AP-64

2013
Annual Report

DATE
March 31, 2014

From: Laura Flores
To: Lowe, Leonard, EMNRD; VonGonten, Glenn, EMNRD
Cc: "Hack Conder"; "Katie Jones"
Subject: ROC - Hobbs F-29 SWD (AP-64) 2013 Annual Groundwater Report
Date: Monday, March 31, 2014 1:36:35 PM
Attachments: ROC - Hobbs F-29 SWD (AP-64) 2013 Annual Groundwater Report.pdf

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Mr. Lowe,

Attached is the 2013 Annual Groundwater Report for Hobbs F-29 SWD (AP-64). Annual Reports are submitted yearly to update the NMOCD about groundwater quality and groundwater recovery, if applicable, for a particular site. This report does not require NMOCD approval; therefore, a flow chart is not included.

If you have any questions or require any additional information, please contact Hack Conder at 575-631-6432.

Thank you,

Laura Flores
Project Manager
Rice Environmental Consulting & Safety (RECS)

Rice Environmental Consulting & Safety
P.O. Box 2948, Hobbs, NM 88241
Phone 575.393.2967

March 31st, 2014

Mr. Leonard Lowe
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: **2013 Annual Groundwater Monitoring Report**
Rice Operating Company – Hobbs SWD System
Hobbs F-29 SWD (AP-64): UL/F sec. 29 T18S R38E

Mr. Lowe:

RICE Operating Company (ROC) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site in the abandoned Hobbs Salt Water Disposal (SWD) system..

On July 6th, 2012, groundwater recovery began from RW-1. Since that time, the system has removed approximately 13,597 bbls, which equated to approximately 545 kg of chloride. The purpose of this pumping program is to determine if groundwater may be restored within a short period of time and assist in the evaluation of groundwater restoration methods. Water removed from RW-1 was utilized for makeup water for 10 lb brine water.

This 2013 Annual Groundwater Monitoring Report contains:

1. A site location map.
2. A map showing well locations.
3. A table presenting all laboratory results and depth to groundwater for each well at the site.
4. Graphs showing the concentrations of chloride and TDS in groundwater over time.
5. The laboratory analytical results for the most recent sampling event.

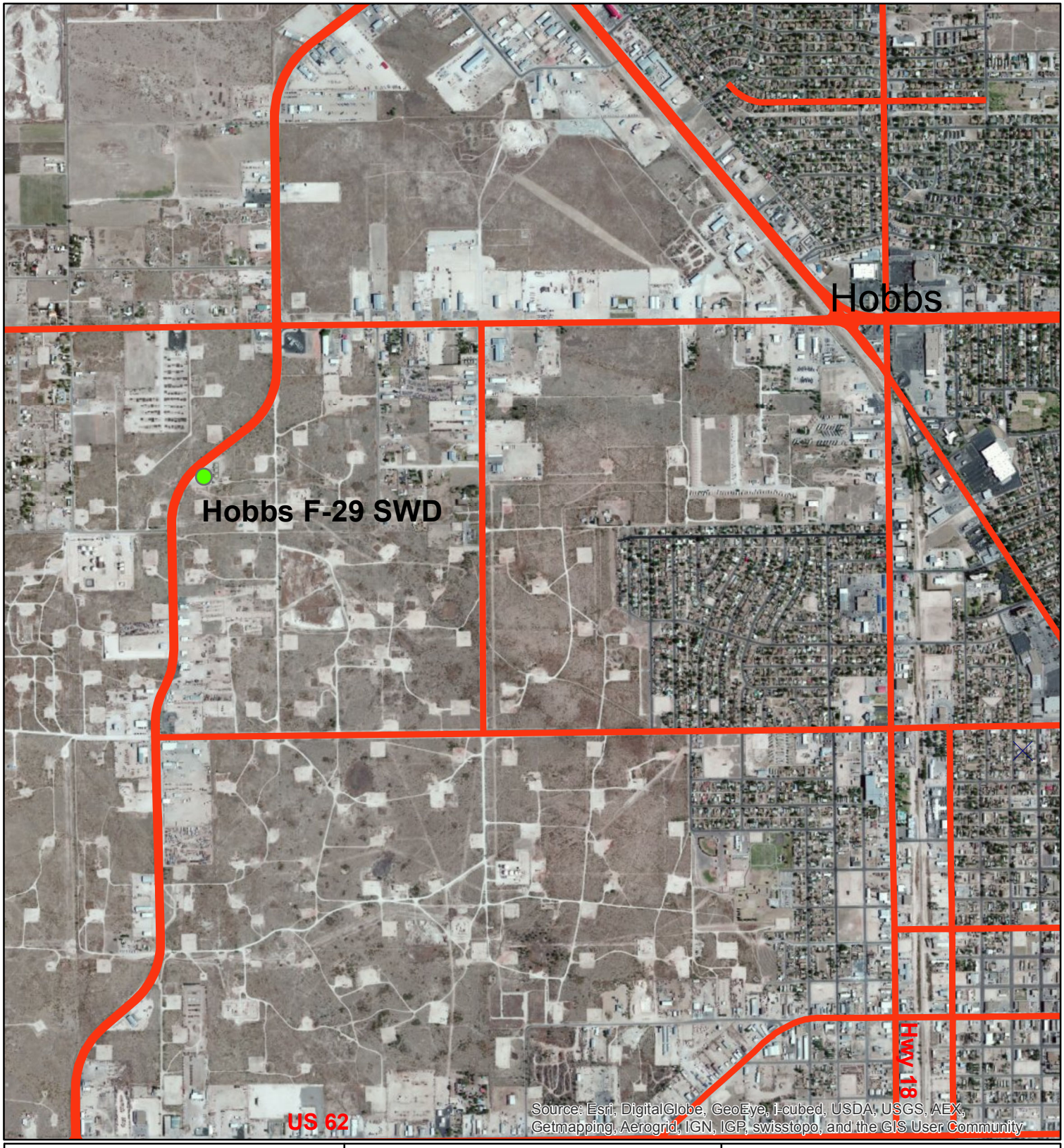
ROC requests to begin monitoring the wells on an annual basis (one sampling events per year). ROC will continue the pumping program throughout the 2014 year and then ROC will evaluate the data for continued pumping efficacy.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,
Rice Environmental Consulting & Safety (RECS)

