



# Precision

## Survey Report

<b>Client</b>	Big Horn Directional	<b>MWD Operator</b>	D. Rask / U. Nsaka
<b>Well Name</b>	Dutch Lake 12-14H	<b>Rig Name</b>	Nabors M-37
<b>Location</b>	Weld County, CO	<b>End Date</b>	<b>12/12/2012</b>
<b>Start Date</b>	12/1/2012	<b>Proposed Direction</b>	352.28

<b>SUR NUM</b>	<b>MD ft</b>	<b>INC °</b>	<b>AZM °</b>	<b>TVD ft</b>	<b>N-S ft</b>	<b>E-W ft</b>	<b>SECT ft</b>	<b>DLS °/100'</b>
<b>TIE IN</b>	0	0.00	0.00	0.00	0.00	0.00	0.00	0.0
1	874	3.5	328.8	873.46	22.83	-13.82	24.48	0.4
2	966	2.4	335.6	965.33	26.98	-16.07	28.90	1.3
3	1061	0.5	340.6	1060.30	29.19	-17.03	31.21	2.0
4	1156	1.7	202.6	1155.29	28.28	-17.71	30.40	2.2
5	1251	1.8	204.2	1250.24	25.61	-18.87	27.92	0.1
6	1346	1.9	207.7	1345.19	22.86	-20.21	25.37	0.2
7	1440	2.0	213.7	1439.14	20.11	-21.84	22.87	0.2
8	1535	2.1	225.1	1534.08	17.51	-24.00	20.57	0.4
9	1630	3.1	183.8	1628.99	13.71	-25.40	17.00	2.2
10	1724	2.3	132.8	1722.89	9.90	-24.19	13.06	2.6
11	1819	2.3	131.6	1817.82	7.34	-21.36	10.14	0.1
12	1914	2.8	150.4	1912.73	4.05	-18.79	6.54	1.0
13	2009	3.5	181.7	2007.59	-0.86	-17.73	1.52	1.9
14	2104	4.5	207.0	2102.36	-7.08	-19.51	-4.40	2.1



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22	2862	7.9	231.9	2856.26	-55.38	-78.67	-44.31	0.2



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23	2957	9.6	234.7	2950.15	-63.99	-90.28	-51.28	1.8
24	3052	11.1	229.5	3043.60	-74.51	-103.70	-59.90	1.9
25	3148	12.3	227.2	3137.61	-87.46	-118.23	-70.78	1.3
26	3243	12.6	226.5	3230.37	-101.46	-133.17	-82.66	0.4
27	3338	14.1	226.3	3322.80	-116.59	-149.05	-95.51	1.6
28	3429	16.5	228.2	3410.57	-132.87	-166.70	-109.27	2.7
29	3523	19.3	229.7	3500.01	-151.82	-188.50	-125.12	3.0
30	3618	20.6	229.5	3589.31	-172.82	-213.19	-142.62	1.4
31	3713	21.8	230.0	3677.88	-195.02	-239.41	-161.09	1.3
32	3808	20.6	228.4	3766.45	-217.45	-265.42	-179.83	1.4
33	3903	21.1	227.9	3855.23	-240.01	-290.61	-198.80	0.6
34	3998	19.1	228.8	3944.44	-261.72	-314.99	-217.03	2.1
35	4093	17.2	229.5	4034.71	-281.08	-337.37	-233.21	2.0
36	4188	14.5	229.3	4126.09	-297.96	-357.07	-247.29	2.8
37	4282	14.8	229.2	4217.02	-312.46	-375.00	-260.24	0.2



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45	5039	9.3	234.7	4956.88	-412.70	-498.83	-341.96	1.4



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46	5133	8.0	234.4	5049.81	-420.90	-510.35	-348.53	1.4
47	5228	6.7	236.3	5144.03	-427.83	-520.33	-354.05	1.4
48	5323	6.0	232.5	5238.45	-433.92	-528.88	-358.94	0.9
49	5418	5.1	235.1	5333.00	-439.36	-536.28	-363.34	1.0
50	5512	4.4	235.1	5426.68	-443.81	-542.67	-366.89	0.7
51	5606	3.3	240.2	5520.46	-447.22	-547.97	-369.56	1.2
52	5700	2.0	251.6	5614.36	-449.09	-551.88	-370.88	1.5
53	5795	1.1	284.8	5709.33	-449.38	-554.33	-370.84	1.3
54	5827	1.3	321.9	5741.32	-449.01	-554.85	-370.41	2.5
55	5858	3.1	351.8	5772.30	-447.90	-555.19	-369.27	6.7
56	5890	4.7	353.6	5804.22	-445.75	-555.46	-367.09	5.0
57	5921	6.5	355.5	5835.07	-442.73	-555.74	-364.07	5.8
58	5953	8.7	356.9	5866.79	-438.51	-556.01	-359.85	6.9
59	5985	11.6	357.3	5898.29	-432.88	-556.29	-354.23	9.1
60	6016	15.0	358.0	5928.42	-425.07	-556.50	-347.00	10.0



