

AP - 59

ANNUAL MONITORING REPORT

YEAR(S):
2009

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

April 8, 2010

Edward J. Hansen
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: 2009 Annual Ground Water Monitoring Report
Vacuum F-35 SWD, Sec 35, T17S, R35E, Unit "F", and
Vacuum G-35 SWD, Sec 35, T17S, R35E, Unit "G"
NMOCD Case #: AP-59

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Environmental Bureau
Oil Conservation Division

Mr. Hansen,

R.T. Hicks Consultants, Ltd is pleased to submit this 2009 Annual Ground Water Monitoring Report for the F-35 & G-35 SWD site located in the Vacuum Salt Water Disposal System (SWD). This report contains:

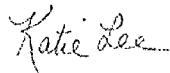
1. A table presenting all laboratory results and depth to ground water for each well at the site.
2. Graphs showing the concentration of chloride and TDS in ground water over time.

An Updated Abatement Plan Amendment Proposal was submitted to NMOCD on January 29, 2010. The AP Amendment Proposal is pending NMOCD review and quarterly ground water monitoring continues at the site.

ROC is the service provider (agent) for the Vacuum Salt Water Disposal System and has no ownership of any portion of pipeline, well or facility. A consortium of oil producers who own the Vacuum SWD System (System Parties) provide all operating capital on a percentage ownership/ usage basis. Major projects require System Parties' authorization for expenditures (AFE); approval and work begins as funds are received.

Thank you for your consideration. If you have any questions, please contact us at 505-266-5004, or Hack Conder at Rice Operating Company, 575-393-9174.

Sincerely,
R.T. Hicks Consultants



Katie Lee
Project Scientist

Copy: Hack Conder, Rice Operating Company

Vacuum F-35, NMOCD Case #: AP-59

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene (mg/L)	Total Xylenes	Sulfate
1	58	1/10/2002	5200	9425	0.05	0.053	0.05	0.09	5
1	XXX	5/15/2002	3720	7050	0.744	0.207	0.51	0.309	3.2
1	XXX	8/19/2002	3630	6040	0.705	0.172	0.112	0.076	10.7
1	XXX	11/11/2002	3720	6020	1.21	0.343	0.835	0.431	2.8
1	XXX	2/28/2003	2200	4040	0.909	0.84	0.321	0.124	26.2
1	XXX	6/5/2003	2300	4180	0.632	0.134	0.061	0.067	20.3
1	XXX	8/21/2003	2060	4000	0.617	0.36	0.202	0.192	4.9
1	XXX	11/19/2003	2000	3760	0.797	0.301	0.264	0.248	5.1
1	58.2	2/18/2004	1819	3932	0.349	0.038	0.121	0.027	0.19
1	58.5	5/27/2004	1759	4008	0.726	0.176	0.268	0.215	8.7
1	58.2	9/7/2004	1040	3000	0.429	0.221	0.143	0.2247	19.9
1	57.81	11/24/2004	1260	2740	0.0489	0.313	0.209	0.2507	51
1	57.18	3/21/2005	1220	2210	2.2	1.61	0.848	1.283	110
1	XXX	5/11/2005	1490	2970	686	451	374	176.2	24.6
1	58.4	8/15/2005	1340	2890	0.819	0.393	0.666	0.584	69.5
1	57.45	10/25/2005	1080	2540	0.779	0.243	0.394	0.3062	72.7
1	57.38	1/23/2006	886	2080	0.447	0.222	0.28	0.3006	88.2
1	57.58	4/25/2006	1420	3040	0.227	0.0956	0.174	0.1614	62.5
1	XXX	10/24/2006	1460	3190	0.462	0.489	0.23	0.745	45.2
1	XXX	1/9/2007	1510	2980	0.486	0.577	0.185	0.333	67.2
1	XXX	5/23/2007	1500	2850	0.557	0.387	0.323	0.681	44.4
1	XXX	9/19/2007	1380	2902	0.902	0.706	0.582	1.14	23.2
1	XXX	11/19/2007	1260	2642	0.719	0.203	0.429	0.665	44.2
1	XXX	2/15/2008	1240	2650	0.305	0.099	0.218	0.563	49.7
1	58.38	6/3/2008	1460	2840	<0.002	<0.002	<0.002	<0.006	25.4
1	XXX	7/28/2008	1120	2510	0.051	0.023	0.066	0.172	35
1	59.12	10/23/2008	1150	2580	0.193	0.013	0.232	0.526	27
1	XXX	1/28/2009	1150	2440	0.431	0.044	0.332	0.362	16.8
1	XXX	4/28/2009	980	1970	0.26	0.038	0.234	0.282	15.2
1	XXX	8/5/2009	740	1660	0.063	0.024	0.116	0.236	18.7
1	XXX	10/26/2009	940	1890	0.034	0.019	0.136	0.177	15.6