Laura Flores
Project Manager

Site Map



RICE ENVIRONMENTAL RECS CONSULTING & SAFETY, LLC

Hobbs F-29 SWD

Unit Letter F, Section 29, T18S, R38E

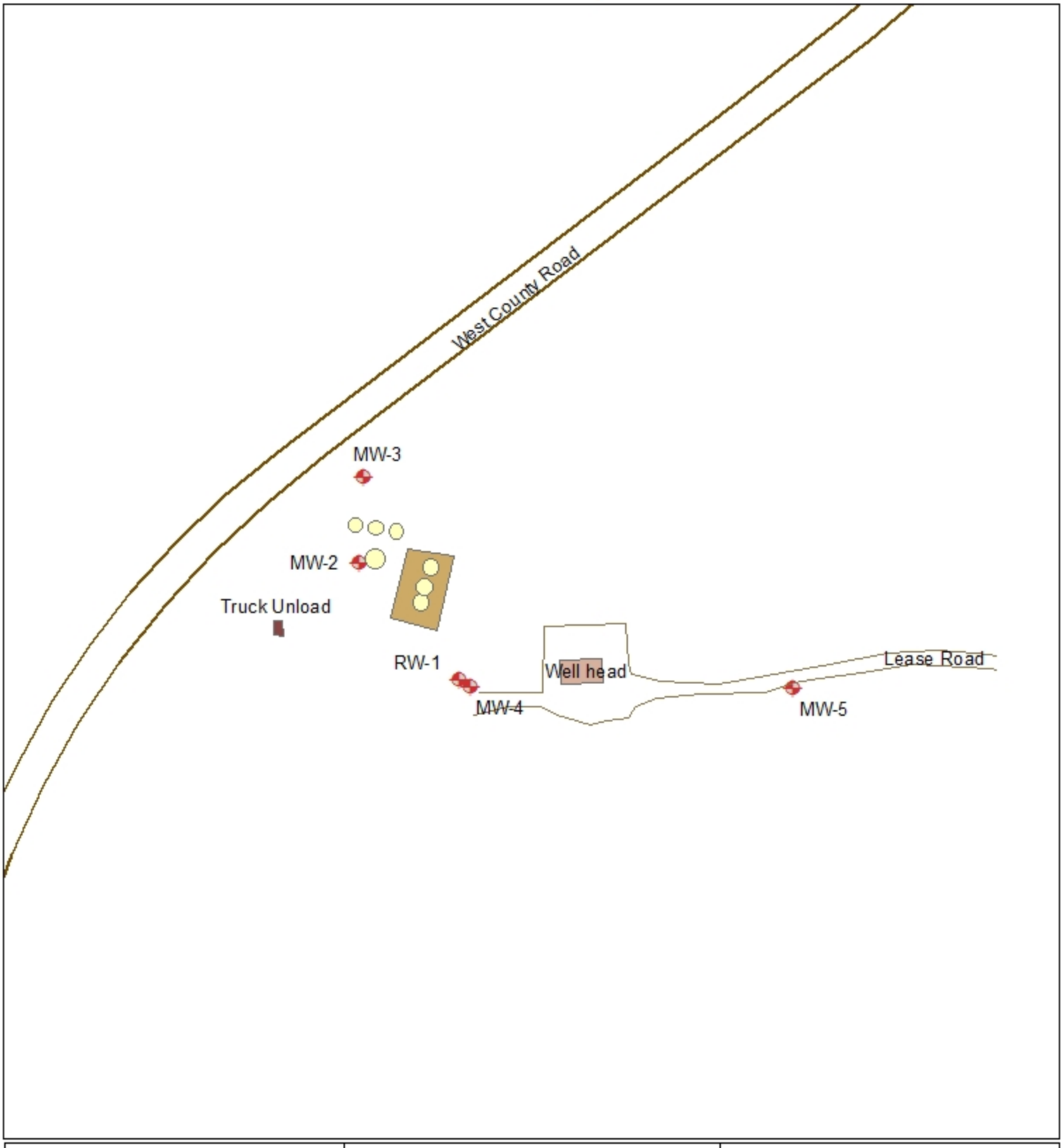
NMOCD Case #: AP-64

N
W E
S

0 850 1,700 3,400 Feet

Drawing date: 3/12/14
Drafted by: L. Flores

Site Map



RICE ENVIRONMENTAL CONSULTING & SAFETY, LLC

RECS

Hobbs F-29 SWD

Unit Letter F, Section 29, T18S, R38E

NMOCD Case #: AP-64

N
W E
S

0 65 130 260
Feet

Drawing date: 2/25/14
Drafted by: L. Flores

Hobbs F-29 SWD (AP-64)

