Xylenes, Total	1100	16	75		µg/L	50	4/1/2017 3:57:11 AM	W41801
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	50	4/1/2017 3:57:11 AM	W41801
Surr: 4-Bromofluorobenzene	91.1	0	70-130		%Rec	50	4/1/2017 3:57:11 AM	W41801
Surr: Dibromofluoromethane	105	0	70-130		%Rec	50	4/1/2017 3:57:11 AM	W41801
Surr: Toluene-d8	106	0	70-130		%Rec	50	4/1/2017 3:57:11 AM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-55
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:15:00 PM
Lab ID: 1703F35-010
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	39	0.48	2.5		mg/L	50	4/1/2017 3:57:11 AM	R41801
Surr: BFB	91.9	0	70-130		%Rec	50	4/1/2017 3:57:11 AM	R41801

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:49:00 PM
Lab ID: 1703F35-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	1.7	0.36	1.0		mg/L	1	4/1/2017 1:27:02 AM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	4/1/2017 1:27:02 AM	31011
Surr: DNOP	139	0	72.4-157		%Rec	1	4/1/2017 1:27:02 AM	31011
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	0.12	0.050	0.10		mg/L	1	4/11/2017 12:56:06 AM	A42002
Chloride	330	5.0	10		mg/L	20	4/11/2017 1:08:31 AM	A42002
Bromide	2.1	0.031	0.10		mg/L	1	4/11/2017 12:56:06 AM	A42002
Phosphorus, Orthophosphate (As P)	ND	0.25	0.50		mg/L	1	4/11/2017 12:56:06 AM	A42002
Sulfate	42	0.096	0.50		mg/L	1	4/11/2017 12:56:06 AM	A42002
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	4/11/2017 1:45:45 AM	A42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.22	0.00085	0.0020		mg/L	1	4/11/2017 6:30:36 PM	A42051
Cadmium	ND	0.0010	0.0020		mg/L	1	4/11/2017 6:30:36 PM	A42051
Calcium	72	0.50	1.0		mg/L	1	4/11/2017 6:30:36 PM	A42051
Chromium	ND	0.0010	0.0060		mg/L	1	4/11/2017 6:30:36 PM	A42051
Copper	0.012	0.0032	0.0060		mg/L	1	4/11/2017 6:30:36 PM	A42051
Iron	0.72	0.020	0.020	*	mg/L	1	4/11/2017 6:30:36 PM	A42051
Magnesium	19	0.50	1.0		mg/L	1	4/11/2017 6:30:36 PM	A42051
Manganese	1.5	0.0038	0.020	*	mg/L	10	4/11/2017 6:32:33 PM	A42051
Potassium	ND	0.50	1.0		mg/L	1	4/11/2017 6:30:36 PM	A42051
Silver	ND	0.00088	0.0050		mg/L	1	4/11/2017 6:30:36 PM	A42051
Sodium	430	5.0	10		mg/L	10	4/11/2017 6:32:33 PM	A42051
Zinc	0.016	0.0011	0.010		mg/L	1	4/11/2017 6:30:36 PM	A42051
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	1.7	0.0079	0.020		mg/L	10	4/10/2017 9:04:06 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/12/2017 8:42:40 PM	31124
Chromium	0.021	0.0027	0.0060		mg/L	1	4/10/2017 9:02:16 PM	31124
Copper	0.12	0.0030	0.0060		mg/L	1	4/7/2017 6:47:22 PM	31124
Iron	21	1.0	1.0	*	mg/L	50	4/10/2017 8:48:40 PM	31124
Manganese	2.4	0.0027	0.020	*	mg/L	10	4/10/2017 9:04:06 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:47:22 PM	31124
Zinc	0.039	0.0027	0.010		mg/L	1	4/10/2017 9:02:16 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0041	0.00089	0.0050	J	mg/L	5	4/14/2017 4:39:29 PM	B42148
Lead	0.0081	0.00017	0.00050		mg/L	1	4/12/2017 8:43:56 PM	C42080
Selenium	ND	0.0077	0.020		mg/L	20	4/14/2017 4:42:32 PM	B42148
Uranium	0.059	0.00025	0.0025	*	mg/L	5	4/14/2017 4:39:29 PM	B42148

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:49:00 PM
Lab ID: 1703F35-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0092	0.0011	0.0050		mg/L	5	4/10/2017 7:12:34 PM	31124
Lead	0.043	0.00041	0.0025	*	mg/L	5	4/10/2017 7:12:34 PM	31124
Selenium	0.014	0.00094	0.0050		mg/L	5	4/10/2017 7:12:34 PM	31124
Uranium	0.060	0.00087	0.0025	*	mg/L	5	4/10/2017 7:12:34 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.00011	0.000037	0.00020	J	mg/L	1	4/14/2017 8:46:20 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Benzoic acid	6.6	3.9	20	J	µg/L	1	4/5/2017 3:41:09 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Bis(2-ethylhexyl)phthalate	5.5	4.8	10	J	µg/L	1	4/5/2017 3:41:09 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 3:41:09 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 3:41:09 PM	31035

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:49:00 PM
Lab ID: 1703F35-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 3:41:09 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 3:41:09 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 3:41:09 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 3:41:09 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 3:41:09 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 3:41:09 PM	31035
1-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2-Methylnaphthalene	ND	3.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
3+4-Methylphenol	ND	3.2	10		µg/L	1	4/5/2017 3:41:09 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Naphthalene	ND	2.9	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 3:41:09 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 3:41:09 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 3:41:09 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Phenol	ND	3.1	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 3:41:09 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 3:41:09 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 3:41:09 PM	31035

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:49:00 PM
Lab ID: 1703F35-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 3:41:09 PM	31035
Surr: 2-Fluorophenol	19.9	0	15-98.1		%Rec	1	4/5/2017 3:41:09 PM	31035
Surr: Phenol-d5	17.7	0	15-80.7		%Rec	1	4/5/2017 3:41:09 PM	31035
Surr: 2,4,6-Tribromophenol	45.4	0	15-112		%Rec	1	4/5/2017 3:41:09 PM	31035
Surr: Nitrobenzene-d5	47.5	0	27.2-90.7		%Rec	1	4/5/2017 3:41:09 PM	31035
Surr: 2-Fluorobiphenyl	51.6	0	23.3-85.6		%Rec	1	4/5/2017 3:41:09 PM	31035
Surr: 4-Terphenyl-d14	39.8	0	27.6-107		%Rec	1	4/5/2017 3:41:09 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	150	1.9	20		µg/L	20	4/3/2017 5:54:01 PM	RR4185
Toluene	4.7	0.089	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Ethylbenzene	42	0.11	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Methyl tert-butyl ether (MTBE)	2200	3.0	20		µg/L	20	4/3/2017 5:54:01 PM	RR4185
1,2,4-Trimethylbenzene	20	0.10	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,3,5-Trimethylbenzene	2.1	0.12	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2-Dichloroethane (EDC)	0.64	0.12	1.0	J	µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Naphthalene	1.5	0.083	2.0	J	µg/L	1	4/1/2017 12:37:03 AM	W41801
1-Methylnaphthalene	0.63	0.16	4.0	J	µg/L	1	4/1/2017 12:37:03 AM	W41801
2-Methylnaphthalene	0.61	0.15	4.0	J	µg/L	1	4/1/2017 12:37:03 AM	W41801
Acetone	ND	0.88	10		µg/L	1	4/1/2017 12:37:03 AM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
2-Butanone	ND	1.1	10		µg/L	1	4/1/2017 12:37:03 AM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	4/1/2017 12:37:03 AM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Dibromochloromethane	ND	0.078	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:49:00 PM
Lab ID: 1703F35-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,1-Dichloroethane	ND	0.10	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	4/1/2017 12:37:03 AM	W41801
Isopropylbenzene	1.3	0.098	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	4/1/2017 12:37:03 AM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
n-Butylbenzene	0.49	0.16	3.0	J	µg/L	1	4/1/2017 12:37:03 AM	W41801
n-Propylbenzene	5.3	0.13	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
sec-Butylbenzene	1.1	0.10	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Styrene	ND	0.16	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	4/1/2017 12:37:03 AM	W41801
Xylenes, Total	3.9	0.32	1.5		µg/L	1	4/1/2017 12:37:03 AM	W41801
Surr: 1,2-Dichloroethane-d4	94.1	0	70-130		%Rec	1	4/1/2017 12:37:03 AM	W41801
Surr: 4-Bromofluorobenzene	92.6	0	70-130		%Rec	1	4/1/2017 12:37:03 AM	W41801
Surr: Dibromofluoromethane	92.5	0	70-130		%Rec	1	4/1/2017 12:37:03 AM	W41801
Surr: Toluene-d8	104	0	70-130		%Rec	1	4/1/2017 12:37:03 AM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 12:49:00 PM
Lab ID: 1703F35-011
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	2.6	0.0097	0.050		mg/L	1	4/1/2017 12:37:03 AM	R41801
Surr: BFB	94.4	0	70-130		%Rec	1	4/1/2017 12:37:03 AM	R41801

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-58
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 2:50:00 PM
Lab ID: 1703F35-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	9.2	0.36	1.0		mg/L	1	4/1/2017 1:49:03 AM	31011
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	4/1/2017 1:49:03 AM	31011
Surr: DNOP	144	0	72.4-157		%Rec	1	4/1/2017 1:49:03 AM	31011
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	0.25	0.50		mg/L	5	4/11/2017 1:20:55 AM	A42002
Chloride	150	5.0	10		mg/L	20	4/11/2017 1:33:20 AM	A42002
Bromide	1.8	0.15	0.50		mg/L	5	4/11/2017 1:20:55 AM	A42002
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5		mg/L	5	4/11/2017 1:20:55 AM	A42002
Sulfate	ND	0.48	2.5		mg/L	5	4/11/2017 1:20:55 AM	A42002
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	4/11/2017 1:58:10 AM	A42002
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	4.1	0.0085	0.020	*	mg/L	10	4/10/2017 11:12:49 PM	B42022
Cadmium	ND	0.0010	0.0020		mg/L	1	4/10/2017 11:11:07 PM	B42022
Calcium	120	5.0	10		mg/L	10	4/10/2017 11:12:49 PM	B42022
Chromium	ND	0.0010	0.0060		mg/L	1	4/10/2017 11:11:07 PM	B42022
Copper	ND	0.0032	0.0060		mg/L	1	4/10/2017 11:11:07 PM	B42022
Iron	7.7	0.20	0.20	*	mg/L	10	4/10/2017 11:12:49 PM	B42022
Magnesium	36	0.50	1.0		mg/L	1	4/10/2017 11:11:07 PM	B42022
Manganese	1.9	0.0038	0.020	*	mg/L	10	4/10/2017 11:12:49 PM	B42022
Potassium	ND	0.50	1.0		mg/L	1	4/10/2017 11:11:07 PM	B42022
Silver	ND	0.00088	0.0050		mg/L	1	4/10/2017 11:11:07 PM	B42022
Sodium	280	5.0	10		mg/L	10	4/10/2017 11:12:49 PM	B42022
Zinc	0.034	0.0011	0.010		mg/L	1	4/10/2017 11:11:07 PM	B42022
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	5.7	0.0079	0.020	*	mg/L	10	4/10/2017 9:15:49 PM	31124
Cadmium	ND	0.0015	0.0020		mg/L	1	4/12/2017 8:52:49 PM	31124
Chromium	0.015	0.0027	0.0060		mg/L	1	4/10/2017 9:05:55 PM	31124
Copper	0.0066	0.0030	0.0060		mg/L	1	4/7/2017 6:52:17 PM	31124
Iron	24	1.0	1.0	*	mg/L	50	4/10/2017 8:50:45 PM	31124
Manganese	3.4	0.0027	0.020	*	mg/L	10	4/10/2017 9:15:49 PM	31124
Silver	ND	0.0015	0.0050		mg/L	1	4/7/2017 6:52:17 PM	31124
Zinc	0.037	0.0027	0.010		mg/L	1	4/10/2017 9:05:55 PM	31124
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0035	0.00089	0.0050	J	mg/L	5	4/14/2017 4:45:36 PM	B42148
Lead	0.00043	0.00017	0.00050	J	mg/L	1	4/12/2017 8:46:59 PM	C42080
Selenium	ND	0.0077	0.020		mg/L	20	4/14/2017 4:48:39 PM	B42148
Uranium	0.00082	0.000050	0.00050		mg/L	1	4/12/2017 8:46:59 PM	C42080

