



Company: Noble Energy
Lease/Well: Mick D / 18-6
Location: S-18 T-3N R-64W
Rig Name: Production
State/County: Colorado / Weld County
Latitude: 40.23, Longitude: -104.59
GRID North is 0.58 Degrees East of True North
VS-Azi: 0.00 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: inrun_ed.ut
Minimum Curvature Method
Report Date/Time: 6/25/2011 / 22:48

Vaughn Energy Services
Denver, CO
720-215-1841
Robert Davis

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N-S FT	+E-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.43	227.02	100.00	-0.26	-0.28	-0.26	0.38	227.02	0.43
200.00	0.38	216.81	200.00	-0.78	-0.75	-0.78	1.08	223.93	0.09
300.00	0.38	267.27	299.99	-1.06	-1.27	-1.06	1.66	230.37	0.32
400.00	0.51	268.98	399.99	-1.08	-2.05	-1.08	2.32	242.21	0.13
500.00	0.81	260.79	499.98	-1.20	-3.19	-1.20	3.41	249.39	0.32
600.00	0.78	247.74	599.98	-1.57	-4.52	-1.57	4.79	250.83	0.18
700.00	0.48	264.31	699.97	-1.87	-5.57	-1.87	5.87	251.43	0.35
800.00	0.49	255.22	799.97	-2.02	-6.40	-2.02	6.71	252.47	0.08
900.00	0.65	242.15	899.96	-2.39	-7.31	-2.39	7.70	251.87	0.20
1000.00	0.91	257.80	999.95	-2.83	-8.59	-2.83	9.04	251.78	0.34
1100.00	0.63	257.31	1099.94	-3.12	-9.90	-3.12	10.38	252.53	0.28
1200.00	0.69	258.67	1199.94	-3.35	-11.03	-3.35	11.53	253.08	0.06
1300.00	0.82	257.86	1299.93	-3.62	-12.32	-3.62	12.84	253.61	0.13
1400.00	0.94	263.98	1399.92	-3.86	-13.83	-3.86	14.35	254.41	0.15
1500.00	0.56	262.32	1499.91	-4.01	-15.13	-4.01	15.65	255.15	0.38
1600.00	0.74	252.76	1599.90	-4.27	-16.23	-4.27	16.79	255.27	0.21
1700.00	0.73	253.61	1699.89	-4.64	-17.47	-4.64	18.07	255.12	0.02
1800.00	0.66	249.75	1799.88	-5.02	-18.62	-5.02	19.29	254.91	0.09
1900.00	1.23	250.84	1899.87	-5.57	-20.17	-5.57	20.92	254.56	0.57
2000.00	1.15	256.96	1999.85	-6.15	-22.16	-6.15	23.00	254.49	0.15
2100.00	1.32	255.66	2099.83	-6.66	-24.26	-6.66	25.15	254.65	0.18
2200.00	1.63	257.83	2199.79	-7.25	-26.77	-7.25	27.73	254.85	0.31
2300.00	1.63	256.64	2299.75	-7.87	-29.54	-7.87	30.57	255.07	0.03
2400.00	1.07	252.34	2399.72	-8.49	-31.81	-8.49	32.92	255.06	0.56
2500.00	0.27	203.77	2499.72	-8.99	-32.80	-8.99	34.01	254.68	0.92
2600.00	1.08	149.19	2599.71	-10.02	-32.41	-10.02	33.92	252.82	0.95
2700.00	1.90	132.56	2699.68	-11.95	-30.70	-11.95	32.95	248.74	0.91
2800.00	2.76	133.75	2799.59	-14.73	-27.75	-14.73	31.42	242.03	0.87
2900.00	2.86	132.17	2899.47	-18.07	-24.16	-18.07	30.17	233.20	0.13
3000.00	2.72	118.64	2999.35	-20.89	-20.23	-20.89	29.07	224.08	0.67
3100.00	2.12	121.89	3099.26	-23.00	-16.58	-23.00	28.35	215.79	0.62
3200.00	1.46	114.82	3199.22	-24.51	-13.86	-24.51	28.15	209.49	0.69
3300.00	0.52	97.32	3299.20	-25.10	-12.26	-25.10	27.93	206.03	0.98
3400.00	0.28	300.79	3399.20	-25.03	-12.02	-25.03	27.77	205.65	0.78