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-2	XXX	XXX	3/21/2000	2564	6660	XXX	XXX	XXX	XXX	XXX
	49	XXX	7/10/2000	1829	3470	<0.002	<0.002	<0.002	<0.006	XXX
	49.26	XXX	9/27/2000	1748	3032	<0.002	<0.002	<0.002	<0.006	XXX
	49.61	XXX	12/12/2000	1027	2586	<0.002	<0.002	<0.002	<0.006	XXX
	XXX	XXX	1/4/2001	308	1114	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	3/16/2001	396	1373	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	3/23/2001	368	1312	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	5/7/2001	365	1272	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	6/8/2001	513	1796	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	8/14/2001	340	1385	XXX	XXX	XXX	XXX	XXX
	51.13	59.41	12/29/2001	XXX	XXX	XXX	XXX	XXX	XXX	XXX
	51.16	59.15	1/4/2002	308	1114	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	6/6/2002	221	XXX	<0.001	<0.001	<0.001	<0.001	135
	52.07	59.93	8/14/2002	186	806	<0.001	<0.001	<0.001	<0.001	144
	52.58	59.82	12/11/2002	172	738	<0.002	<0.002	<0.002	<0.006	106
	52.94	59.76	3/21/2003	230	XXX	<0.001	<0.001	<0.001	<0.001	140
	53.15	59.74	5/28/2003	257	804	<0.001	<0.001	<0.001	<0.001	138
	53.71	69.77	9/22/2003	151	700	<0.001	<0.001	<0.001	<0.001	173
	54.1	59.86	12/18/2003	208	815	<0.002	0.003	<0.002	0.014	71
	54.33	59.89	3/15/2004	186	607	<0.001	<0.001	<0.001	<0.001	103
	XXX	XXX	5/27/2004	213	830	<0.001	<0.001	<0.001	<0.001	138
	54.6	59.8	9/8/2004	248	946	0.00464	0.000412	0.000979	0.001199	129
	54.2	59.8	11/23/2004	139	888	0.00448	<0.001	<0.001	0.000714	125
	53.39	59.8	3/22/2005	214	914	<0.001	<0.001	<0.001	<0.001	196
	53.35	59.8	5/18/2005	223	930	<0.001	<0.001	<0.001	<0.001	131
	53.55	59.8	8/8/2005	210	799	<0.001	<0.001	<0.001	<0.001	130
	53.81	59.8	10/31/2005	185	762	<0.001	<0.001	<0.001	<0.001	100
	53.89	59.8	1/30/2006	198	904	<0.001	<0.001	<0.001	<0.001	89.4
	53.91	59.8	5/1/2006	212	904	<0.001	<0.001	<0.001	<0.001	91.3
	54.13	59.8	10/16/2006	258	1040	<0.001	j[0.000790]	j[0.000356]	j[0.000940]	116
	54.08	60.05	2/5/2007	299	908	<0.001	<0.001	<0.001	<0.001	112
	54.17	60.05	5/16/2007	236	898	<0.001	<0.001	<0.001	<0.001	102
	54.37	60.05	7/31/2007	272	1040	<0.001	<0.001	<0.001	0.0033	41.9
	54.43	60.05	10/18/2007	292	1047	<0.001	<0.001	<0.001	<0.003	113
	54.19	60.05	2/18/2008	300	1040	<0.002	<0.002	<0.002	<0.006	132

XXX: Not Recorded or Not Analyzed

j: Result Below Detection Limit

MW-2	54.53	60.05	4/25/2008	320	1070	<0.002	<0.002	<0.002	<0.006	185
	54.69	60.05	7/24/2008	172	773	<0.001	<0.001	<0.001	<0.003	104
	54.89	60.05	11/12/2008	296	1130	<0.001	<0.001	<0.001	<0.003	131
	54.97	59.98	2/3/2009	248	1100	XXX	XXX	XXX	XXX	109
	55.05	59.98	5/4/2009	344	1330	XXX	XXX	XXX	XXX	120
	55.21	59.98	8/28/2009	280	1220	XXX	XXX	XXX	XXX	102
	55.33	59.98	10/27/2009	240	1000	XXX	XXX	XXX	XXX	105
	55.53	59.98	3/12/2010	312	1290	XXX	XXX	XXX	XXX	132
	55.52	59.98	6/10/2010	260	1100	XXX	XXX	XXX	XXX	111
	55.55	59.98	8/31/2010	288	1080	XXX	XXX	XXX	XXX	115
	55.68	59.98	12/6/2010	240	1010	XXX	XXX	XXX	XXX	104
	55.76	59.98	3/11/2011	256	1080	XXX	XXX	XXX	XXX	109
	55.89	59.98	6/17/2011	404	1350	XXX	XXX	XXX	XXX	121
	55.89	59.98	9/19/2011	560	1720	XXX	XXX	XXX	XXX	143
	56.26	59.98	12/16/2011	480	1350	XXX	XXX	XXX	XXX	226
	56.39	59.98	3/16/2012	308	1100	XXX	XXX	XXX	XXX	47.7
	56.67	59.98	6/18/2012	148	886	XXX	XXX	XXX	XXX	94
	56.98	59.98	9/7/2012	200	1130	XXX	XXX	XXX	XXX	130
	56.56	59.98	12/11/2012	408	1350	XXX	XXX	XXX	XXX	217
	56.68	59.98	3/8/2013	512	1300	XXX	XXX	XXX	XXX	67
	56.96	59.98	6/18/2013	164	1010	XXX	XXX	XXX	XXX	114
	57.74	59.98	9/17/2013	356	1060	XXX	XXX	XXX	XXX	68.2
	57.93	59.98	12/13/2013	440	1380	XXX	XXX	XXX	XXX	187