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-58
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 2:50:00 PM
Lab ID: 1703F35-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0087	0.0011	0.0050		mg/L	5	4/10/2017 7:18:35 PM	31124
Lead	0.024	0.000081	0.00050	*	mg/L	1	4/10/2017 7:15:35 PM	31124
Selenium	0.012	0.00094	0.0050		mg/L	5	4/10/2017 7:18:35 PM	31124
Uranium	0.0027	0.00017	0.00050		mg/L	1	4/10/2017 7:15:35 PM	31124
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	0.000042	0.000037	0.00020	J	mg/L	1	4/14/2017 8:48:17 AM	31201
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	3.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Acenaphthylene	ND	3.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Aniline	ND	3.1	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Anthracene	ND	3.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Azobenzene	ND	4.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Benz(a)anthracene	ND	3.9	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Benzo(a)pyrene	ND	4.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Benzoic acid	14	3.9	20	J	µg/L	1	4/5/2017 4:08:52 PM	31035
Benzyl alcohol	ND	4.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Bis(2-ethylhexyl)phthalate	5.3	4.8	10	J	µg/L	1	4/5/2017 4:08:52 PM	31035
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Carbazole	ND	4.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
4-Chloroaniline	ND	3.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2-Chloronaphthalene	ND	3.7	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2-Chlorophenol	ND	7.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Chrysene	ND	3.8	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Dibenzofuran	ND	4.1	10		µg/L	1	4/5/2017 4:08:52 PM	31035
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	4/5/2017 4:08:52 PM	31035

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-58
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 2:50:00 PM
Lab ID: 1703F35-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 4:08:52 PM	31035
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Diethyl phthalate	ND	4.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Dimethyl phthalate	ND	3.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	4/5/2017 4:08:52 PM	31035
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	4/5/2017 4:08:52 PM	31035
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	4/5/2017 4:08:52 PM	31035
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	4/5/2017 4:08:52 PM	31035
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Fluoranthene	ND	4.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Fluorene	ND	4.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Hexachlorobenzene	ND	3.8	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Hexachlorobutadiene	ND	1.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Hexachloroethane	ND	1.2	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Isophorone	ND	4.4	10		µg/L	1	4/5/2017 4:08:52 PM	31035
1-Methylnaphthalene	57	3.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2-Methylnaphthalene	45	3.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2-Methylphenol	ND	3.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
3+4-Methylphenol	5.4	3.2	10	J	µg/L	1	4/5/2017 4:08:52 PM	31035
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Naphthalene	99	2.9	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2-Nitroaniline	ND	4.9	10		µg/L	1	4/5/2017 4:08:52 PM	31035
3-Nitroaniline	ND	4.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
4-Nitroaniline	ND	4.0	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Nitrobenzene	ND	3.6	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2-Nitrophenol	ND	5.2	10		µg/L	1	4/5/2017 4:08:52 PM	31035
4-Nitrophenol	ND	5.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Pentachlorophenol	ND	4.9	20		µg/L	1	4/5/2017 4:08:52 PM	31035
Phenanthrene	ND	4.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Phenol	24	3.1	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Pyrene	ND	4.4	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Pyridine	ND	2.3	10		µg/L	1	4/5/2017 4:08:52 PM	31035
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	4/5/2017 4:08:52 PM	31035
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	4/5/2017 4:08:52 PM	31035

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-58
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 2:50:00 PM
Lab ID: 1703F35-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	4/5/2017 4:08:52 PM	31035
Surr: 2-Fluorophenol	19.3	0	15-98.1		%Rec	1	4/5/2017 4:08:52 PM	31035
Surr: Phenol-d5	17.6	0	15-80.7		%Rec	1	4/5/2017 4:08:52 PM	31035
Surr: 2,4,6-Tribromophenol	50.5	0	15-112		%Rec	1	4/5/2017 4:08:52 PM	31035
Surr: Nitrobenzene-d5	51.2	0	27.2-90.7		%Rec	1	4/5/2017 4:08:52 PM	31035
Surr: 2-Fluorobiphenyl	48.5	0	23.3-85.6		%Rec	1	4/5/2017 4:08:52 PM	31035
Surr: 4-Terphenyl-d14	32.6	0	27.6-107		%Rec	1	4/5/2017 4:08:52 PM	31035
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	31000	96	1000		µg/L	1000	4/1/2017 4:25:47 AM	W41801
Toluene	830	8.9	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Ethylbenzene	1100	11	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Methyl tert-butyl ether (MTBE)	3000	15	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2,4-Trimethylbenzene	170	10	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,3,5-Trimethylbenzene	44	12	100	J	µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2-Dichloroethane (EDC)	ND	12	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2-Dibromoethane (EDB)	ND	13	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Naphthalene	180	8.3	200	J	µg/L	100	4/1/2017 4:54:23 AM	W41801
1-Methylnaphthalene	70	16	400	J	µg/L	100	4/1/2017 4:54:23 AM	W41801
2-Methylnaphthalene	55	15	400	J	µg/L	100	4/1/2017 4:54:23 AM	W41801
Acetone	ND	88	1000		µg/L	100	4/1/2017 4:54:23 AM	W41801
Bromobenzene	ND	14	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Bromodichloromethane	ND	18	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Bromoform	ND	21	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Bromomethane	ND	78	300		µg/L	100	4/1/2017 4:54:23 AM	W41801
2-Butanone	ND	110	1000		µg/L	100	4/1/2017 4:54:23 AM	W41801
Carbon disulfide	ND	60	1000		µg/L	100	4/1/2017 4:54:23 AM	W41801
Carbon Tetrachloride	ND	11	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Chlorobenzene	ND	11	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Chloroethane	ND	23	200		µg/L	100	4/1/2017 4:54:23 AM	W41801
Chloroform	ND	8.9	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Chloromethane	ND	21	300		µg/L	100	4/1/2017 4:54:23 AM	W41801
2-Chlorotoluene	ND	40	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
4-Chlorotoluene	ND	40	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
cis-1,2-DCE	ND	20	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
cis-1,3-Dichloropropene	ND	10	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2-Dibromo-3-chloropropane	ND	140	200		µg/L	100	4/1/2017 4:54:23 AM	W41801
Dibromochloromethane	ND	7.8	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Dibromomethane	ND	12	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2-Dichlorobenzene	ND	12	100		µg/L	100	4/1/2017 4:54:23 AM	W41801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-58
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 2:50:00 PM
Lab ID: 1703F35-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	14	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,4-Dichlorobenzene	ND	40	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Dichlorodifluoromethane	ND	32	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,1-Dichloroethane	ND	10	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,1-Dichloroethene	ND	8.1	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2-Dichloropropane	ND	10	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,3-Dichloropropane	ND	16	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
2,2-Dichloropropane	ND	12	200		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,1-Dichloropropene	ND	13	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Hexachlorobutadiene	ND	37	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
2-Hexanone	ND	66	1000		µg/L	100	4/1/2017 4:54:23 AM	W41801
Isopropylbenzene	26	9.8	100	J	µg/L	100	4/1/2017 4:54:23 AM	W41801
4-Isopropyltoluene	ND	14	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
4-Methyl-2-pentanone	ND	71	1000		µg/L	100	4/1/2017 4:54:23 AM	W41801
Methylene Chloride	ND	11	300		µg/L	100	4/1/2017 4:54:23 AM	W41801
n-Butylbenzene	ND	16	300		µg/L	100	4/1/2017 4:54:23 AM	W41801
n-Propylbenzene	90	13	100	J	µg/L	100	4/1/2017 4:54:23 AM	W41801
sec-Butylbenzene	ND	10	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Styrene	ND	16	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
tert-Butylbenzene	ND	10	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,1,1,2-Tetrachloroethane	ND	11	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,1,2,2-Tetrachloroethane	ND	14	200		µg/L	100	4/1/2017 4:54:23 AM	W41801
Tetrachloroethene (PCE)	ND	15	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
trans-1,2-DCE	ND	18	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
trans-1,3-Dichloropropene	ND	8.9	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2,3-Trichlorobenzene	ND	11	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2,4-Trichlorobenzene	ND	13	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,1,1-Trichloroethane	ND	7.3	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,1,2-Trichloroethane	ND	14	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Trichloroethene (TCE)	ND	18	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Trichlorofluoromethane	ND	18	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
1,2,3-Trichloropropane	ND	39	200		µg/L	100	4/1/2017 4:54:23 AM	W41801
Vinyl chloride	ND	18	100		µg/L	100	4/1/2017 4:54:23 AM	W41801
Xylenes, Total	970	32	150		µg/L	100	4/1/2017 4:54:23 AM	W41801
Surr: 1,2-Dichloroethane-d4	109	0	70-130		%Rec	100	4/1/2017 4:54:23 AM	W41801
Surr: 4-Bromofluorobenzene	87.4	0	70-130		%Rec	100	4/1/2017 4:54:23 AM	W41801
Surr: Dibromofluoromethane	108	0	70-130		%Rec	100	4/1/2017 4:54:23 AM	W41801
Surr: Toluene-d8	103	0	70-130		%Rec	100	4/1/2017 4:54:23 AM	W41801
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-58
Project: 2017 1st QTR MKTF Wells
Collection Date: 3/29/2017 2:50:00 PM
Lab ID: 1703F35-012
Matrix: AQUEOUS
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	64	0.97	5.0		mg/L	100	4/1/2017 4:54:23 AM	R41801
Surr: BFB	87.0	0	70-130		%Rec	100	4/1/2017 4:54:23 AM	R41801

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: TRIP BLANK
Project: 2017 1st QTR MKTF Wells
Collection Date:
Lab ID: 1703F35-013
Matrix: TRIP BLANK
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Toluene	ND	0.089	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Ethylbenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Methyl tert-butyl ether (MTBE)	ND	0.15	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2,4-Trimethylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Naphthalene	ND	0.083	2.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Acetone	ND	0.88	10		µg/L	1	3/31/2017 4:02:19 PM	W41801
Bromobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Bromodichloromethane	ND	0.18	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Bromoform	ND	0.21	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Bromomethane	ND	0.78	3.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
2-Butanone	ND	1.1	10		µg/L	1	3/31/2017 4:02:19 PM	W41801
Carbon disulfide	ND	0.60	10		µg/L	1	3/31/2017 4:02:19 PM	W41801
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Chlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Chloroethane	ND	0.23	2.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Chloroform	ND	0.089	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Chloromethane	ND	0.21	3.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
cis-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Dibromochloromethane	ND	0.078	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Dibromomethane	ND	0.12	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Dichlorodifluoromethane	ND	0.32	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,1-Dichloroethane	ND	0.10	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
2,2-Dichloropropane	ND	0.12	2.0		µg/L	1	3/31/2017 4:02:19 PM	W41801