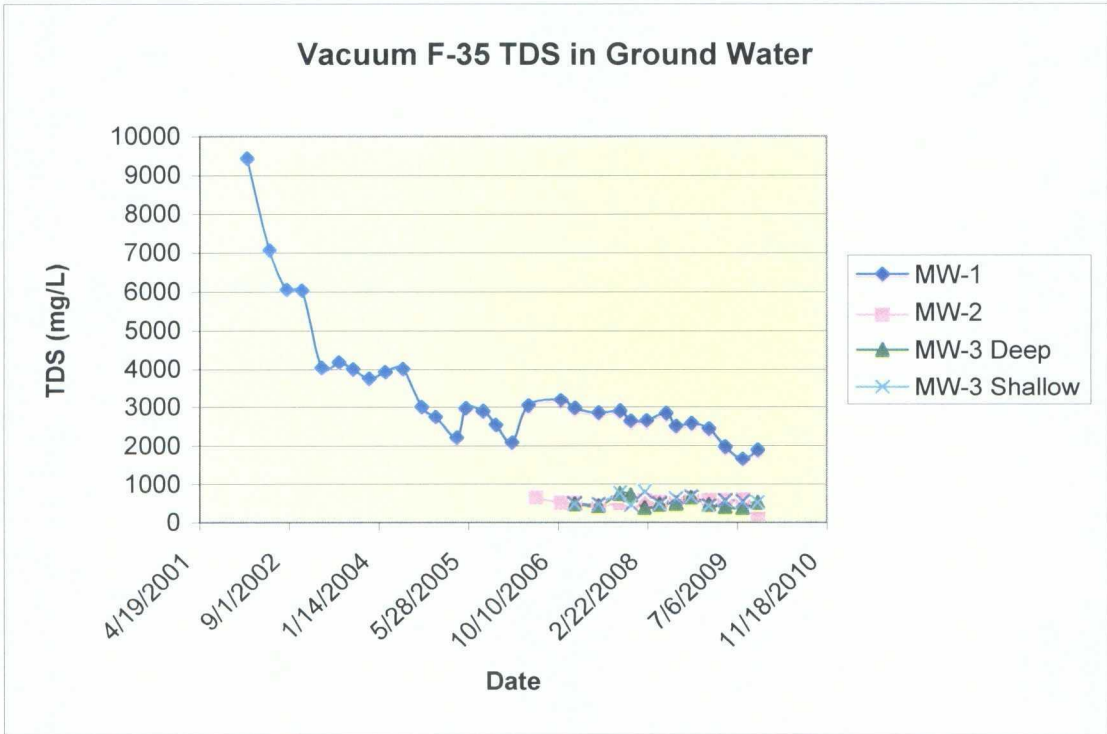
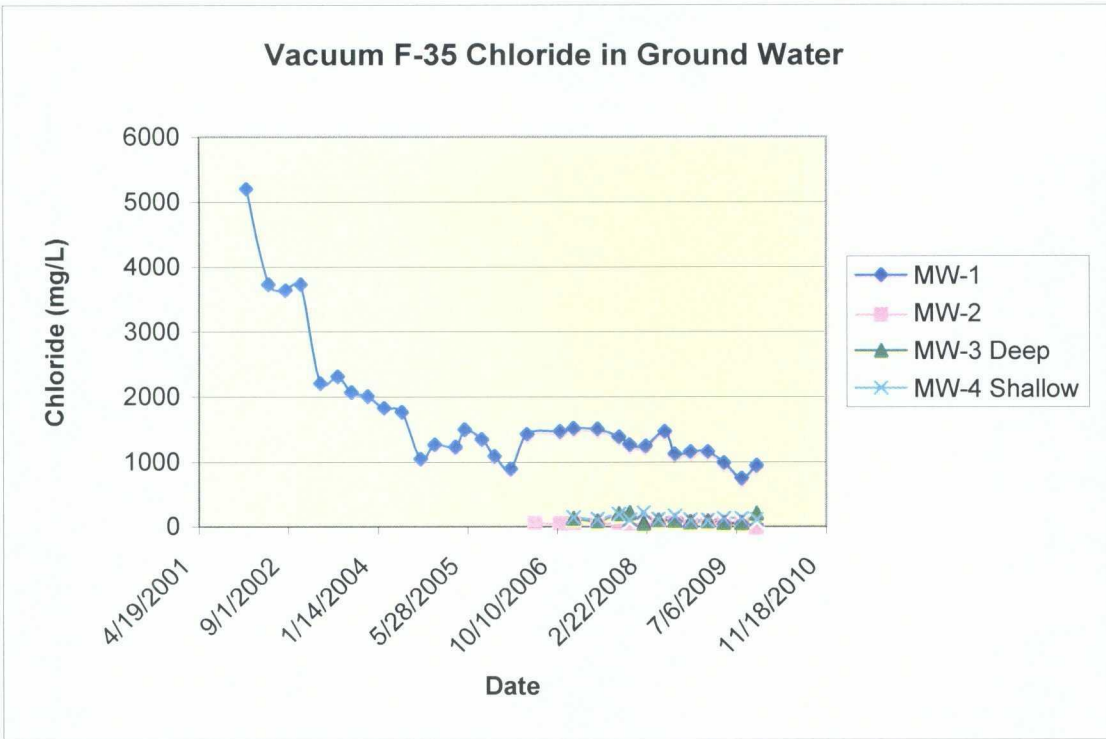
XXX: Not Recorded or Not Analyzed with NMOCD Permission