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-3	XXX	XXX	1/4/2001	136	1013	XXX	XXX	XXX	XXX	XXX
	51.2	60.95	12/29/2001	XXX	XXX	XXX	XXX	XXX	XXX	XXX
	51.24	53.5	1/4/2002	136	1013	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	5/24/2002	137	917	<0.001	<0.001	<0.001	<0.001	158
	52.12	66.33	8/14/2002	151	998	<0.001	<0.001	<0.001	<0.001	284
	52.64	64.65	12/11/2002	136	1069	0.005	<0.002	<0.002	<0.006	201
	52.98	64.47	3/21/2003	133	XXX	<0.001	<0.001	<0.001	<0.001	266
	53.7	62.58	5/28/2003	301	1120	<0.001	<0.001	<0.001	<0.001	240
	53.74	63.15	9/22/2003	120	881	<0.001	<0.001	<0.001	<0.001	238
	54.35	63.08	3/15/2004	115	1140	<0.001	<0.001	<0.001	<0.001	248
	XXX	XXX	5/27/2004	111	810	<0.001	<0.001	<0.001	<0.001	171
	54.6	62.7	9/8/2004	230	937	<0.001	<0.001	<0.001	<0.001	186

XXX: Not Recorded or Not Analyzed

j: Result Below Detection Limit

MW-3	54.4	62.7	11/23/2004	115	925	<0.001	<0.001	<0.001	<0.001	183
	54.59	62.43	12/18/2004	124	852	<0.002	<0.002	<0.002	<0.006	73
	53.4	62.7	3/22/2005	162	796	<0.001	<0.001	<0.001	<0.001	126
	53.38	62.7	5/18/2005	272	1050	<0.001	<0.001	<0.001	<0.001	92
	53.9	62.7	8/8/2005	203	945	<0.001	<0.001	<0.001	<0.001	122
	53.57	62.7	10/31/2005	113	732	<0.001	<0.001	<0.001	<0.001	116
	53.92	62.7	1/30/2006	97.3	650	<0.001	<0.001	<0.001	j[0.000562]	120
	53.98	62.7	5/1/2006	85.3	704	<0.001	<0.001	<0.001	<0.001	111
	54.18	62.7	10/16/2006	88.9	616	<0.001	j[0.000950]	j[0.000404]	0.00105	135
	54.1	63.1	2/5/2007	98.3	572	<0.001	<0.001	<0.001	<0.001	128
	54.2	63.1	5/16/2007	90.6	542	<0.001	<0.001	<0.001	<0.001	111
	54.23	63.1	7/31/2007	105	590	<0.001	<0.001	<0.001	<0.002	76.5
	54.48	63.1	10/18/2007	100	611	<0.001	<0.001	<0.001	<0.003	120
	54.23	63.07	2/18/2008	104	607	<0.002	<0.002	<0.002	<0.006	144
	54.55	63.07	4/25/2008	244	918	<0.002	<0.002	<0.002	<0.006	172
	54.86	63.07	7/24/2008	80	584	<0.001	<0.001	<0.001	<0.003	104
	54.93	63.07	11/12/2008	104	708	<0.001	<0.001	<0.001	<0.003	143
	54.99	62.65	2/3/2009	104	744	XXX	XXX	XXX	XXX	127
	55.08	62.65	5/4/2009	108	705	XXX	XXX	XXX	XXX	135
	55.24	62.65	8/28/2009	108	703	XXX	XXX	XXX	XXX	120
	55.3	62.65	10/27/2009	108	623	XXX	XXX	XXX	XXX	118
	55.57	62.65	3/12/2010	112	653	XXX	XXX	XXX	XXX	140
	55.54	62.65	6/10/2010	112	718	XXX	XXX	XXX	XXX	133
	55.58	62.65	8/31/2010	112	657	XXX	XXX	XXX	XXX	115
	55.69	62.65	12/6/2010	116	687	XXX	XXX	XXX	XXX	130
	55.77	62.65	3/21/2011	116	582	XXX	XXX	XXX	XXX	114
	55.85	62.65	6/17/2011	124	609	XXX	XXX	XXX	XXX	125
	55.87	62.65	9/19/2011	116	622	XXX	XXX	XXX	XXX	146
	56.05	62.65	12/16/2011	168	647	XXX	XXX	XXX	XXX	89.1
	56.18	62.65	3/16/2012	168	767	XXX	XXX	XXX	XXX	67.9
	56.42	62.65	6/18/2012	120	686	XXX	XXX	XXX	XXX	120
	56.73	62.65	9/7/2012	120	771	XXX	XXX	XXX	XXX	137
	56.39	62.65	12/11/2012	276	863	XXX	XXX	XXX	XXX	137
	56.51	62.65	3/8/2013	152	858	XXX	XXX	XXX	XXX	198
	57.29	62.65	6/18/2013	124	827	XXX	XXX	XXX	XXX	146
	57.59	62.65	9/17/2013	56	531	XXX	XXX	XXX	XXX	128
	57.8	62.65	12/13/2013	188	722	XXX	XXX	XXX	XXX	102