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: TRIP BLANK
Project: 2017 1st QTR MKTF Wells
Collection Date:
Lab ID: 1703F35-013
Matrix: TRIP BLANK
Received Date: 3/30/2017 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Hexachlorobutadiene	ND	0.37	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
2-Hexanone	ND	0.66	10		µg/L	1	3/31/2017 4:02:19 PM	W41801
Isopropylbenzene	ND	0.098	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	3/31/2017 4:02:19 PM	W41801
Methylene Chloride	ND	0.11	3.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
n-Butylbenzene	ND	0.16	3.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
n-Propylbenzene	ND	0.13	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
sec-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Styrene	ND	0.16	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
trans-1,3-Dichloropropene	ND	0.089	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Vinyl chloride	ND	0.18	1.0		µg/L	1	3/31/2017 4:02:19 PM	W41801
Xylenes, Total	ND	0.32	1.5		µg/L	1	3/31/2017 4:02:19 PM	W41801
Surr: 1,2-Dichloroethane-d4	109	0	70-130		%Rec	1	3/31/2017 4:02:19 PM	W41801
Surr: 4-Bromofluorobenzene	94.4	0	70-130		%Rec	1	3/31/2017 4:02:19 PM	W41801
Surr: Dibromofluoromethane	110	0	70-130		%Rec	1	3/31/2017 4:02:19 PM	W41801
Surr: Toluene-d8	104	0	70-130		%Rec	1	3/31/2017 4:02:19 PM	W41801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **MB-B**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B42022**	RunNo: **42022**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319957** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID **LCSLL-B**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B42022**	RunNo: **42022**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319958** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0026	0.0020	0.002000	0	132	50	150			
Cadmium	0.0020	0.0020	0.002000	0	97.5	50	150			J
Calcium	0.53	1.0	0.5000	0	106	50	150			J
Chromium	0.0059	0.0060	0.006000	0	97.8	50	150			J
Copper	0.0080	0.0060	0.006000	0	134	50	150			
Iron	0.021	0.020	0.02000	0	106	50	150			
Magnesium	0.55	1.0	0.5000	0	110	50	150			J
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Potassium	0.55	1.0	0.5000	0	110	50	150			J
Silver	0.0051	0.0050	0.005000	0	102	50	150			
Sodium	0.62	1.0	0.5000	0	124	50	150			J
Zinc	0.0050	0.010	0.005000	0	99.4	50	150			J

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B42022**	RunNo: **42022**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319959** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	101	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Calcium	50	1.0	50.00	0	101	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B42022**	RunNo: **42022**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319959** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	101	85	115			
Iron	0.49	0.020	0.5000	0	98.7	85	115			
Magnesium	51	1.0	50.00	0	102	85	115			
Manganese	0.49	0.0020	0.5000	0	98.0	85	115			
Potassium	50	1.0	50.00	0	99.4	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Sodium	51	1.0	50.00	0	101	85	115			
Zinc	0.49	0.010	0.5000	0	97.1	85	115			

Sample ID **1703F35-002FMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MKTF-30**	Batch ID: **B42022**	RunNo: **42022**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319965** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0020	0.5000	0.03930	95.4	70	130			
Cadmium	0.48	0.0020	0.5000	0	96.2	70	130			
Chromium	0.49	0.0060	0.5000	0	97.2	70	130			
Copper	0.53	0.0060	0.5000	0	107	70	130			
Iron	0.58	0.020	0.5000	0.08658	99.7	70	130			
Magnesium	67	1.0	50.00	16.89	101	70	130			
Manganese	0.51	0.0020	0.5000	0.04429	93.3	70	130			
Potassium	51	1.0	50.00	0.5339	101	70	130			
Silver	0.096	0.0050	0.1000	0	96.4	70	130			
Zinc	0.48	0.010	0.5000	0.02108	92.8	70	130			

Sample ID **1703F35-002FMSD**	SampType: **MSD**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **MKTF-30**	Batch ID: **B42022**	RunNo: **42022**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319969** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0020	0.5000	0.03930	96.5	70	130	1.01	20	
Cadmium	0.48	0.0020	0.5000	0	96.7	70	130	0.417	20	
Chromium	0.49	0.0060	0.5000	0	97.4	70	130	0.259	20	
Copper	0.53	0.0060	0.5000	0	107	70	130	0.414	20	
Iron	0.58	0.020	0.5000	0.08658	99.6	70	130	0.0941	20	
Magnesium	68	1.0	50.00	16.89	102	70	130	0.590	20	
Manganese	0.52	0.0020	0.5000	0.04429	94.4	70	130	1.11	20	
Potassium	52	1.0	50.00	0.5339	102	70	130	1.21	20	
Silver	0.096	0.0050	0.1000	0	96.3	70	130	0.0415	20	
Zinc	0.48	0.010	0.5000	0.02108	92.0	70	130	0.749	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID	**1703F35-002FMS**	SampType: **MS**		TestCode: **EPA Method 200.7: Dissolved Metals**						
Client ID:	**MKTF-30**	Batch ID: **B42022**		RunNo: **42022**						
Prep Date:		Analysis Date: **4/10/2017**		SeqNo: **1319971**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	340	5.0	250.0	87.87	101	70	130			

Sample ID	**1703F35-002FMSD**	SampType: **MSD**		TestCode: **EPA Method 200.7: Dissolved Metals**						
Client ID:	**MKTF-30**	Batch ID: **B42022**		RunNo: **42022**						
Prep Date:		Analysis Date: **4/10/2017**		SeqNo: **1319972**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	340	5.0	250.0	87.87	99.6	70	130	1.07	20	

Sample ID	**1703F35-003EMS**	SampType: **MS**		TestCode: **EPA Method 200.7: Dissolved Metals**						
Client ID:	**MKTF-29**	Batch ID: **B42022**		RunNo: **42022**						
Prep Date:		Analysis Date: **4/10/2017**		SeqNo: **1319975**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0020	0.5000	0.03178	96.9	70	130			
Cadmium	0.48	0.0020	0.5000	0	96.6	70	130			
Chromium	0.48	0.0060	0.5000	0	96.3	70	130			
Copper	0.53	0.0060	0.5000	0.005330	105	70	130			
Iron	0.53	0.020	0.5000	0.03350	98.5	70	130			
Manganese	0.82	0.0020	0.5000	0.3515	93.3	70	130			
Silver	0.088	0.0050	0.1000	0	87.8	70	130			
Zinc	0.49	0.010	0.5000	0.02122	94.0	70	130			

Sample ID	**1703F35-003EMSD**	SampType: **MSD**		TestCode: **EPA Method 200.7: Dissolved Metals**						
Client ID:	**MKTF-29**	Batch ID: **B42022**		RunNo: **42022**						
Prep Date:		Analysis Date: **4/10/2017**		SeqNo: **1319976**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0020	0.5000	0.03178	98.1	70	130	1.16	20	
Cadmium	0.49	0.0020	0.5000	0	97.4	70	130	0.850	20	
Chromium	0.49	0.0060	0.5000	0	97.5	70	130	1.29	20	
Copper	0.54	0.0060	0.5000	0.005330	107	70	130	1.35	20	
Iron	0.53	0.020	0.5000	0.03350	98.8	70	130	0.317	20	
Manganese	0.82	0.0020	0.5000	0.3515	94.6	70	130	0.782	20	
Silver	0.089	0.0050	0.1000	0	88.7	70	130	1.07	20	
Zinc	0.50	0.010	0.5000	0.02122	94.9	70	130	0.967	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A42051**	RunNo: **42051**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1320627** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID **LCSLL-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A42051**	RunNo: **42051**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1320628** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0018	0.0020	0.002000	0	92.0	50	150			J
Cadmium	0.0021	0.0020	0.002000	0	105	50	150			
Calcium	0.53	1.0	0.5000	0	106	50	150			J
Chromium	0.0060	0.0060	0.006000	0	100	50	150			
Copper	0.0067	0.0060	0.006000	0	112	50	150			
Iron	0.017	0.020	0.02000	0	84.5	50	150			J
Magnesium	0.52	1.0	0.5000	0	105	50	150			J
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Potassium	0.51	1.0	0.5000	0	102	50	150			J
Silver	0.0049	0.0050	0.005000	0	98.0	50	150			J
Sodium	0.62	1.0	0.5000	0	124	50	150			J
Zinc	0.0054	0.010	0.005000	0	109	50	150			J

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A42051**	RunNo: **42051**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1320629** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.1	85	115			
Cadmium	0.48	0.0020	0.5000	0	95.6	85	115			
Calcium	50	1.0	50.00	0	99.0	85	115			
Chromium	0.48	0.0060	0.5000	0	95.1	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID	**LCS-A**	SampType:	**LCS**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**A42051**		RunNo:	**42051**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320629**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.47	0.0060	0.5000	0	94.2	85	115			
Iron	0.47	0.020	0.5000	0	94.2	85	115			
Magnesium	49	1.0	50.00	0	98.1	85	115			
Manganese	0.47	0.0020	0.5000	0	93.2	85	115			
Potassium	48	1.0	50.00	0	95.8	85	115			
Silver	0.097	0.0050	0.1000	0	97.0	85	115			
Sodium	49	1.0	50.00	0	97.3	85	115			
Zinc	0.47	0.010	0.5000	0	93.1	85	115			

Sample ID	**1703F35-003EMS**	SampType:	**MS**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**MKTF-29**	Batch ID:	**A42051**		RunNo:	**42051**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320661**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	330	5.0	250.0	73.19	103	70	130			
Magnesium	260	5.0	250.0	10.25	101	70	130			
Potassium	240	5.0	250.0	0	97.4	70	130			

Sample ID	**1703F35-003EMSD**	SampType:	**MSD**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**MKTF-29**	Batch ID:	**A42051**		RunNo:	**42051**				
Prep Date:		Analysis Date:	**4/11/2017**		SeqNo:	**1320662**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	330	5.0	250.0	73.19	102	70	130	0.607	20	
Magnesium	260	5.0	250.0	10.25	101	70	130	0.449	20	
Potassium	240	5.0	250.0	0	96.8	70	130	0.567	20	

Sample ID	**MB-A**	SampType:	**MBLK**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**PBW**	Batch ID:	**A42290**		RunNo:	**42290**				
Prep Date:		Analysis Date:	**4/21/2017**		SeqNo:	**1329092**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	**LCSLL-A**	SampType:	**LCSLL**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**A42290**		RunNo:	**42290**				
Prep Date:		Analysis Date:	**4/21/2017**		SeqNo:	**1329093**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	0.49	1.0	0.5000	0	98.1	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A42290**	RunNo: **42290**
Prep Date:	Analysis Date: **4/21/2017**	SeqNo: **1329094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	99.5	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID	**MB-31124**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**PBW**	Batch ID:	**31124**	RunNo:	**41999**
Prep Date:	**4/6/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1319221** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	**LCSLL-31124**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**BatchQC**	Batch ID:	**31124**	RunNo:	**41999**
Prep Date:	**4/6/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1319222** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0016	0.0020	0.002000	0	82.0	50	150			J
Chromium	0.0071	0.0060	0.006000	0	119	50	150			
Copper	0.0060	0.0060	0.006000	0	100	50	150			
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Silver	0.0050	0.0050	0.005000	0	99.8	50	150			J
Zinc	0.0056	0.010	0.005000	0	112	50	150			J

Sample ID	**LCS-31124**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**LCSW**	Batch ID:	**31124**	RunNo:	**41999**
Prep Date:	**4/6/2017**	Analysis Date:	**4/7/2017**	SeqNo:	**1319223** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	102	85	115			
Chromium	0.51	0.0060	0.5000	0	102	85	115			
Copper	0.51	0.0060	0.5000	0	101	85	115			
Manganese	0.50	0.0020	0.5000	0	99.1	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Zinc	0.50	0.010	0.5000	0	100	85	115			

Sample ID	**MB-31124**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**PBW**	Batch ID:	**31124**	RunNo:	**42077**
Prep Date:	**4/6/2017**	Analysis Date:	**4/12/2017**	SeqNo:	**1329022** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Iron	ND	0.020								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR MKTF Wells