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	(mg/L)			Total Xylenes	Sulfate
							Ethyl Benzene	Benzene	Toluene		
2	52.57	6/6/2006	97.6	724	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	63.3
2	52.77	10/24/2006	89.1	598	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	67.2
2	52.91	1/9/2007	101	590	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	69.4
2	53.12	5/23/2007	88.3	512	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	61
2	53.33	9/19/2007	100	587	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	71.7
2	53.41	11/18/2007	96	571	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	85.7
2	53.49	2/4/2008	100	652	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	60.6
2	53.5	4/28/2008	96	604	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	79.8
2	53.68	7/28/2008	96	586	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	62
2	53.84	10/23/2008	100	710	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	77.7
2	53.91	1/28/2009	96	660	XXX	XXX	XXX	XXX	XXX	XXX	73.2
2	53.98	4/28/2009	100	663	XXX	XXX	XXX	XXX	XXX	XXX	73.6
2	54.12	8/5/2009	104	666	XXX	XXX	XXX	XXX	XXX	XXX	76.2
2	54.21	10/26/2009	20	296	XXX	XXX	XXX	XXX	XXX	XXX	21.3

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	(mg/L)			Total Xylenes	Sulfate
							Ethyl Benzene	Benzene	Toluene		
3 Deep	52.35	1/9/2007	133	500	<0.001	0.0103	<0.001	<0.001	<0.001	<0.001	86.9
3 Deep	52.5	5/23/2007	91.9	452	<0.001	0.00241	<0.001	<0.001	<0.001	<0.001	47.5
3 Deep	52.82	9/19/2007	204	772	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	72.8
3 Deep	52.82	11/19/2007	216	735	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	64.6
3 Deep	52.92	2/5/2008	52	393	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	59.8
3 Deep	52.93	4/28/2008	104	485	<0.002	<0.002	<0.002	<0.002	<0.002	<0.006	65.2
3 Deep	53.12	7/28/2008	96	510	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	52
3 Deep	53.31	10/22/2008	72	665	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	160
3 Deep	53.38	1/28/2009	84	477	XXX	XXX	XXX	XXX	XXX	XXX	65
3 Deep	53.44	4/28/2009	60	416	XXX	XXX	XXX	XXX	XXX	XXX	61.9
3 Deep	53.6	8/5/2009	56	397	XXX	XXX	XXX	XXX	XXX	XXX	58.4
3 Deep	53.67	10/26/2009	208	542	XXX	XXX	XXX	XXX	XXX	XXX	42