XXX: Not Recorded or Not Analyzed

j: Result Below Detection Limit

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-4	XXX	XXX	1/4/2001	464	1781	XXX	XXX	XXX	XXX	XXX
	51.51	57.91	12/29/2001	XXX	XXX	XXX	XXX	XXX	XXX	XXX
	51.56	53.74	1/4/2002	464	1781	XXX	XXX	XXX	XXX	XXX
	XXX	XXX	5/24/2002	461	1520	<0.001	<0.001	<0.001	<0.001	286
	52.5	65.3	8/14/2002	416	1660	<0.001	<0.001	<0.001	<0.001	303
	53	63.59	12/11/2002	336	1302	0.003	<0.002	<0.002	<0.006	170
	53.41	63.31	3/21/2003	346	XXX	<0.001	<0.001	<0.001	<0.001	289
	53.25	63.78	5/28/2003	124	742	<0.001	<0.001	<0.001	<0.001	269
	54.21	62.46	9/22/2003	425	1640	<0.001	<0.001	<0.001	<0.001	271
	54.12	63.11	12/18/2003	660	1902	<0.002	<0.002	<0.002	<0.006	123
	54.84	62.55	3/15/2004	452	1510	<0.001	<0.001	<0.001	<0.001	290
	XXX	XXX	5/27/2004	461	1600	<0.001	<0.001	<0.001	<0.001	174
	54.8	62.3	9/8/2004	372	1300	<0.001	<0.001	<0.001	<0.001	260
	54.4	62.3	11/23/2004	401	1550	<0.001	<0.001	<0.001	<0.001	217
	53.76	62.3	3/22/2005	392	1220	<0.001	<0.001	<0.001	<0.001	196
	53.78	62.3	5/18/2005	336	1230	<0.001	<0.001	<0.001	<0.001	169
	53.98	62.3	8/8/2005	370	1230	<0.001	<0.001	<0.001	<0.001	171
	53.82	62.3	10/31/2005	411	1560	<0.001	J[0.000774]	J[0.000385	J[0.000842]	156
	54.31	62.3	1/30/2006	523	1780	<0.001	<0.001	j[0.000332]	j[0.001064]	182
	54.36	62.3	5/1/2006	501	1800	<0.001	<0.001	<0.001	<0.001	144
	54.53	57.52	10/16/2006	683	2570	<0.001	<0.001	<0.001	<0.001	284
	54.52	57.43	2/5/2007	653	1750	<0.001	<0.001	<0.001	<0.001	289
	54.68	61.05	6/1/2007	668	2060	<0.001	<0.001	<0.001	<0.001	254
	54.83	61.05	7/31/2007	548	2380	<0.001	<0.001	<0.001	<0.002	248
	54.9	61.05	10/18/2007	440	1394	<0.001	<0.001	<0.001	<0.003	211
	54.71	61.02	2/18/2008	508	1680	<0.002	<0.002	<0.002	<0.002	186
	57.57	72.3	4/25/2008	670	1960	<0.002	<0.002	<0.002	<0.006	304
	57.88	72.3	7/24/2008	590	1950	<0.001	<0.001	<0.001	<0.003	350
	58.11	72.3	11/12/2008	476	1570	<0.001	<0.001	<0.001	<0.003	289
	58.25	72.01	2/3/2009	610	2110	XXX	XXX	XXX	XXX	283
	58.31	72.01	5/4/2009	640	2060	XXX	XXX	XXX	XXX	280
	58.46	72.01	8/28/2009	780	2500	XXX	XXX	XXX	XXX	276
	58.56	72.01	10/27/2009	800	2530	XXX	XXX	XXX	XXX	318
	58.76	72.01	3/12/2010	580	1680	XXX	XXX	XXX	XXX	240
	58.77	72.01	6/10/2010	470	1440	XXX	XXX	XXX	XXX	160
	58.78	72.01	8/31/2010	840	2350	XXX	XXX	XXX	XXX	310

XXX: Not Recorded or Not Analyzed

j: Result Below Detection Limit

MW-4	58.91	72.01	12/6/2010	730	2280	XXX	XXX	XXX	XXX	317
	58.98	72.02	3/11/2011	700	2310	XXX	XXX	XXX	XXX	281
	59.14	72.02	6/17/2011	700	2350	XXX	XXX	XXX	XXX	303
	59.35	72.02	9/19/2011	540	1960	XXX	XXX	XXX	XXX	252
	59.52	72.02	12/16/2011	580	1960	XXX	XXX	XXX	XXX	260
	59.68	72.02	3/16/2012	610	2050	XXX	XXX	XXX	XXX	327
	59.91	72.02	6/18/2012	550	1940	XXX	XXX	XXX	XXX	245
	60.88	72.02	9/7/2012	550	2090	XXX	XXX	XXX	XXX	229
	60.41	72.02	12/10/2012	568	1970	XXX	XXX	XXX	XXX	242
	60.54	72.02	3/8/2013	600	1980	XXX	XXX	XXX	XXX	276
	60.77	72.02	6/18/2013	410	1750	XXX	XXX	XXX	XXX	273
	61.12	72.02	9/17/2013	530	1870	XXX	XXX	XXX	XXX	208
	61.32	72.02	12/13/2013	530	1480	XXX	XXX	XXX	XXX	192