Sample ID	**LCSLL-31124**	SampType:	**LCSLL**		TestCode:	**EPA Method 200.7: Total Metals**				
Client ID:	**BatchQC**	Batch ID:	**31124**		RunNo:	**42077**				
Prep Date:	**4/6/2017**	Analysis Date:	**4/12/2017**		SeqNo:	**1329024**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.0016	0.0020	0.002000	0	82.5	50	150			J
Iron	0.021	0.020	0.02000	0	107	50	150			

Sample ID	**LCS-31124**	SampType:	**LCS**		TestCode:	**EPA Method 200.7: Total Metals**				
Client ID:	**LCSW**	Batch ID:	**31124**		RunNo:	**42077**				
Prep Date:	**4/6/2017**	Analysis Date:	**4/12/2017**		SeqNo:	**1329025**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.48	0.0020	0.5000	0	96.2	85	115			
Iron	0.48	0.020	0.5000	0	96.9	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID	**1703F35-002FMSDL**	SampType:	**MSD**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**MKTF-30**	Batch ID:	**C42080**		RunNo:	**42080**				
Prep Date:		Analysis Date:	**4/12/2017**		SeqNo:	**1321695**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.014	0.00050	0.01250	0.0003683	106	70	130	0.0714	20	

Sample ID	**1703F35-002FMSLL**	SampType:	**MS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**MKTF-30**	Batch ID:	**C42080**		RunNo:	**42080**				
Prep Date:		Analysis Date:	**4/12/2017**		SeqNo:	**1321696**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.014	0.00050	0.01250	0.0003683	106	70	130			

Sample ID	**LCS**	SampType:	**LCS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**C42080**		RunNo:	**42080**				
Prep Date:		Analysis Date:	**4/12/2017**		SeqNo:	**1321718**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	94.4	85	115			
Lead	0.012	0.00050	0.01250	0	94.5	85	115			
Selenium	0.023	0.0010	0.02500	0	92.1	85	115			
Uranium	0.012	0.00050	0.01250	0	93.7	85	115			

Sample ID	**LCSLL**	SampType:	**LCSLL**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**C42080**		RunNo:	**42080**				
Prep Date:		Analysis Date:	**4/12/2017**		SeqNo:	**1321720**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00080	0.0010	0.001000	0	80.0	50	150			J
Lead	0.00045	0.00050	0.0005000	0	90.8	50	150			J
Selenium	0.00083	0.0010	0.001000	0	83.1	50	150			J
Uranium	0.00043	0.00050	0.0005000	0	86.6	50	150			J

Sample ID	**MB**	SampType:	**MBLK**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**PBW**	Batch ID:	**C42080**		RunNo:	**42080**				
Prep Date:		Analysis Date:	**4/12/2017**		SeqNo:	**1321722**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR MKTF Wells

Sample ID	**1703F35-002FMSDL**	SampType:	**MSD**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**MKTF-30**	Batch ID:	**B42148**		RunNo:	**42148**				
Prep Date:		Analysis Date:	**4/14/2017**		SeqNo:	**1323889**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.001274	104	70	130	0.00677	20	
Selenium	0.12	0.0050	0.1250	0.005506	94.3	70	130	1.20	20	
Uranium	0.099	0.0025	0.06250	0.03343	106	70	130	0.0226	20	

Sample ID	**1703F35-002FMSLL**	SampType:	**MS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**MKTF-30**	Batch ID:	**B42148**		RunNo:	**42148**				
Prep Date:		Analysis Date:	**4/14/2017**		SeqNo:	**1323890**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.001274	104	70	130			
Selenium	0.12	0.0050	0.1250	0.005506	93.1	70	130			
Uranium	0.099	0.0025	0.06250	0.03343	106	70	130			

Sample ID	**1703F35-004EMSLL**	SampType:	**MS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**MKTF-27**	Batch ID:	**B42148**		RunNo:	**42148**				
Prep Date:		Analysis Date:	**4/14/2017**		SeqNo:	**1323893**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.003981	103	70	130			
Lead	0.066	0.0025	0.06250	0	106	70	130			
Selenium	0.12	0.0050	0.1250	0.01479	86.7	70	130			

Sample ID	**LCS**	SampType:	**LCS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**B42148**		RunNo:	**42148**				
Prep Date:		Analysis Date:	**4/14/2017**		SeqNo:	**1323907**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	99.1	85	115			
Lead	0.012	0.00050	0.01250	0	95.5	85	115			
Selenium	0.024	0.0010	0.02500	0	95.3	85	115			
Uranium	0.012	0.00050	0.01250	0	97.2	85	115			

Sample ID	**LCSLL**	SampType:	**LCSLL**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**B42148**		RunNo:	**42148**				
Prep Date:		Analysis Date:	**4/14/2017**		SeqNo:	**1323908**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00080	0.0010	0.001000	0	80.0	50	150			J
Lead	0.00046	0.00050	0.0005000	0	92.9	50	150			J
Selenium	0.00083	0.0010	0.001000	0	83.3	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR MKTF Wells

Sample ID	**LCSLL**	SampType:	**LCSLL**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**BatchQC**	Batch ID:	**B42148**	RunNo:	**42148**					
Prep Date:		Analysis Date:	**4/14/2017**	SeqNo:	**1323908**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.00042	0.00050	0.0005000	0	84.1	50	150			J

Sample ID	**MB**	SampType:	**MBLK**	TestCode:	**EPA 200.8: Dissolved Metals**					
Client ID:	**PBW**	Batch ID:	**B42148**	RunNo:	**42148**					
Prep Date:		Analysis Date:	**4/14/2017**	SeqNo:	**1323909**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID	**MB-31124**	SampType:	**MBLK**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**PBW**	Batch ID:	**31124**	RunNo:	**42014**					
Prep Date:	**4/6/2017**	Analysis Date:	**4/10/2017**	SeqNo:	**1319644**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	**MSLCS-31124**	SampType:	**LCS**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**LCSW**	Batch ID:	**31124**	RunNo:	**42014**					
Prep Date:	**4/6/2017**	Analysis Date:	**4/10/2017**	SeqNo:	**1319645**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	92.5	85	115			
Lead	0.012	0.00050	0.01250	0	94.1	85	115			
Selenium	0.022	0.0010	0.02500	0	88.0	85	115			
Uranium	0.012	0.00050	0.01250	0	94.6	85	115			

Sample ID	**MSLCSLL-31124**	SampType:	**LCSLL**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**BatchQC**	Batch ID:	**31124**	RunNo:	**42014**					
Prep Date:	**4/6/2017**	Analysis Date:	**4/10/2017**	SeqNo:	**1319646**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	104	50	150			
Lead	0.00047	0.00050	0.0005000	0	94.6	50	150			J
Selenium	0.00085	0.0010	0.001000	0	85.4	50	150			J
Uranium	0.00038	0.00050	0.0005000	0	76.7	50	150			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID	**MB-31201**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**31201**	RunNo:	**42112**					
Prep Date:	**4/12/2017**	Analysis Date:	**4/14/2017**	SeqNo:	**1322799**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-31201**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**31201**	RunNo:	**42112**					
Prep Date:	**4/12/2017**	Analysis Date:	**4/14/2017**	SeqNo:	**1322800**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R41802**	RunNo: **41802**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1313355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R41802**	RunNo: **41802**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1313356** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	103	90	110			
Chloride	4.6	0.50	5.000	0	92.8	90	110			
Bromide	2.3	0.10	2.500	0	93.3	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.9	90	110			
Sulfate	9.4	0.50	10.00	0	93.7	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A41988**	RunNo: **41988**
Prep Date:	Analysis Date: **4/7/2017**	SeqNo: **1318590** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Bromide	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A41988**	RunNo: **41988**
Prep Date:	Analysis Date: **4/7/2017**	SeqNo: **1318591** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.2	90	110			
Bromide	2.4	0.10	2.500	0	96.2	90	110			
Sulfate	9.9	0.50	10.00	0	98.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R42002**	RunNo: **42002**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319670** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R42002**	RunNo: **42002**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319670** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R42002**	RunNo: **42002**
Prep Date:	Analysis Date: **4/10/2017**	SeqNo: **1319671** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.0	90	110			
Chloride	4.8	0.50	5.000	0	96.4	90	110			
Bromide	2.4	0.10	2.500	0	95.3	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.2	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.0	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A42002**	RunNo: **42002**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1319741** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A42002**	RunNo: **42002**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1319742** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.4	90	110			
Chloride	4.8	0.50	5.000	0	95.7	90	110			
Bromide	2.4	0.10	2.500	0	95.0	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	98.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A42002**	RunNo: **42002**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1319742** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	96.3	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.4	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R42053**	RunNo: **42053**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1320750** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R42053**	RunNo: **42053**
Prep Date:	Analysis Date: **4/11/2017**	SeqNo: **1320751** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.8	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID	**MB-31085**	SampType:	**MBLK**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**PBW**	Batch ID:	**31085**	RunNo:	**41925**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/5/2017**	SeqNo:	**1316549**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID	**LCS-31085**	SampType:	**LCS**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**LCSW**	Batch ID:	**31085**	RunNo:	**41925**					
Prep Date:	**4/5/2017**	Analysis Date:	**4/5/2017**	SeqNo:	**1316550**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.088	0.010	0.1000	0	87.5	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **1703F35-002BMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **MKTF-30**	Batch ID: **31011**	RunNo: **41755**
Prep Date: **3/31/2017**	Analysis Date: **3/31/2017**	SeqNo: **1312837** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	121	87.2	145			
Surr: DNOP	0.64		0.5000		128	72.4	157			

Sample ID **1703F35-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **MKTF-30**	Batch ID: **31011**	RunNo: **41755**
Prep Date: **3/31/2017**	Analysis Date: **3/31/2017**	SeqNo: **1312838** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.1	1.0	5.000	0	122	87.2	145	0.866	20	
Surr: DNOP	0.64		0.5000		127	72.4	157	0	0	

Sample ID **LCS-31011**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **31011**	RunNo: **41755**
Prep Date: **3/31/2017**	Analysis Date: **3/31/2017**	SeqNo: **1312849** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	115	82.8	146			
Surr: DNOP	0.59		0.5000		118	72.4	157			

Sample ID **MB-31011**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **31011**	RunNo: **41755**
Prep Date: **3/31/2017**	Analysis Date: **3/31/2017**	SeqNo: **1312850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.3		1.000		128	72.4	157			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1312791** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR MKTF Wells

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1312791** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	0.12	1.0								J
1,2,4-Trichlorobenzene	0.14	1.0								J
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		111	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.0	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1312792** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	119	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Chlorobenzene	20	1.0	20.00	0	100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR MKTF Wells

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1312792** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	12		10.00		115	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.0	70	130			
Surr: Dibromofluoromethane	11		10.00		111	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID **1703f35-003a ms**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **MKTF-29**	Batch ID: **W41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1312797** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	120	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	20	1.0	20.00	0	98.7	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	114	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		112	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		93.9	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID **1703f35-003a msd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **MKTF-29**	Batch ID: **W41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1312798** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	116	70	130	2.99	20	
Toluene	20	1.0	20.00	0	102	70	130	3.29	20	
Chlorobenzene	20	1.0	20.00	0	97.8	70	130	0.920	20	
1,1-Dichloroethene	21	1.0	20.00	0	106	70	130	7.50	20	
Trichloroethene (TCE)	20	1.0	20.00	0	97.7	70	130	3.00	20	
Surr: 1,2-Dichloroethane-d4	11		10.00		114	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.0		10.00		90.1	70	130	0	0	
Surr: Dibromofluoromethane	11		10.00		108	70	130	0	0	
Surr: Toluene-d8	10		10.00		103	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **RR41857**	RunNo: **41857**
Prep Date:	Analysis Date: **4/3/2017**	SeqNo: **1314023** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	111	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.5	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **RR41857**	RunNo: **41857**
Prep Date:	Analysis Date: **4/3/2017**	SeqNo: **1314026** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.0	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR MKTF Wells