XXX: Not Recorded or Not Analyzed with NMOCD Permission

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene (mg/L)		Total Xylenes	Sulfate
3 Shallow	52.35	1/9/2007	144	512	<0.001	0.015	<0.001		<0.001	99
3 Shallow	52.5	5/23/2007	117	494	<0.001	0.0013	<0.001		<0.001	56.9
3 Shallow	52.82	9/19/2007	192	789	<0.002	<0.002	<0.002		<0.006	73.5
3 Shallow	52.82	11/19/2007	104	467	<0.002	<0.002	<0.002		<0.006	66.3
3 Shallow	52.92	2/5/2008	212	821	<0.002	<0.002	<0.002		<0.006	60.6
3 Shallow	52.93	4/28/2008	116	502	<0.002	<0.002	<0.002		<0.006	63.1
3 Shallow	53.12	7/28/2008	164	650	<0.001	<0.001	<0.001		<0.003	58
3 Shallow	53.31	10/22/2008	104	690	<0.001	<0.001	<0.001		<0.003	74.3
3 Shallow	53.38	1/28/2009	100	445	XXX	XXX	XXX		XXX	65
3 Shallow	53.44	4/28/2009	128	579	XXX	XXX	XXX		XXX	74
3 Shallow	53.6	8/5/2009	128	560	XXX	XXX	XXX		XXX	70.6
3 Shallow	53.67	10/26/2009	108	535	XXX	XXX	XXX		XXX	63.1



Vacuum G-35

Vacuum G-35, NMOCD Case #: AP-59

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene (mg/L)	Total Xylenes	Sulfate
1	53.6	1/10/2002	568	1284	0.011	0.022	0.034	0.055	23
1	52.89	5/15/2002	1950	3260	0.414	0.057	0.131	0.065	2.1
1	53.02	8/19/2002	1950	3850	0.705	0.598	0.209	0.253	7
1	53.08	11/11/2002	3630	6740	0.921	0.078	0.154	0.131	5.8
1	53.06	2/28/2003	2730	4770	0.713	0.01	0.018	0.027	24.6
1	53.2	5/22/2003	3860	7320	0.583	0.002	0.12	0.027	5.3
1	53.21	8/21/2003	5010	8850	0.689	0.004	0.307	0.032	3.5
1	53.29	11/19/2003	1930	3590	0.012	0.002	0.09	0.003	20.9
1	53.3	2/18/2004	2579	5000	0.059	<0.002	0.35	0.007	1.49
1	52.9	5/27/2004	1899	4188	1.17	0.308	0.357	0.319	2.15
1	52.6	9/7/2004	4700	8270	1.11	0.0525	0.346	0.1382	17.7
1	52.91	11/24/2004	5200	10400	0.881	0.0226	0.133	0.0717	799
1	52.4	3/21/2005	5750	9190	2.76	0.247	0.399	0.2862	136
1	XXX	5/11/2005	5890	10700	2490	466	672	693	9.75
1	52.35	8/15/2005	4430	6960	1.07	0.226	0.396	0.2417	126
1	52.51	10/25/2005	2360	4420	0.799	0.0607	0.146	0.0839	166
1	52.46	1/23/2006	1960	3540	0.141	J[0.00537]	0.078	0.0229	80.5
1	52.7	4/25/2006	1540	3280	0.749	0.0143	0.093	0.0282	67.4
1	52.88	10/25/2006	1350	2800	0.394	0.0204	0.0774	0.0438	45.2
1	53.08	1/9/2007	873	1950	0.188	<0.001	0.0883	0.00764	34.6
1	53.2	5/24/2007	873	1820	0.143	0.00735	0.0664	0.0227	41.2
1	53.37	9/20/2007	800	1738	0.189	0.004	0.082	0.029	22.2
1	53.39	11/20/2007	320	969	0.003	<0.002	<0.002	<0.006	35.3
1	53.68	2/4/2008	540	1380	0.159	0.061	0.087	0.058	23.1
1	53.74	4/29/2008	440	1150	0.109	0.02	0.074	0.038	22.4
1	53.81	7/29/2008	860	2160	0.915	0.261	0.74	0.649	<10
1	53.9	10/23/2008	680	1790	0.785	0.192	0.531	0.45	<10
1	53.77	1/26/2009	500	1330	0.62	0.044	0.372	0.173	<10
1	54.04	4/27/2009	550	1300	0.216	0.004	0.212	0.11	14.9
1	54.23	8/6/2009	384	1090	0.091	0.016	0.086	0.109	14.8
1	54.32	10/23/2009	332	896	0.04	0.001	0.086	0.037	10.9