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
3500.00	0.93	315.57	3499.19	-24.33	-12.80	-24.33	27.49	207.75	0.67
3600.00	1.27	322.78	3599.17	-22.86	-14.04	-22.86	26.83	211.55	0.37
3700.00	1.44	317.21	3699.15	-21.05	-15.56	-21.05	26.18	216.47	0.21
3800.00	1.54	314.98	3799.11	-19.18	-17.37	-19.18	25.88	222.16	0.12
3900.00	1.55	314.66	3899.08	-17.28	-19.29	-17.28	25.89	228.15	0.01
4000.00	1.34	308.52	3999.04	-15.60	-21.16	-15.60	26.29	233.61	0.27
4100.00	1.67	311.98	4099.01	-13.90	-23.16	-13.90	27.01	239.03	0.35
4200.00	2.05	312.90	4198.96	-11.70	-25.55	-11.70	28.11	245.40	0.38
4300.00	1.90	305.50	4298.90	-9.52	-28.21	-9.52	29.78	251.36	0.30
4400.00	1.94	293.62	4398.84	-7.88	-31.11	-7.88	32.09	255.78	0.40
4500.00	1.94	278.33	4498.78	-6.96	-34.34	-6.96	35.03	258.54	0.52
4600.00	1.43	261.88	4598.74	-6.89	-37.25	-6.89	37.88	259.52	0.70
4700.00	0.48	244.63	4698.73	-7.25	-38.86	-7.25	39.53	259.44	0.98
4800.00	0.99	197.08	4798.72	-8.25	-39.50	-8.25	40.35	258.20	0.75
4900.00	1.63	168.55	4898.69	-10.47	-39.47	-10.47	40.83	255.14	0.90
5000.00	1.03	176.72	4998.67	-12.77	-39.13	-12.77	41.16	251.93	0.63
5100.00	0.52	184.44	5098.66	-14.13	-39.12	-14.13	41.59	250.14	0.52
5200.00	0.83	166.71	5198.65	-15.29	-38.99	-15.29	41.87	248.59	0.36
5300.00	0.06	198.52	5298.65	-16.04	-38.84	-16.04	42.02	247.56	0.77
5400.00	0.21	61.84	5398.65	-16.00	-38.69	-16.00	41.87	247.53	0.26
5500.00	1.02	46.49	5498.64	-15.30	-37.88	-15.30	40.85	248.00	0.81
5600.00	1.77	45.94	5598.61	-13.62	-36.13	-13.62	38.61	249.35	0.75
5700.00	1.36	65.23	5698.57	-12.05	-33.94	-12.05	36.02	250.45	0.66
5800.00	0.94	107.73	5798.55	-11.80	-32.08	-11.80	34.18	249.81	0.92
5900.00	0.78	99.78	5898.54	-12.17	-30.63	-12.17	32.96	248.34	0.20
6000.00	0.24	225.08	5998.54	-12.43	-30.11	-12.43	32.58	247.57	0.94
6100.00	0.86	270.95	6098.53	-12.57	-31.01	-12.57	33.46	247.94	0.71
6200.00	1.14	242.10	6198.52	-13.02	-32.64	-13.02	35.14	248.25	0.57
6300.00	1.16	242.20	6298.50	-13.96	-34.41	-13.96	37.14	247.92	0.02
6400.00	1.55	256.21	6398.47	-14.75	-36.62	-14.75	39.48	248.06	0.51
6500.00	1.76	245.45	6498.43	-15.71	-39.33	-15.71	42.36	248.22	0.37
6600.00	2.10	255.25	6598.37	-16.82	-42.50	-16.82	45.70	248.41	0.47
6700.00	1.64	273.93	6698.32	-17.18	-45.69	-17.18	48.82	249.39	0.75
6800.00	1.85	289.83	6798.28	-16.54	-48.64	-16.54	51.37	251.22	0.52
6900.00	1.57	295.28	6898.23	-15.41	-51.39	-15.41	53.65	253.31	0.32
7000.00	1.57	310.19	6998.19	-13.94	-53.67	-13.94	55.46	255.44	0.41
<div> <div>HORIZONTAL DISPLACEMENT IS</div> <div>55.46 FEET AT 255.44 DEGREES</div> </div>									