Sample ID **lcs-31035**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **31035**	RunNo: **41930**
Prep Date: **4/3/2017**	Analysis Date: **4/5/2017**	SeqNo: **1316616** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	67	10	100.0	0	67.3	42.9	100			
4-Chloro-3-methylphenol	160	10	200.0	0	79.7	36.2	110			
2-Chlorophenol	150	10	200.0	0	72.6	33.4	97.8			
1,4-Dichlorobenzene	53	10	100.0	0	52.9	32.8	79.3			
2,4-Dinitrotoluene	62	10	100.0	0	62.2	34.9	107			
N-Nitrosodi-n-propylamine	75	10	100.0	0	75.1	30.7	111			
4-Nitrophenol	100	10	200.0	0	49.8	15	91.9			
Pentachlorophenol	120	20	200.0	0	58.0	33.3	93.5			
Phenol	100	10	200.0	0	50.3	20.9	86.4			
Pyrene	69	10	100.0	0	69.3	45.6	111			
1,2,4-Trichlorobenzene	61	10	100.0	0	60.7	38.7	88.2			
Surr: 2-Fluorophenol	120		200.0		59.6	15	98.1			
Surr: Phenol-d5	110		200.0		53.1	15	80.7			
Surr: 2,4,6-Tribromophenol	150		200.0		73.9	15	112			
Surr: Nitrobenzene-d5	74		100.0		74.0	27.2	90.7			
Surr: 2-Fluorobiphenyl	66		100.0		66.4	23.3	85.6			
Surr: 4-Terphenyl-d14	62		100.0		62.4	27.6	107			

Sample ID **lcsd-31035**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **31035**	RunNo: **41930**
Prep Date: **4/3/2017**	Analysis Date: **4/5/2017**	SeqNo: **1316617** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	76	10	100.0	0	75.8	42.9	100	11.8	37.4	
4-Chloro-3-methylphenol	130	10	200.0	0	63.5	36.2	110	22.7	26.8	
2-Chlorophenol	120	10	200.0	0	60.1	33.4	97.8	18.9	30.3	
1,4-Dichlorobenzene	57	10	100.0	0	57.1	32.8	79.3	7.71	32	
2,4-Dinitrotoluene	68	10	100.0	0	68.3	34.9	107	9.32	36.7	
N-Nitrosodi-n-propylamine	81	10	100.0	0	80.6	30.7	111	7.06	29.9	
4-Nitrophenol	100	10	200.0	0	50.3	15	91.9	0.919	28.8	
Pentachlorophenol	99	20	200.0	0	49.6	33.3	93.5	15.7	38.2	
Phenol	100	10	200.0	0	49.9	20.9	86.4	0.878	39.8	
Pyrene	71	10	100.0	0	70.9	45.6	111	2.28	28.3	
1,2,4-Trichlorobenzene	62	10	100.0	0	62.0	38.7	88.2	2.05	39.8	
Surr: 2-Fluorophenol	110		200.0		55.4	15	98.1	0	0	
Surr: Phenol-d5	100		200.0		51.2	15	80.7	0	0	
Surr: 2,4,6-Tribromophenol	120		200.0		58.6	15	112	0	0	
Surr: Nitrobenzene-d5	78		100.0		77.6	27.2	90.7	0	0	
Surr: 2-Fluorobiphenyl	74		100.0		74.3	23.3	85.6	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**

25-Apr-17

Client: Western Refining Southwest, Gallup

Project: 2017 1st QTR MKTF Wells

Sample ID **lcsd-31035**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **31035**	RunNo: **41930**
Prep Date: **4/3/2017**	Analysis Date: **4/5/2017**	SeqNo: **1316617** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	56		100.0		56.5	27.6	107	0	0	

Sample ID **mb-31035**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **31035**	RunNo: **41930**
Prep Date: **4/3/2017**	Analysis Date: **4/5/2017**	SeqNo: **1316618** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	6.4	20								J
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	5.9	10								J
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **mb-31035**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **31035**	RunNo: **41930**
Prep Date: **4/3/2017**	Analysis Date: **4/5/2017**	SeqNo: **1316618** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **mb-31035**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **31035**	RunNo: **41930**
Prep Date: **4/3/2017**	Analysis Date: **4/5/2017**	SeqNo: **1316618** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	120		200.0		58.4	15	98.1			
Surr: Phenol-d5	93		200.0		46.4	15	80.7			
Surr: 2,4,6-Tribromophenol	130		200.0		67.4	15	112			
Surr: Nitrobenzene-d5	68		100.0		67.9	27.2	90.7			
Surr: 2-Fluorobiphenyl	66		100.0		65.6	23.3	85.6			
Surr: 4-Terphenyl-d14	59		100.0		58.7	27.6	107			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1703F35**
25-Apr-17

Client: Western Refining Southwest, Gallup
Project: 2017 1st QTR MKTF Wells

Sample ID **1703f35-004a ms**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **MKTF-27**	Batch ID: **R41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1314400** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0.02200	97.0	70	130			
Surr: BFB	9.1		10.00		91.0	70	130			

Sample ID **1703f35-004a msd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **MKTF-27**	Batch ID: **R41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1314402** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0.02200	95.5	70	130	1.47	20	
Surr: BFB	9.5		10.00		94.7	70	130	0	0	

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1314420** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.7		10.00		97.4	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R41801**	RunNo: **41801**
Prep Date:	Analysis Date: **3/31/2017**	SeqNo: **1314426** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	75.9	120			
Surr: BFB	9.6		10.00		95.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Western Refining Gallup** Work Order Number: **1703F35** RcptNo: 1

Received By: **Andy Jansson** **3/30/2017 4:55:00 PM**

Completed By: **Ashley Gallegos** **3/30/2017 5:59:01 PM**

Reviewed By: AJ / SRC ~~03~~ 04/03/17

Chain of Custody

1. Custody seals intact on sample bottles?	Yes	No	Not Present ✔
2. Is Chain of Custody complete?	Yes ✔	No	Not Present
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: 3 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? No
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by: AJ / SRC

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✔

Person Notified: Date

By Whom: Via: eMail Phone Fax In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING - GALLUP REFINERY

Mailing Address: 92 Giant Crossing Road, Gallup, NM 87301

Phone #: 505-722-3833

email or Fax#: 505-863-0930

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
X Standard ☐ Rush

Project Name: 2017 1ST QTR - MKTF WELLS

Project #:

Project Manager: C. JOHNSON (cheryljohnson@wnr.com)

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Corrected COC

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1703F35	8260+MTBE	8015D(DRO/MRO/GRO)	8270 + Phenols	WQCC Metals - Total	WQCC Metals - Dissolved (Filtered)	MAJOR CATIONS/ANIONS		METHOD 8011 - EDB								Air Bubbles (Y or N)
3/29/2017	700	AQUEOUS	FIELD BLANK	3-40ML VOAS	HCL	-001	X															
3/29/2017	920	AQUEOUS	MKTF-30	MISC	MISC	-002	X	X	X	X	X	X		X								
3/29/2017	944	AQUEOUS	MKTF-29	MISC	MISC	-003	X	X	X	X	X	X										
3/29/2017	820	AQUEOUS	MKTF-27	MISC	MISC	-004	X	X	X	X	X	X										
3/29/2017	1015	AQUEOUS	MKTF-24	MISC	MISC	-005	X	X	X	X	X	X		X								
3/29/2017	1054	AQUEOUS	MKTF-25	MISC	MISC	-006	X	X	X	X	X	X		X								
3/29/2017	851	AQUEOUS	MKTF-28	MISC	MISC	-007	X	X	X	X	X	X										
3/29/2017	950	AQUEOUS	DUPLICATE	MISC	MISC	-008	X	X	X	X	X	X		X								
3/29/2017	1146	AQUEOUS	OW-56	MISC	MISC	-009	X	X	X	X	X	X										
3/29/2017	1215	AQUEOUS	OW-55	MISC	MISC	-010	X	X	X	X	X	X										
3/29/2017	1249	AQUEOUS	OW-59 54	MISC	MISC	-011	X	X	X	X	X	X										
3/29/2017	1451	AQUEOUS	OW-58	MISC	MISC	-012	X	X	X	X	X	X										
3/29/2017	03/30/17	AQUEOUS	TRIP BLANK	MISC	MISC	-013	X															

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
3/30/2017	1400			3/30/17	1400	
3/30/17	1655			03/30/17	1655	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

July 21, 2017

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: 2017 2nd QTR MKTF OW RW OrderNo.: 1706C54

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 14 sample(s) on 6/22/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/20/2017 7:00:00 AM
Lab ID: 1706C54-001 **Matrix:** AQUEOUS **Received Date:** 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.062	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Toluene	0.18	0.064	1.0	J	µg/L	1	6/23/2017 3:49:00 PM	R43745
Ethylbenzene	ND	0.093	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,3,5-Trimethylbenzene	ND	0.087	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2-Dichloroethane (EDC)	ND	0.40	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Naphthalene	ND	0.11	2.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Acetone	5.3	0.82	10	J	µg/L	1	6/23/2017 3:49:00 PM	R43745
Bromobenzene	ND	0.14	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Bromodichloromethane	ND	0.18	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Bromoform	ND	0.21	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Bromomethane	ND	0.26	3.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
2-Butanone	ND	1.1	10		µg/L	1	6/23/2017 3:49:00 PM	R43745
Carbon disulfide	ND	0.40	10		µg/L	1	6/23/2017 3:49:00 PM	R43745
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Chloroethane	ND	0.23	2.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Chloroform	ND	0.40	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Chloromethane	ND	0.29	3.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
cis-1,3-Dichloropropene	ND	0.082	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Dibromochloromethane	ND	0.072	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Dibromomethane	ND	0.091	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2-Dichlorobenzene	ND	0.090	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,3-Dichlorobenzene	ND	0.15	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Dichlorodifluoromethane	ND	1.0	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
2,2-Dichloropropane	ND	0.16	2.0		µg/L	1	6/23/2017 3:49:00 PM	R43745

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Field Blank
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/20/2017 7:00:00 AM
Lab ID: 1706C54-001 **Matrix:** AQUEOUS **Received Date:** 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,1-Dichloropropene	ND	0.093	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Hexachlorobutadiene	ND	0.80	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
2-Hexanone	ND	0.66	10		µg/L	1	6/23/2017 3:49:00 PM	R43745
Isopropylbenzene	ND	0.051	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
4-Isopropyltoluene	ND	0.096	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	6/23/2017 3:49:00 PM	R43745
Methylene Chloride	ND	0.11	3.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
n-Butylbenzene	ND	0.13	3.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
n-Propylbenzene	ND	0.074	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
sec-Butylbenzene	ND	0.11	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Styrene	ND	0.16	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,1,1,2-Tetrachloroethane	ND	0.10	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Tetrachloroethene (PCE)	ND	0.13	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
trans-1,3-Dichloropropene	ND	0.22	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2,3-Trichlorobenzene	ND	0.12	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2,4-Trichlorobenzene	ND	0.14	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Trichloroethene (TCE)	ND	0.11	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Vinyl chloride	ND	0.18	1.0		µg/L	1	6/23/2017 3:49:00 PM	R43745
Xylenes, Total	ND	0.32	1.5		µg/L	1	6/23/2017 3:49:00 PM	R43745
Surr: 1,2-Dichloroethane-d4	99.1	0	70-130		%Rec	1	6/23/2017 3:49:00 PM	R43745
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	6/23/2017 3:49:00 PM	R43745
Surr: Dibromofluoromethane	112	0	70-130		%Rec	1	6/23/2017 3:49:00 PM	R43745
Surr: Toluene-d8	95.0	0	70-130		%Rec	1	6/23/2017 3:49:00 PM	R43745