XXX: Not Recorded or Not Analyzed with NMOCD Permission

j: Result below detection limit

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
							(mg/L)		
2	52.08	6/6/2006	17.4	286	<0.001	j[0.000839]	j[0.000385]	0.0044	24.7
2	52.35	10/25/2006	13.4	264	<0.001	<0.001	<0.001	<0.001	22.8
2	52.56	1/9/2007	13.7	322	<0.001	j[0.000540]	<0.001	<0.001	21.7
2	52.66	5/24/2007	17.2	254	<0.001	<0.001	<0.001	<0.001	20.1
2	52.84	9/20/2007	16	262	<0.002	<0.002	<0.002	<0.006	25.6
2	52.86	11/20/2007	16	283	<0.002	<0.002	<0.002	<0.006	25
2	52.95	2/4/2008	16	296	<0.002	<0.002	<0.002	<0.006	23
2	53.01	4/29/2008	16	283	<0.002	<0.002	<0.002	<0.006	23.8
2	53.15	7/29/2008	16	312	<0.001	<0.001	<0.001	<0.003	24
2	53.36	10/23/2008	16	386	<0.001	<0.001	<0.001	<0.003	24.6
2	53.42	1/28/2009	16	282	XXX	XXX	XXX	XXX	24
2	53.51	4/27/2009	16	288	XXX	XXX	XXX	XXX	21.6
2	53.62	8/6/2009	16	296	XXX	XXX	XXX	XXX	21.2
2	53.66	10/23/2009	116	666	XXX	XXX	XXX	XXX	71

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate
							(mg/L)		
3 Deep	52.77	1/9/2007	313	830	<0.001	0.0136	<0.001	<0.001	46.5
3 Deep	52.9	5/24/2007	648	1090	<0.001	j[0.000320]	<0.001	<0.001	34.7
3 Deep	53.11	9/20/2007	570	1442	<0.002	<0.002	<0.002	<0.006	34
3 Deep	53.15	11/20/2007	570	1312	<0.002	<0.002	<0.002	<0.006	42.5
3 Deep	53.29	2/5/2008	820	1710	<0.002	<0.002	<0.002	<0.006	32.7
3 Deep	53.31	4/29/2008	930	1920	<0.002	<0.002	<0.002	<0.006	36.7
3 Deep	53.47	7/29/2008	1010	2110	<0.001	<0.001	<0.001	<0.003	40
3 Deep	53.6	10/22/2008	670	1710	<0.001	<0.001	<0.001	<0.003	<10
3 Deep	53.68	1/28/2009	1560	3000	XXX	XXX	XXX	XXX	31
3 Deep	53.79	4/27/2009	1080	2770	XXX	XXX	XXX	XXX	19.2
3 Deep	53.59	8/6/2009	1090	2110	XXX	XXX	XXX	XXX	26.8
3 Deep	53.97	10/23/2009	720	1930	XXX	XXX	XXX	XXX	14.4

XXX: Not Recorded or Not Analyzed with NMOCD Permission

j: Result below detection limit

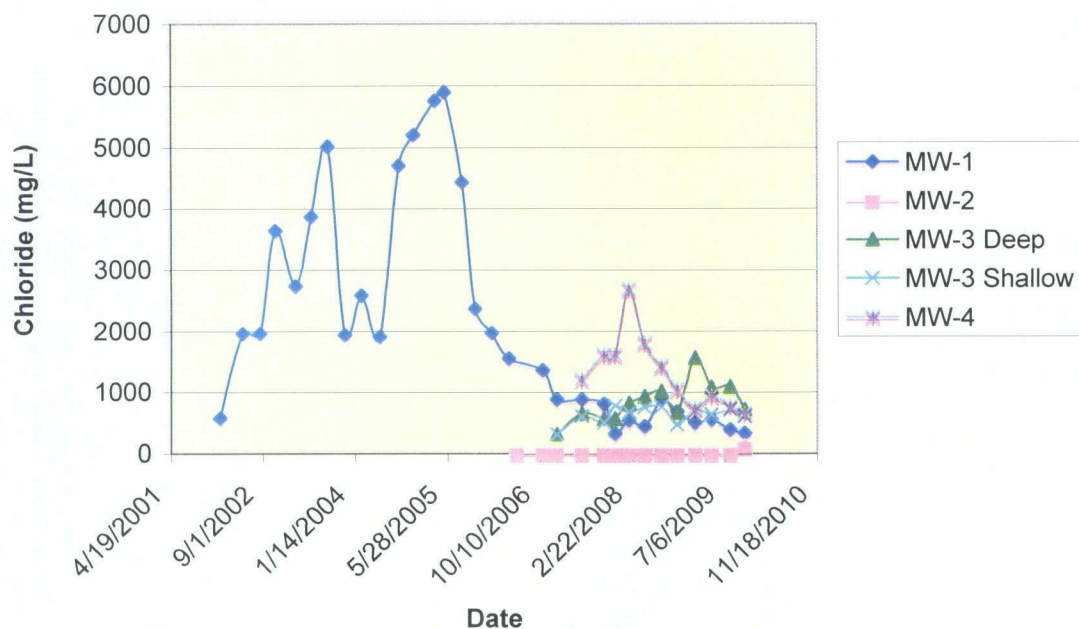
MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene (mg/L)	Total Xylenes	Sulfate
3 Shallow	52.77	1/9/2007	311	804	<0.001	0.0191	<0.001	<0.001	48.9
3 Shallow	52.9	5/24/2007	599	1070	<0.001	j[0.000380]	<0.001	<0.001	34.5
3 Shallow	53.11	9/20/2007	500	1373	<0.002	<0.002	<0.002	<0.006	39.1
3 Shallow	53.15	11/20/2007	776	1670	<0.002	<0.002	<0.002	<0.006	40.4
3 Shallow	53.29	2/5/2008	670	1590	<0.002	<0.002	<0.002	<0.006	34.3
3 Shallow	53.31	4/29/2008	750	1790	<0.002	<0.002	<0.002	<0.006	31.8
3 Shallow	53.47	7/29/2008	760	1870	<0.001	<0.001	<0.001	<0.003	27
3 Shallow	53.6	10/22/2008	464	1570	<0.001	<0.001	<0.001	<0.003	68.6
3 Shallow	53.68	1/28/2009	710	1690	XXX	XXX	XXX	XXX	24.3
3 Shallow	53.79	4/27/2009	630	1790	XXX	XXX	XXX	XXX	18.8
3 Shallow	53.59	8/6/2009	710	1680	XXX	XXX	XXX	XXX	16.5
3 Shallow	53.97	10/23/2009	600	1320	XXX	XXX	XXX	XXX	17.3

MW	Depth to Water (ft)	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene (mg/L)	Total Xylenes	Sulfate
4	52.98	5/24/2007	1200	2050	0.0521	0.0582	0.017	0.02819	43.2
4	53.18	9/20/2007	1600	3262	0.146	0.058	0.023	0.042	17.8
4	53.21	11/20/2007	1600	3256	0.036	0.034	0.01	0.017	26
4	53.28	2/4/2008	2680	5140	0.411	0.151	0.082	0.092	9.94
4	53.33	4/29/2008	1800	3370	0.529	0.222	0.15	0.176	11.2
4	53.43	7/29/2008	1420	2620	0.208	0.086	0.041	0.06	20
4	53.52	10/23/2008	1040	2110	0.189	0.137	0.078	0.109	21.5
4	53.58	1/26/2009	730	1650	0.196	0.16	0.048	0.059	21.9
4	53.72	4/27/2009	940	1970	0.097	0.033	0.037	0.032	20.9
4	53.72	8/6/2009	770	1750	0.079	0.055	0.046	0.069	16.9
4	53.94	10/23/2009	660	1420	0.018	0.012	0.012	0.01	13.6

XXX: Not Recorded or Not Analyzed with NMOCDC Permission

j: Result below detection limit

Vacuum G-35 Chloride in Ground Water



Vacuum G-35 TDS in Ground Water