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
MW-5	57.02	74.4	10/18/2007	268	983	<0.001	<0.001	<0.001	<0.003	138
	56.54	74.4	2/18/2008	316	1110	<0.002	<0.002	<0.002	<0.006	168
	56.9	74.4	4/25/2008	484	1530	<0.002	<0.002	<0.002	<0.006	262
	57.28	74.4	7/24/2008	356	1250	<0.001	<0.001	<0.001	<0.003	172
	57.46	74.4	11/12/2008	324	1190	<0.001	<0.001	<0.001	<0.003	186
	57.53	75.27	2/3/2009	312	1080	XXX	XXX	XXX	XXX	164
	57.61	75.27	5/4/2009	328	1180	XXX	XXX	XXX	XXX	172
	57.79	75.27	8/28/2009	308	1080	XXX	XXX	XXX	XXX	138
	57.91	75.27	10/27/2009	320	1040	XXX	XXX	XXX	XXX	160
	58.06	75.27	3/12/2010	328	1040	XXX	XXX	XXX	XXX	180
	58.09	75.27	6/10/2010	332	1090	XXX	XXX	XXX	XXX	168
	58.11	75.27	8/31/2010	272	1070	XXX	XXX	XXX	XXX	172
	58.21	75.27	12/6/2010	296	944	XXX	XXX	XXX	XXX	179
	58.28	75.27	3/11/2011	308	952	XXX	XXX	XXX	XXX	156
	58.42	75.27	6/17/2011	244	843	XXX	XXX	XXX	XXX	154
	58.64	75.27	9/19/2011	240	802	XXX	XXX	XXX	XXX	159
	58.8	75.27	12/16/2011	220	771	XXX	XXX	XXX	XXX	166
	58.93	75.27	3/16/2012	252	1010	XXX	XXX	XXX	XXX	55.4
	59.17	75.27	6/18/2012	224	828	XXX	XXX	XXX	XXX	115
	59.4	75.27	9/7/2012	216	807	XXX	XXX	XXX	XXX	111
	59.4	75.27	9/7/2012	216	807	XXX	XXX	XXX	XXX	111
	59.62	75.27	12/10/2012	292	970	XXX	XXX	XXX	XXX	136