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: TRIP BLANK
Project: 2017 2nd QTR MKTF OW RW
Collection Date:
Lab ID: 1706C54-002
Matrix: TRIP BLANK
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.062	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Toluene	ND	0.064	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Ethylbenzene	ND	0.093	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,3,5-Trimethylbenzene	ND	0.087	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2-Dichloroethane (EDC)	ND	0.40	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Naphthalene	ND	0.11	2.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
2-Methylnaphthalene	ND	0.15	4.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Acetone	2.3	0.82	10	J	µg/L	1	6/23/2017 4:14:00 PM	R43745
Bromobenzene	ND	0.14	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Bromodichloromethane	ND	0.18	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Bromoform	ND	0.21	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Bromomethane	ND	0.26	3.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
2-Butanone	ND	1.1	10		µg/L	1	6/23/2017 4:14:00 PM	R43745
Carbon disulfide	ND	0.40	10		µg/L	1	6/23/2017 4:14:00 PM	R43745
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Chloroethane	ND	0.23	2.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Chloroform	ND	0.40	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Chloromethane	ND	0.29	3.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
cis-1,3-Dichloropropene	ND	0.082	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Dibromochloromethane	ND	0.072	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Dibromomethane	ND	0.091	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2-Dichlorobenzene	ND	0.090	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,3-Dichlorobenzene	ND	0.15	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Dichlorodifluoromethane	ND	1.0	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
2,2-Dichloropropane	ND	0.16	2.0		µg/L	1	6/23/2017 4:14:00 PM	R43745

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: TRIP BLANK
Project: 2017 2nd QTR MKTF OW RW
Collection Date:
Lab ID: 1706C54-002
Matrix: TRIP BLANK
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,1-Dichloropropene	ND	0.093	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Hexachlorobutadiene	ND	0.80	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
2-Hexanone	ND	0.66	10		µg/L	1	6/23/2017 4:14:00 PM	R43745
Isopropylbenzene	ND	0.051	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
4-Isopropyltoluene	ND	0.096	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	6/23/2017 4:14:00 PM	R43745
Methylene Chloride	ND	0.11	3.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
n-Butylbenzene	ND	0.13	3.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
n-Propylbenzene	ND	0.074	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
sec-Butylbenzene	ND	0.11	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Styrene	ND	0.16	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,1,1,2-Tetrachloroethane	ND	0.10	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Tetrachloroethene (PCE)	ND	0.13	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
trans-1,3-Dichloropropene	ND	0.22	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2,3-Trichlorobenzene	ND	0.12	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2,4-Trichlorobenzene	ND	0.14	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Trichloroethene (TCE)	ND	0.11	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Vinyl chloride	ND	0.18	1.0		µg/L	1	6/23/2017 4:14:00 PM	R43745
Xylenes, Total	ND	0.32	1.5		µg/L	1	6/23/2017 4:14:00 PM	R43745
Surr: 1,2-Dichloroethane-d4	98.3	0	70-130		%Rec	1	6/23/2017 4:14:00 PM	R43745
Surr: 4-Bromofluorobenzene	98.8	0	70-130		%Rec	1	6/23/2017 4:14:00 PM	R43745
Surr: Dibromofluoromethane	109	0	70-130		%Rec	1	6/23/2017 4:14:00 PM	R43745
Surr: Toluene-d8	92.0	0	70-130		%Rec	1	6/23/2017 4:14:00 PM	R43745

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: RW-2
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/20/2017 2:50:00 PM
Lab ID: 1706C54-003
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **JME**	
Diesel Range Organics (DRO)	11	0.36	1.0		mg/L	1	6/26/2017 2:16:14 PM	32454
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/26/2017 2:16:14 PM	32454
Surr: DNOP	124	0	72.4-157		%Rec	1	6/26/2017 2:16:14 PM	32454
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	130	5.0	10		mg/L	200	6/26/2017 4:27:25 PM	G43790
Surr: BFB	130	0	52.3-138		%Rec	200	6/26/2017 4:27:25 PM	G43790
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	47000	62	1000		µg/L	1000	6/23/2017 4:39:00 PM	R43745
Toluene	9000	6.4	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Ethylbenzene	1400	9.3	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Methyl tert-butyl ether (MTBE)	1700	24	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2,4-Trimethylbenzene	280	11	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,3,5-Trimethylbenzene	58	8.7	100	J	µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2-Dichloroethane (EDC)	ND	40	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2-Dibromoethane (EDB)	ND	13	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Naphthalene	110	11	200	J	µg/L	100	6/23/2017 5:03:00 PM	R43745
1-Methylnaphthalene	63	16	400	J	µg/L	100	6/23/2017 5:03:00 PM	R43745
2-Methylnaphthalene	42	15	400	J	µg/L	100	6/23/2017 5:03:00 PM	R43745
Acetone	130	82	1000	J	µg/L	100	6/23/2017 5:03:00 PM	R43745
Bromobenzene	ND	14	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Bromodichloromethane	ND	18	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Bromoform	ND	21	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Bromomethane	ND	26	300		µg/L	100	6/23/2017 5:03:00 PM	R43745
2-Butanone	ND	110	1000		µg/L	100	6/23/2017 5:03:00 PM	R43745
Carbon disulfide	ND	40	1000		µg/L	100	6/23/2017 5:03:00 PM	R43745
Carbon Tetrachloride	ND	11	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Chlorobenzene	ND	11	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Chloroethane	ND	23	200		µg/L	100	6/23/2017 5:03:00 PM	R43745
Chloroform	ND	40	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Chloromethane	ND	29	300		µg/L	100	6/23/2017 5:03:00 PM	R43745
2-Chlorotoluene	ND	40	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
4-Chlorotoluene	ND	40	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
cis-1,2-DCE	ND	20	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
cis-1,3-Dichloropropene	ND	8.2	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2-Dibromo-3-chloropropane	ND	140	200		µg/L	100	6/23/2017 5:03:00 PM	R43745
Dibromochloromethane	ND	7.2	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Dibromomethane	ND	9.1	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2-Dichlorobenzene	ND	9.0	100		µg/L	100	6/23/2017 5:03:00 PM	R43745

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: RW-2
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/20/2017 2:50:00 PM
Lab ID: 1706C54-003 **Matrix:** AQUEOUS **Received Date:** 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,3-Dichlorobenzene	ND	15	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,4-Dichlorobenzene	ND	40	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Dichlorodifluoromethane	ND	100	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,1-Dichloroethane	ND	40	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,1-Dichloroethene	ND	8.1	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2-Dichloropropane	ND	10	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,3-Dichloropropane	ND	17	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
2,2-Dichloropropane	ND	16	200		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,1-Dichloropropene	ND	9.3	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Hexachlorobutadiene	ND	80	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
2-Hexanone	ND	66	1000		µg/L	100	6/23/2017 5:03:00 PM	R43745
Isopropylbenzene	21	5.1	100	J	µg/L	100	6/23/2017 5:03:00 PM	R43745
4-Isopropyltoluene	ND	9.6	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
4-Methyl-2-pentanone	ND	71	1000		µg/L	100	6/23/2017 5:03:00 PM	R43745
Methylene Chloride	ND	11	300		µg/L	100	6/23/2017 5:03:00 PM	R43745
n-Butylbenzene	ND	13	300		µg/L	100	6/23/2017 5:03:00 PM	R43745
n-Propylbenzene	43	7.4	100	J	µg/L	100	6/23/2017 5:03:00 PM	R43745
sec-Butylbenzene	ND	11	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Styrene	ND	16	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
tert-Butylbenzene	ND	10	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,1,1,2-Tetrachloroethane	ND	10	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,1,2,2-Tetrachloroethane	ND	14	200		µg/L	100	6/23/2017 5:03:00 PM	R43745
Tetrachloroethene (PCE)	ND	13	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
trans-1,2-DCE	ND	18	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
trans-1,3-Dichloropropene	ND	22	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2,3-Trichlorobenzene	ND	12	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2,4-Trichlorobenzene	ND	14	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,1,1-Trichloroethane	ND	7.3	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,1,2-Trichloroethane	ND	14	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Trichloroethene (TCE)	ND	11	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Trichlorofluoromethane	ND	18	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
1,2,3-Trichloropropane	ND	39	200		µg/L	100	6/23/2017 5:03:00 PM	R43745
Vinyl chloride	ND	18	100		µg/L	100	6/23/2017 5:03:00 PM	R43745
Xylenes, Total	4600	32	150		µg/L	100	6/23/2017 5:03:00 PM	R43745
Surr: 1,2-Dichloroethane-d4	99.4	0	70-130		%Rec	100	6/23/2017 5:03:00 PM	R43745
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	100	6/23/2017 5:03:00 PM	R43745
Surr: Dibromofluoromethane	108	0	70-130		%Rec	100	6/23/2017 5:03:00 PM	R43745
Surr: Toluene-d8	92.8	0	70-130		%Rec	100	6/23/2017 5:03:00 PM	R43745

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: RW-1
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/20/2017 3:35:00 PM
Lab ID: 1706C54-004
Matrix: PRODUCT
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
DRO BY 8015D							Analyst: **JME**	
Diesel Range Organics (DRO)	9.7	0.56	0.56		wt%	10	7/3/2017 12:50:38 PM	32607
Motor Oil Range Organics (MRO)	ND	2.8	2.8		wt%	10	7/3/2017 12:50:38 PM	32607
Surr: DNOP	0	0	55.7-125	S	%Rec	10	7/3/2017 12:50:38 PM	32607
GRO BY 8015D							Analyst: **NSB**	
Gasoline Range Organics (GRO)	61	0.012	2.5		wt%	1	6/28/2017 2:05:05 AM	32495
Surr: BFB	230	0	63-136	S	%Rec	1	6/28/2017 2:05:05 AM	32495
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	4100	25	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Toluene	16000	20	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Ethylbenzene	4100	18	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Methyl tert-butyl ether (MTBE)	ND	38	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2,4-Trimethylbenzene	5700	22	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,3,5-Trimethylbenzene	2000	16	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2-Dichloroethane (EDC)	ND	26	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2-Dibromoethane (EDB)	ND	32	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Naphthalene	180	25	500	J	mg/Kg	100	6/27/2017 1:02:11 PM	32495
1-Methylnaphthalene	120	18	1000	J	mg/Kg	100	6/27/2017 1:02:11 PM	32495
2-Methylnaphthalene	110	20	1000	J	mg/Kg	100	6/27/2017 1:02:11 PM	32495
Acetone	ND	270	2500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Bromobenzene	ND	18	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Bromodichloromethane	ND	33	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Bromoform	ND	61	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Bromomethane	ND	43	750		mg/Kg	100	6/27/2017 1:02:11 PM	32495
2-Butanone	ND	150	2500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Carbon disulfide	ND	30	2500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Carbon Tetrachloride	ND	25	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Chlorobenzene	ND	15	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Chloroethane	ND	82	500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Chloroform	ND	15	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Chloromethane	ND	52	750		mg/Kg	100	6/27/2017 1:02:11 PM	32495
2-Chlorotoluene	ND	19	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
4-Chlorotoluene	ND	23	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
cis-1,2-DCE	ND	32	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
cis-1,3-Dichloropropene	ND	19	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2-Dibromo-3-chloropropane	ND	34	500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Dibromochloromethane	ND	21	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Dibromomethane	ND	12	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2-Dichlorobenzene	ND	13	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: RW-1
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/20/2017 3:35:00 PM
Lab ID: 1706C54-004
Matrix: PRODUCT
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	22	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,4-Dichlorobenzene	ND	28	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Dichlorodifluoromethane	ND	100	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,1-Dichloroethane	ND	100	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,1-Dichloroethene	ND	100	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2-Dichloropropane	ND	15	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,3-Dichloropropane	ND	62	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
2,2-Dichloropropane	ND	28	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,1-Dichloropropene	ND	28	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Hexachlorobutadiene	ND	62	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
2-Hexanone	ND	49	2500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Isopropylbenzene	940	17	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
4-Isopropyltoluene	330	19	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
4-Methyl-2-pentanone	ND	53	2500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Methylene Chloride	ND	100	750		mg/Kg	100	6/27/2017 1:02:11 PM	32495
n-Butylbenzene	370	22	750	J	mg/Kg	100	6/27/2017 1:02:11 PM	32495
n-Propylbenzene	1400	16	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
sec-Butylbenzene	370	26	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Styrene	ND	43	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
tert-Butylbenzene	ND	20	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,1,1,2-Tetrachloroethane	ND	28	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,1,2,2-Tetrachloroethane	ND	72	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Tetrachloroethene (PCE)	ND	20	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
trans-1,2-DCE	ND	100	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
trans-1,3-Dichloropropene	ND	30	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2,3-Trichlorobenzene	ND	23	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2,4-Trichlorobenzene	ND	25	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,1,1-Trichloroethane	ND	32	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,1,2-Trichloroethane	ND	27	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Trichloroethene (TCE)	ND	30	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Trichlorofluoromethane	ND	38	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
1,2,3-Trichloropropane	ND	130	500		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Vinyl chloride	ND	21	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Xylenes, Total	23000	78	250		mg/Kg	100	6/27/2017 1:02:11 PM	32495
Surr: Dibromofluoromethane	101		70-130		%Rec	100	6/27/2017 1:02:11 PM	32495
Surr: 1,2-Dichloroethane-d4	94.4		70-130		%Rec	100	6/27/2017 1:02:11 PM	32495
Surr: Toluene-d8	101		70-130		%Rec	100	6/27/2017 1:02:11 PM	32495
Surr: 4-Bromofluorobenzene	93.9		61-133		%Rec	100	6/27/2017 1:02:11 PM	32495