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68	6426	60.2	3.4	6252.02	-191.21	-543.31	-116.49	13.9



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69	6458	63.8	2.5	6267.04	-163.00	-541.86	-88.73	11.5
70	6490	65.1	2.7	6280.85	-134.16	-540.55	-60.33	4.1
71	6522	64.9	2.5	6294.37	-105.19	-539.23	-31.80	0.8
72	6553	66.9	1.8	6307.03	-76.91	-538.17	-3.92	6.8
73	6585	70.1	1.5	6318.75	-47.15	-537.31	25.45	10.0
74	6616	72.5	0.4	6328.69	-17.80	-536.83	54.48	8.4
75	6648	74.6	359.7	6337.75	12.89	-536.80	84.89	6.9
76	6680	76.4	359.7	6345.77	43.87	-536.97	115.61	5.6
77	6712	77.8	0.4	6352.91	75.06	-536.94	146.51	4.9
78	6741	79.3	0.4	6358.67	103.48	-536.74	174.65	5.2
79	6805	83.0	1.0	6368.51	166.71	-535.97	237.19	5.9
80	6837	85.8	0.6	6371.63	198.55	-535.52	268.68	8.8
81	6869	87.7	0.8	6373.45	230.49	-535.13	300.29	6.0
82	6901	89.3	0.3	6374.29	262.48	-534.82	331.94	5.2
83	6933	90.9	0.4	6374.40	294.40	-534.00	360.00	0.4



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91	7634	90.6	0.4	6368.21	995.37	-530.86	1057.66	1.1





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92	7729	91.5	358.5	6366.47	1090.35	-531.77	1151.90	2.2
93	7825	87.4	357.4	6367.39	1186.26	-535.20	1247.40	4.4
94	7921	88.7	357.3	6370.66	1282.10	-539.64	1342.97	1.4
95	8017	88.5	357.6	6373.00	1377.97	-543.91	1438.55	0.4
96	8112	90.9	357.1	6373.50	1472.86	-548.30	1533.17	2.6
97	8207	87.8	1.3	6374.58	1567.82	-549.63	1627.44	5.5
98	8303	88.5	2.0	6377.68	1663.73	-546.86	1722.11	1.0
99	8399	92.2	2.2	6377.09	1759.64	-543.35	1816.68	3.9
100	8494	88.5	0.8	6376.51	1854.59	-540.86	1910.43	4.2
101	8590	89.9	0.1	6377.85	1950.57	-540.11	2005.45	1.6
102	8685	91.5	358.9	6376.69	2045.56	-540.93	2099.68	2.1
103	8781	91.0	359.7	6374.60	2141.53	-542.11	2194.94	1.0
104	8877	90.6	359.6	6373.26	2237.52	-542.69	2290.14	0.4
105	8973	88.8	358.7	6373.76	2333.50	-544.12	2385.44	2.1
106	9069	91.0	359.5	6373.02	2429.46	-546.44	2470.96	2.2



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114	9833	90.8	2.2	6377.61	3192.93	-558.93	3239.07	2.2



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115	9929	90.7	3.2	6376.35	3288.82	-554.41	3333.48	1.0
116	10024	90.0	3.4	6375.77	3383.66	-548.94	3426.73	0.8
117	10119	88.8	3.2	6376.77	3478.49	-543.47	3519.97	1.3
118	10215	88.5	1.8	6379.03	3574.37	-539.28	3614.42	1.5
119	10310	88.9	1.3	6381.18	3669.31	-536.71	3708.15	0.7
120	10406	87.7	359.7	6384.03	3765.26	-535.88	3803.12	2.1
121	10502	88.3	358.9	6387.38	3861.19	-537.05	3898.34	1.0
122	10597	87.1	355.7	6391.20	3956.00	-541.52	3992.89	3.6
123	10647	87.0	355.2	6393.77	4005.77	-545.48	4042.74	1.0
PTB	10690	87.0	355.0	6396.02	4048.56	-549.15	4085.63	0.5