XXX: Not Recorded or Not Analyzed

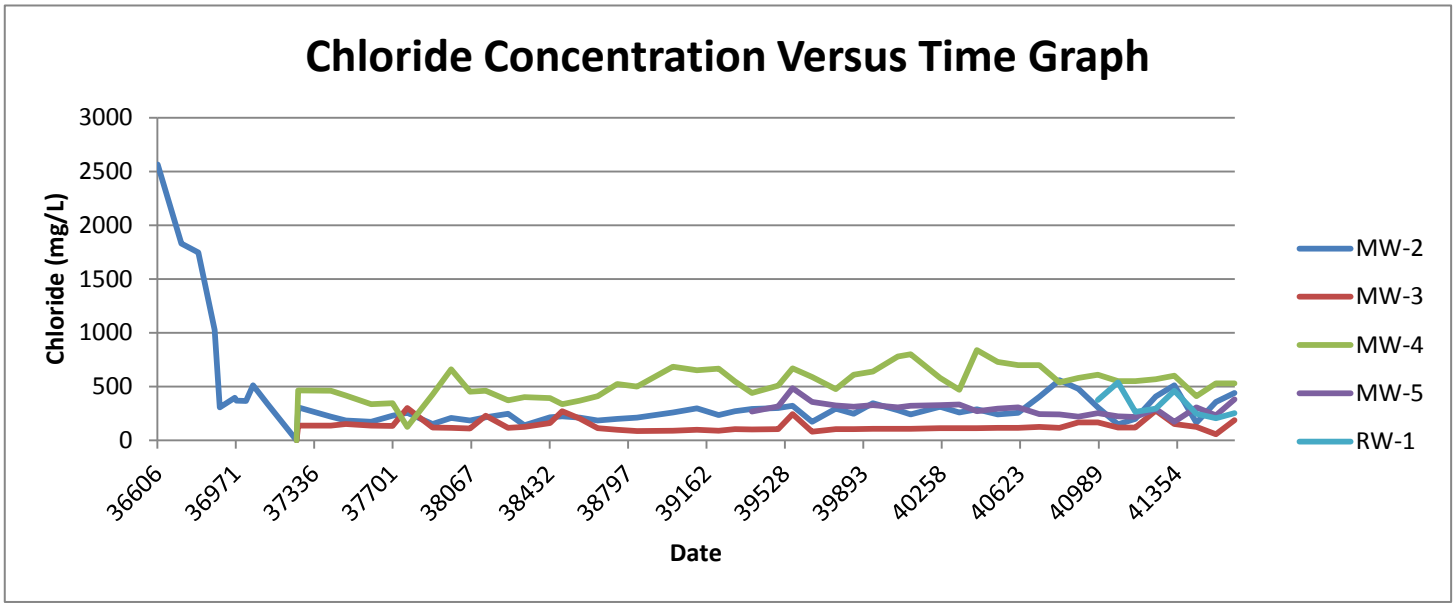
j: Result Below Detection Limit

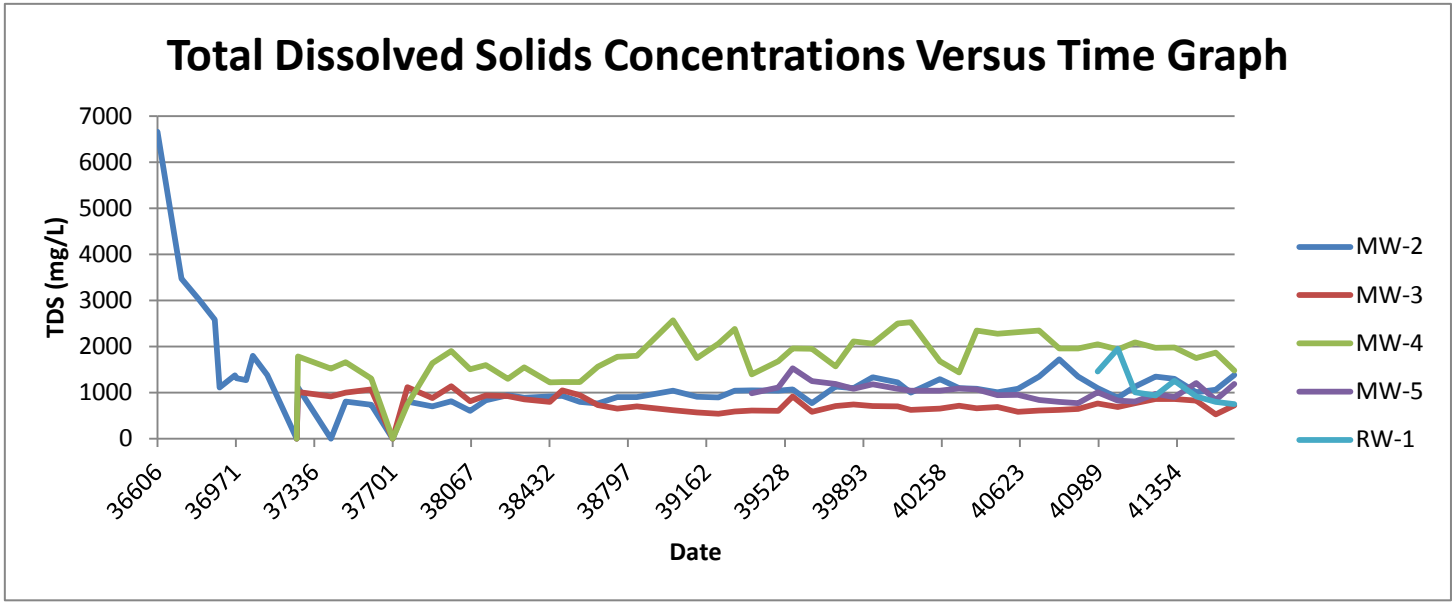
MW-5	59.73	75.27	3/8/2013	172	904	XXX	XXX	XXX	XXX	204
	59.96	75.27	6/18/2013	308	1210	XXX	XXX	XXX	XXX	164
	60.18	75.27	9/17/2013	232	842	XXX	XXX	XXX	XXX	115
	60.52	75.27	12.12.13	380	1190	XXX	XXX	XXX	XXX	192

MW	Depth to Water	Total Depth	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
				(mg/L)						
RW-1	59.52	105.42	3/16/2012	376	1460	XXX	XXX	XXX	XXX	212
	Pump In The Hole	105.42	6/18/2012	540	1950	XXX	XXX	XXX	XXX	230
	Pump In The Hole	105.42	9/7/2012	264	1010	XXX	XXX	XXX	XXX	113
	Pump in the Hole	105.42	12/10/2012	296	938	XXX	XXX	XXX	XXX	132
	Pump in the Hole	105.42	3/8/2013	460	1260	XXX	XXX	XXX	XXX	108
	XXX	105.42	6/18/2013	248	915	XXX	XXX	XXX	XXX	119
	XXX	105.42	9/18/2013	204	797	XXX	XXX	XXX	XXX	112
	XXX	105.42	12/13/2013	252	751	XXX	XXX	XXX	XXX	140

XXX: Not Recorded or Not Analyzed

j: Result Below Detection Limit


Chloride Concentration Versus Time Graph
Chloride (mg/L)
3000
2500
2000
1500
1000
500
0
36606
36971
37336
37701
38067
38432
38797
39162
39528
39893
40258
40623
40989
41354
Date
MW-2
MW-3
MW-4
MW-5
RW-1


Total Dissolved Solids Concentrations Versus Time Graph
TDS (mg/L)
7000
6000
5000
4000
3000
2000
1000
0
36606
36971
37336
37701
38067
38432
38797
39162
39528
39893
40258
40623
40989
41354
Date
MW-2
MW-3
MW-4
MW-5
RW-1

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

December 18, 2013

Hack Conder

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: HOBBS F-29 SWD

Enclosed are the results of analyses for samples received by the laboratory on 12/13/13 15:16.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Rice Operating Company
Hack Conder
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	12/13/2013	Sampling Date:	12/13/2013
Reported:	12/18/2013	Sampling Type:	Water
Project Name:	HOBBS F-29 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T18S-R38E-SEC29 F-LEA CTY., NM		

Sample ID: MONITOR WELL #2 (H303034-01)

Chloride, SM4500Cl-B **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**440**	4.00	12/17/2013	ND	100	100	100	3.92	

Sulfate 375.4 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**187**	25.0	12/17/2013	ND	21.2	106	20.0	10.8	

TDS 160.1 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1380**	5.00	12/18/2013	ND	243	101	240	2.49	

Sample ID: MONITOR WELL #3 (H303034-02)

Chloride, SM4500Cl-B **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**188**	4.00	12/17/2013	ND	100	100	100	3.92	

Sulfate 375.4 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**102**	25.0	12/17/2013	ND	21.2	106	20.0	10.8	

TDS 160.1 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**722**	5.00	12/18/2013	ND	243	101	240	2.49	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Rice Operating Company
Hack Conder
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	12/13/2013	Sampling Date:	12/13/2013
Reported:	12/18/2013	Sampling Type:	Water
Project Name:	HOBBS F-29 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T18S-R38E-SEC29 F-LEA CTY., NM		

Sample ID: MONITOR WELL #4R (H303034-03)

Chloride, SM4500Cl-B **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**530**	4.00	12/17/2013	ND	100	100	100	3.92	

Sulfate 375.4 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**192**	50.0	12/17/2013	ND	21.2	106	20.0	10.8	

TDS 160.1 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1480**	5.00	12/18/2013	ND	243	101	240	2.49	

Sample ID: MONITOR WELL #5 (H303034-04)

Chloride, SM4500Cl-B **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**380**	4.00	12/17/2013	ND	100	100	100	3.92	

Sulfate 375.4 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**192**	25.0	12/17/2013	ND	21.2	106	20.0	10.8	

TDS 160.1 **mg/L** **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**1190**	5.00	12/18/2013	ND	243	101	240	2.49	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Rice Operating Company
Hack Conder
112 W. Taylor
Hobbs NM, 88240
Fax To: (575) 397-1471

Received:	12/13/2013	Sampling Date:	12/13/2013
Reported:	12/18/2013	Sampling Type:	Water
Project Name:	HOBBS F-29 SWD	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	T18S-R38E-SEC29 F-LEA CTY., NM		

Sample ID: RECOVERY WELL #1 (H303034-05)

Chloride, SM4500Cl-B mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	**252**	4.00	12/17/2013	ND	100	100	100	3.92	

Sulfate 375.4 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	**140**	25.0	12/17/2013	ND	21.2	106	20.0	10.8	

TDS 160.1 mg/L **Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	**751**	5.00	12/18/2013	ND	243	101	240	2.49	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

101 East Marland - Hobbs, New Mexico 88240
Tel (575) 393-2326
Fax (575) 393-2476

Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # _____

Company Name: RICE Operating Company	BILL TO Company: RICE Operating Company — PO#
Project Manager: Hack Conder	Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240
Address: (Street, City, Zip) 122 W Taylor Street ~ Hobbs, New Mexico 88240	Phone#: (575) 393-9174 — Fax#: (575)397-1471
Phone #: (575) 393-9174	Fax #: (575) 397-1471
Project #:	Project Name: Hobbs F-29 SWD
Project Location: T18S-R38E-Sec29 F ~ Lea County - New Mexico	Sampler Signature: Rozanne Johnson (575)631-9310 rozanne@valornet.com

LAB # (LAB USE ONLY) 1303034	FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL (2 40ml VOA)	HNO_3	$NaHSO_4$	H_2SO_4	ICE (1-1Liter HDPE)	NONE	SAMPLING: DATE (2013)	TIME
1	Monitor Well #2	G	1	X								1		12/13	10:50
2	Monitor Well #3	G	1	X								1		12/13	12:00
3	Monitor Well #4r	G	1	X								1		12/13	13:20
4	Monitor Well #5	G	1	X								1		12/12	15:15
5	Recovery Well #1	G	1	X								1		12/13	9:10

ANALYSIS REQUEST
(Circle or Specify Method No.)

MTBE 8021B/602	BTEX 8021B/602	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	PCB's 8082/608	Pesticides 8081A/608	BOD, TSS, pH	Moisture Content	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	Sulfates	Total Dissolved Solids	Chlorides	Turn Around Time ~ 24 Hours
																		X	X	X	
																		X	X	X	
																		X	X	X	
																		X	X	X	
																		X	X	X	

Relinquished by: Rozanne Johnson — Date: 12/13/2013 — Time: 15:15
Received by: — Date: — Time:

Relinquished by: — Date: — Time:
Received By: (Laboratory Staff) — Date: 12/13/2013 — Time: 15:16

Delivered By: (Circle One) Sampler - UPS - Bus - Other:

Sample Condition: Cool: Yes [X] No [ ] — Intact: Yes [ ] No [ ]

CHECKED BY: (Initials)

#54

Phone Results: [ ] Yes [ ] No
Fax Results: [ ] Yes [ ] No Additional Fax Number:

REMARKS:

Email Results to: hconder@riceswd.com
lweinheimer@rice-ecs.com
kjones@riceswd.com
rozanne11@windstream.net