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:10:00 AM
Lab ID: 1706C54-005
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **JME**	
Diesel Range Organics (DRO)	1.9	0.36	1.0		mg/L	1	6/26/2017 2:55:46 PM	32454
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/26/2017 2:55:46 PM	32454
Surr: DNOP	128	0	72.4-157		%Rec	1	6/26/2017 2:55:46 PM	32454
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	2.9	0.025	0.050		mg/L	1	6/26/2017 4:51:16 PM	G43790
Surr: BFB	142	0	52.3-138	S	%Rec	1	6/26/2017 4:51:16 PM	G43790
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	0.38	0.22	0.50	J	mg/L	5	6/27/2017 2:14:36 AM	R43826
Chloride	300	5.0	10		mg/L	20	6/27/2017 2:27:01 AM	R43826
Bromide	2.6	0.073	0.50		mg/L	5	6/27/2017 2:14:36 AM	R43826
Phosphorus, Orthophosphate (As P)	1.7	1.2	2.5	JH	mg/L	5	6/27/2017 2:14:36 AM	R43826
Sulfate	40	0.48	2.5		mg/L	5	6/27/2017 2:14:36 AM	R43826
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	7/7/2017 5:24:45 PM	R44073
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.14	0.00085	0.0020		mg/L	1	7/5/2017 7:25:14 PM	B44011
Cadmium	ND	0.0010	0.0020		mg/L	1	7/5/2017 7:25:14 PM	B44011
Calcium	63	0.078	1.0		mg/L	1	7/5/2017 7:25:14 PM	B44011
Chromium	ND	0.0010	0.0060		mg/L	1	7/5/2017 7:25:14 PM	B44011
Copper	0.0055	0.0032	0.0060	J	mg/L	1	7/5/2017 7:25:14 PM	B44011
Iron	0.63	0.016	0.020	*	mg/L	1	7/5/2017 7:25:14 PM	B44011
Magnesium	19	0.25	1.0		mg/L	1	7/5/2017 7:25:14 PM	B44011
Manganese	1.2	0.0038	0.020	*	mg/L	10	7/5/2017 7:27:15 PM	B44011
Potassium	0.19	0.11	1.0	J	mg/L	1	7/5/2017 7:25:14 PM	B44011
Silver	ND	0.00088	0.0050		mg/L	1	7/5/2017 7:25:14 PM	B44011
Sodium	400	1.6	10		mg/L	10	7/5/2017 7:27:15 PM	B44011
Zinc	0.0062	0.0011	0.010	J	mg/L	1	7/5/2017 7:25:14 PM	B44011
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.62	0.00093	0.0020		mg/L	1	7/5/2017 3:49:04 PM	32623
Cadmium	ND	0.00058	0.0020		mg/L	1	7/5/2017 3:49:04 PM	32623
Chromium	0.012	0.0011	0.0060		mg/L	1	7/5/2017 3:49:04 PM	32623
Copper	0.063	0.0017	0.0060		mg/L	1	7/5/2017 3:49:04 PM	32623
Iron	9.5	0.10	0.20	*	mg/L	10	7/5/2017 3:50:53 PM	32623
Manganese	1.7	0.011	0.020	*	mg/L	10	7/5/2017 3:50:53 PM	32623
Silver	ND	0.00042	0.0050		mg/L	1	7/5/2017 3:49:04 PM	32623
Zinc	0.019	0.0028	0.010		mg/L	1	7/5/2017 3:49:04 PM	32623
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0078	0.0035	0.020	J	mg/L	20	7/15/2017 12:52:11 AM	C44245

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:10:00 AM
Lab ID: 1706C54-005 **Matrix:** AQUEOUS **Received Date:** 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	0.0049	0.00017	0.00050		mg/L	1	7/14/2017 12:04:34 AM	D44207
Selenium	0.014	0.0077	0.020	J	mg/L	20	7/15/2017 12:52:11 AM	C44245
Uranium	0.055	0.00025	0.0025	*	mg/L	5	7/15/2017 12:47:03 AM	C44245
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Arsenic	0.0083	0.0015	0.0050		mg/L	5	7/17/2017 9:14:50 AM	32623
Lead	0.025	0.00048	0.0025	*	mg/L	5	7/17/2017 9:14:50 AM	32623
Selenium	0.014	0.0036	0.0050		mg/L	5	7/17/2017 9:14:50 AM	32623
Uranium	0.063	0.00077	0.0025	*	mg/L	5	7/17/2017 9:14:50 AM	32623
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	ND	0.000037	0.00020		mg/L	1	7/3/2017 12:31:31 PM	32605
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	3.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Acenaphthylene	ND	3.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Aniline	ND	3.1	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Anthracene	ND	3.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Azobenzene	ND	4.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Benz(a)anthracene	ND	3.9	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Benzo(a)pyrene	ND	4.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Benzoic acid	9.6	3.9	20	J	µg/L	1	6/30/2017 5:14:14 PM	32481
Benzyl alcohol	ND	4.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Bis(2-ethylhexyl)phthalate	ND	4.8	10		µg/L	1	6/30/2017 5:14:14 PM	32481
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Carbazole	ND	4.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
4-Chloroaniline	ND	3.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2-Chloronaphthalene	ND	3.7	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2-Chlorophenol	ND	7.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Chrysene	ND	3.8	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Di-n-octyl phthalate	ND	4.7	10		µg/L	1	6/30/2017 5:14:14 PM	32481

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:10:00 AM
Lab ID: 1706C54-005
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Dibenzofuran	ND	4.1	10		µg/L	1	6/30/2017 5:14:14 PM	32481
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	6/30/2017 5:14:14 PM	32481
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	6/30/2017 5:14:14 PM	32481
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Diethyl phthalate	ND	4.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Dimethyl phthalate	ND	3.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	6/30/2017 5:14:14 PM	32481
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	6/30/2017 5:14:14 PM	32481
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	6/30/2017 5:14:14 PM	32481
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	6/30/2017 5:14:14 PM	32481
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Fluoranthene	ND	4.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Fluorene	ND	4.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Hexachlorobenzene	ND	3.8	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Hexachlorobutadiene	ND	1.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Hexachloroethane	ND	1.2	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Isophorone	ND	4.4	10		µg/L	1	6/30/2017 5:14:14 PM	32481
1-Methylnaphthalene	ND	3.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2-Methylnaphthalene	ND	3.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2-Methylphenol	ND	3.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
3+4-Methylphenol	ND	3.2	10		µg/L	1	6/30/2017 5:14:14 PM	32481
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Naphthalene	ND	2.9	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2-Nitroaniline	ND	4.9	10		µg/L	1	6/30/2017 5:14:14 PM	32481
3-Nitroaniline	ND	4.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
4-Nitroaniline	ND	4.0	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Nitrobenzene	ND	3.6	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2-Nitrophenol	ND	5.2	10		µg/L	1	6/30/2017 5:14:14 PM	32481
4-Nitrophenol	ND	5.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Pentachlorophenol	ND	4.9	20		µg/L	1	6/30/2017 5:14:14 PM	32481
Phenanthrene	ND	4.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Phenol	ND	3.1	10		µg/L	1	6/30/2017 5:14:14 PM	32481

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:10:00 AM
Lab ID: 1706C54-005
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Pyrene	ND	4.4	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Pyridine	ND	2.3	10		µg/L	1	6/30/2017 5:14:14 PM	32481
1,2,4-Trichlorobenzene	ND	2.1	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2,4,5-Trichlorophenol	ND	5.1	10		µg/L	1	6/30/2017 5:14:14 PM	32481
2,4,6-Trichlorophenol	ND	5.5	10		µg/L	1	6/30/2017 5:14:14 PM	32481
Surr: 2-Fluorophenol	41.5	0	15-98.1		%Rec	1	6/30/2017 5:14:14 PM	32481
Surr: Phenol-d5	35.2	0	15-80.7		%Rec	1	6/30/2017 5:14:14 PM	32481
Surr: 2,4,6-Tribromophenol	67.9	0	15-112		%Rec	1	6/30/2017 5:14:14 PM	32481
Surr: Nitrobenzene-d5	75.5	0	27.2-90.7		%Rec	1	6/30/2017 5:14:14 PM	32481
Surr: 2-Fluorobiphenyl	63.1	0	23.3-85.6		%Rec	1	6/30/2017 5:14:14 PM	32481
Surr: 4-Terphenyl-d14	58.2	0	27.6-107		%Rec	1	6/30/2017 5:14:14 PM	32481
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	170	6.2	100		µg/L	100	6/26/2017 3:27:00 PM	R43806
Toluene	4.7	0.064	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Ethylbenzene	46	0.093	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Methyl tert-butyl ether (MTBE)	2300	24	100		µg/L	100	6/26/2017 3:27:00 PM	R43806
1,2,4-Trimethylbenzene	21	0.11	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,3,5-Trimethylbenzene	2.2	0.087	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,2-Dichloroethane (EDC)	ND	0.40	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Naphthalene	1.7	0.11	2.0	J	µg/L	1	6/23/2017 5:28:00 PM	R43745
1-Methylnaphthalene	0.98	0.16	4.0	J	µg/L	1	6/23/2017 5:28:00 PM	R43745
2-Methylnaphthalene	0.76	0.15	4.0	J	µg/L	1	6/23/2017 5:28:00 PM	R43745
Acetone	18	0.82	10		µg/L	1	6/23/2017 5:28:00 PM	R43745
Bromobenzene	ND	0.14	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Bromodichloromethane	ND	0.18	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Bromoform	ND	0.21	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Bromomethane	ND	0.26	3.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
2-Butanone	ND	1.1	10		µg/L	1	6/23/2017 5:28:00 PM	R43745
Carbon disulfide	ND	0.40	10		µg/L	1	6/23/2017 5:28:00 PM	R43745
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Chloroethane	ND	0.23	2.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Chloroform	ND	0.40	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Chloromethane	ND	0.29	3.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
4-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
cis-1,2-DCE	ND	0.20	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
cis-1,3-Dichloropropene	ND	0.082	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:10:00 AM
Lab ID: 1706C54-005
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
1,2-Dibromo-3-chloropropane	ND	1.4	2.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Dibromochloromethane	ND	0.072	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Dibromomethane	ND	0.091	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,2-Dichlorobenzene	ND	0.090	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,3-Dichlorobenzene	ND	0.15	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,4-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Dichlorodifluoromethane	ND	1.0	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,1-Dichloroethene	ND	0.081	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,2-Dichloropropane	ND	0.10	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
2,2-Dichloropropane	ND	0.16	2.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,1-Dichloropropene	ND	0.093	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Hexachlorobutadiene	ND	0.80	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
2-Hexanone	ND	0.66	10		µg/L	1	6/23/2017 5:28:00 PM	R43745
Isopropylbenzene	1.4	0.051	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
4-Isopropyltoluene	0.16	0.096	1.0	J	µg/L	1	6/23/2017 5:28:00 PM	R43745
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	6/23/2017 5:28:00 PM	R43745
Methylene Chloride	ND	0.11	3.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
n-Butylbenzene	0.54	0.13	3.0	J	µg/L	1	6/23/2017 5:28:00 PM	R43745
n-Propylbenzene	5.0	0.074	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
sec-Butylbenzene	0.94	0.11	1.0	J	µg/L	1	6/23/2017 5:28:00 PM	R43745
Styrene	ND	0.16	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
tert-Butylbenzene	ND	0.10	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,1,1,2-Tetrachloroethane	ND	0.10	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,1,2,2-Tetrachloroethane	ND	0.14	2.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Tetrachloroethene (PCE)	ND	0.13	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
trans-1,3-Dichloropropene	ND	0.22	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,2,3-Trichlorobenzene	ND	0.12	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,2,4-Trichlorobenzene	ND	0.14	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,1,1-Trichloroethane	ND	0.073	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,1,2-Trichloroethane	ND	0.14	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Trichloroethene (TCE)	ND	0.11	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Trichlorofluoromethane	ND	0.18	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
1,2,3-Trichloropropane	ND	0.39	2.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Vinyl chloride	ND	0.18	1.0		µg/L	1	6/23/2017 5:28:00 PM	R43745
Xylenes, Total	3.8	0.32	1.5		µg/L	1	6/23/2017 5:28:00 PM	R43745
Surr: 1,2-Dichloroethane-d4	91.7	0	70-130		%Rec	1	6/23/2017 5:28:00 PM	R43745

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-54
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:10:00 AM
Lab ID: 1706C54-005
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	6/23/2017 5:28:00 PM	R43745
Surr: Dibromofluoromethane	102	0	70-130		%Rec	1	6/23/2017 5:28:00 PM	R43745
Surr: Toluene-d8	93.6	0	70-130		%Rec	1	6/23/2017 5:28:00 PM	R43745

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-55
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:50:00 AM
Lab ID: 1706C54-006
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **JME**	
Diesel Range Organics (DRO)	6.3	0.36	1.0		mg/L	1	6/26/2017 3:20:49 PM	32454
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/26/2017 3:20:49 PM	32454
Surr: DNOP	136	0	72.4-157		%Rec	1	6/26/2017 3:20:49 PM	32454
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	42	2.5	5.0		mg/L	100	6/26/2017 5:15:07 PM	G43790
Surr: BFB	130	0	52.3-138		%Rec	100	6/26/2017 5:15:07 PM	G43790
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	0.22	0.50		mg/L	5	6/27/2017 2:39:26 AM	R43826
Chloride	380	5.0	10		mg/L	20	6/27/2017 2:51:51 AM	R43826
Bromide	1.8	0.073	0.50		mg/L	5	6/27/2017 2:39:26 AM	R43826
Phosphorus, Orthophosphate (As P)	2.1	1.2	2.5	JH	mg/L	5	6/27/2017 2:39:26 AM	R43826
Sulfate	1.7	0.48	2.5	J	mg/L	5	6/27/2017 2:39:26 AM	R43826
Nitrate+Nitrite as N	ND	0.13	1.0		mg/L	5	7/7/2017 5:37:09 PM	R44073
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **pmf**	
Barium	0.56	0.00085	0.0020		mg/L	1	7/5/2017 7:29:08 PM	B44011
Cadmium	ND	0.0010	0.0020		mg/L	1	7/5/2017 7:29:08 PM	B44011
Calcium	110	0.78	10		mg/L	10	7/5/2017 7:30:49 PM	B44011
Chromium	ND	0.0010	0.0060		mg/L	1	7/5/2017 7:29:08 PM	B44011
Copper	ND	0.0032	0.0060		mg/L	1	7/5/2017 7:29:08 PM	B44011
Iron	4.2	0.16	0.20	*	mg/L	10	7/5/2017 7:30:49 PM	B44011
Magnesium	34	0.25	1.0		mg/L	1	7/5/2017 7:29:08 PM	B44011
Manganese	3.7	0.0038	0.020	*	mg/L	10	7/5/2017 7:30:49 PM	B44011
Potassium	ND	0.11	1.0		mg/L	1	7/5/2017 7:29:08 PM	B44011
Silver	ND	0.00088	0.0050		mg/L	1	7/5/2017 7:29:08 PM	B44011
Sodium	380	1.6	10		mg/L	10	7/5/2017 7:30:49 PM	B44011
Zinc	0.0082	0.0011	0.010	J	mg/L	1	7/5/2017 7:29:08 PM	B44011
EPA METHOD 200.7: TOTAL METALS							Analyst: **pmf**	
Barium	0.69	0.00093	0.0020		mg/L	1	7/5/2017 3:52:48 PM	32623
Cadmium	ND	0.00058	0.0020		mg/L	1	7/5/2017 3:52:48 PM	32623
Chromium	0.011	0.0011	0.0060		mg/L	1	7/5/2017 3:52:48 PM	32623
Copper	0.011	0.0017	0.0060		mg/L	1	7/5/2017 3:52:48 PM	32623
Iron	14	0.20	0.40	*	mg/L	20	7/6/2017 4:19:15 PM	32623
Manganese	4.3	0.011	0.020	*	mg/L	10	7/5/2017 3:54:33 PM	32623
Silver	ND	0.00042	0.0050		mg/L	1	7/5/2017 3:52:48 PM	32623
Zinc	0.023	0.0028	0.010		mg/L	1	7/5/2017 3:52:48 PM	32623
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Arsenic	0.0060	0.00018	0.0010		mg/L	1	7/14/2017 12:09:42 AM	D44207

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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-55
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:50:00 AM
Lab ID: 1706C54-006
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **JLF**	
Lead	0.00029	0.00017	0.00050	J	mg/L	1	7/14/2017 12:09:42 AM	D44207
Selenium	0.0056	0.00039	0.0010		mg/L	1	7/14/2017 12:09:42 AM	D44207
Uranium	0.0040	0.000050	0.00050		mg/L	1	7/14/2017 12:09:42 AM	D44207
200.8 ICPMS METALS:TOTAL							Analyst: **JLF**	
Arsenic	0.0071	0.00030	0.0010		mg/L	1	7/14/2017 3:14:10 PM	32623
Lead	0.014	0.00048	0.0025		mg/L	5	7/17/2017 9:19:58 AM	32623
Selenium	0.0041	0.00071	0.0010		mg/L	1	7/14/2017 3:14:10 PM	32623
Uranium	0.0063	0.00077	0.0025		mg/L	5	7/17/2017 9:19:58 AM	32623
EPA METHOD 245.1: MERCURY							Analyst: **MED**	
Mercury	ND	0.000037	0.00020		mg/L	1	7/3/2017 12:33:31 PM	32605
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	3.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Acenaphthylene	ND	3.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Aniline	ND	3.1	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Anthracene	ND	3.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Azobenzene	ND	4.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Benz(a)anthracene	ND	3.9	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Benzo(a)pyrene	ND	4.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Benzo(b)fluoranthene	ND	4.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Benzo(g,h,i)perylene	ND	4.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Benzo(k)fluoranthene	ND	4.4	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Benzoic acid	ND	3.9	20		µg/L	1	6/30/2017 5:42:23 PM	32481
Benzyl alcohol	ND	4.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Bis(2-chloroethoxy)methane	ND	4.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Bis(2-chloroethyl)ether	ND	4.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Bis(2-ethylhexyl)phthalate	6.6	4.8	10	J	µg/L	1	6/30/2017 5:42:23 PM	32481
4-Bromophenyl phenyl ether	ND	4.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Butyl benzyl phthalate	ND	4.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Carbazole	ND	4.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
4-Chloro-3-methylphenol	ND	6.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
4-Chloroaniline	ND	3.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2-Chloronaphthalene	ND	3.7	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2-Chlorophenol	ND	7.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
4-Chlorophenyl phenyl ether	ND	3.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Chrysene	ND	3.8	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Di-n-butyl phthalate	ND	5.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Di-n-octyl phthalate	5.2	4.7	10	J	µg/L	1	6/30/2017 5:42:23 PM	32481

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OW-55
Project: 2017 2nd QTR MKTF OW RW
Collection Date: 6/21/2017 10:50:00 AM
Lab ID: 1706C54-006
Matrix: AQUEOUS
Received Date: 6/22/2017 3:11:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Dibenz(a,h)anthracene	ND	4.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Dibenzofuran	ND	4.1	10		µg/L	1	6/30/2017 5:42:23 PM	32481
1,2-Dichlorobenzene	ND	2.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
1,3-Dichlorobenzene	ND	1.8	10		µg/L	1	6/30/2017 5:42:23 PM	32481
1,4-Dichlorobenzene	ND	2.1	10		µg/L	1	6/30/2017 5:42:23 PM	32481
3,3´-Dichlorobenzidine	ND	3.9	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Diethyl phthalate	ND	4.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Dimethyl phthalate	ND	3.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2,4-Dichlorophenol	ND	5.7	20		µg/L	1	6/30/2017 5:42:23 PM	32481
2,4-Dimethylphenol	ND	2.8	10		µg/L	1	6/30/2017 5:42:23 PM	32481
4,6-Dinitro-2-methylphenol	ND	3.9	20		µg/L	1	6/30/2017 5:42:23 PM	32481
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	6/30/2017 5:42:23 PM	32481
2,4-Dinitrotoluene	ND	4.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2,6-Dinitrotoluene	ND	4.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Fluoranthene	ND	4.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Fluorene	ND	4.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Hexachlorobenzene	ND	3.8	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Hexachlorobutadiene	ND	1.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Hexachlorocyclopentadiene	ND	1.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Hexachloroethane	ND	1.2	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Indeno(1,2,3-cd)pyrene	ND	4.2	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Isophorone	ND	4.4	10		µg/L	1	6/30/2017 5:42:23 PM	32481
1-Methylnaphthalene	17	3.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2-Methylnaphthalene	15	3.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2-Methylphenol	ND	3.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
3+4-Methylphenol	ND	3.2	10		µg/L	1	6/30/2017 5:42:23 PM	32481
N-Nitrosodi-n-propylamine	ND	4.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
N-Nitrosodimethylamine	ND	3.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
N-Nitrosodiphenylamine	ND	3.9	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Naphthalene	33	2.9	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2-Nitroaniline	ND	4.9	10		µg/L	1	6/30/2017 5:42:23 PM	32481
3-Nitroaniline	ND	4.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
4-Nitroaniline	ND	4.0	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Nitrobenzene	ND	3.6	10		µg/L	1	6/30/2017 5:42:23 PM	32481
2-Nitrophenol	ND	5.2	10		µg/L	1	6/30/2017 5:42:23 PM	32481
4-Nitrophenol	ND	5.5	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Pentachlorophenol	ND	4.9	20		µg/L	1	6/30/2017 5:42:23 PM	32481
Phenanthrene	ND	4.3	10		µg/L	1	6/30/2017 5:42:23 PM	32481
Phenol	42	3.1	10		µg/L	1	6/30/2017 5:42:23 PM	32481

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified