

VES

VAUGHN ENERGY SERVICES

Company: Noble Energy

Lease/Well: Stockley C / 15-25

Location: S-15 T-4N R-64W

Rig Name: Production

State/County: Colorado / Weld County

Latitude: 40.31, Longitude: -104.54

GRID North is 0.62 Degrees East of True North

VS-Azi: 0.00 Degrees

GTI

GYRO TECHNOLOGIES, INC

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: 5/2/2011 / 07:38

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	0.45	306.34	100.00	0.23	-0.31	0.23	0.39	306.34	0.45
200.00	0.37	268.97	200.00	0.46	-0.95	0.46	1.06	295.64	0.27
300.00	0.37	281.54	299.99	0.52	-1.59	0.52	1.68	287.94	0.08
400.00	0.28	325.52	399.99	0.78	-2.05	0.78	2.19	290.86	0.26
500.00	0.73	322.16	499.99	1.48	-2.58	1.48	2.98	299.93	0.45
600.00	0.75	334.05	599.98	2.57	-3.25	2.57	4.15	308.34	0.15
700.00	0.82	333.36	699.97	3.80	-3.86	3.80	5.42	314.55	0.08
800.00	0.79	326.68	799.96	5.02	-4.56	5.02	6.79	317.73	0.10
900.00	0.96	309.94	899.95	6.14	-5.59	6.14	8.30	317.69	0.30
1000.00	1.06	306.61	999.93	7.22	-6.97	7.22	10.04	316.04	0.11
1100.00	1.05	308.41	1099.92	8.34	-8.43	8.34	11.86	314.72	0.03
1200.00	0.92	308.68	1199.90	9.42	-9.77	9.42	13.57	313.93	0.13
1300.00	0.90	304.53	1299.89	10.36	-11.05	10.36	15.15	313.17	0.07
1400.00	1.08	306.64	1399.87	11.37	-12.45	11.37	16.86	312.40	0.18
1500.00	0.59	313.76	1499.86	12.29	-13.58	12.29	18.31	312.15	0.50
1600.00	0.59	315.83	1599.86	13.01	-14.31	13.01	19.34	312.29	0.02
1700.00	0.39	38.82	1699.86	13.65	-14.45	13.65	19.88	313.35	0.67
1800.00	0.42	71.01	1799.85	14.03	-13.90	14.03	19.75	315.27	0.22
1900.00	0.66	76.36	1899.85	14.28	-12.99	14.28	19.31	317.71	0.25
2000.00	0.87	96.82	1999.84	14.33	-11.67	14.33	18.48	320.84	0.34
2100.00	0.88	101.42	2099.83	14.09	-10.16	14.09	17.37	324.19	0.07
2200.00	0.92	87.44	2199.82	13.97	-8.61	13.97	16.41	328.37	0.22
2300.00	0.71	100.53	2299.81	13.89	-7.19	13.89	15.64	332.63	0.28
2400.00	0.69	94.22	2399.80	13.74	-5.98	13.74	14.98	336.46	0.08
2500.00	0.52	117.54	2499.79	13.48	-4.98	13.48	14.37	339.72	0.30
2600.00	0.78	128.84	2599.79	12.85	-4.06	12.85	13.48	342.48	0.29
2700.00	0.68	170.83	2699.78	11.84	-3.43	11.84	12.33	343.83	0.53
2800.00	0.97	179.23	2799.77	10.41	-3.33	10.41	10.93	342.28	0.32
2900.00	0.98	175.98	2899.75	8.71	-3.26	8.71	9.30	339.50	0.06
3000.00	1.09	159.29	2999.74	6.97	-2.86	6.97	7.53	337.67	0.32
3100.00	1.23	177.83	3099.72	5.00	-2.48	5.00	5.58	333.59	0.40
3200.00	0.91	162.94	3199.70	3.17	-2.21	3.17	3.86	325.10	0.43
3300.00	1.05	145.24	3299.69	1.66	-1.46	1.66	2.21	318.74	0.33
3400.00	1.20	155.84	3399.67	-0.05	-0.51	-0.05	0.51	264.71	0.26

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	1.26	136.16	3499.64	-1.80	0.68	-1.80	1.93	159.16	0.43
3600.00	1.57	147.26	3599.61	-3.75	2.19	-3.75	4.34	149.70	0.41
3700.00	1.32	157.11	3699.58	-5.96	3.38	-5.96	6.85	150.45	0.36
3800.00	1.22	167.10	3799.56	-8.06	4.06	-8.06	9.02	153.24	0.24
3900.00	1.40	180.50	3899.53	-10.32	4.29	-10.32	11.18	157.42	0.36
4000.00	1.42	169.29	3999.50	-12.76	4.51	-12.76	13.54	160.54	0.28
4100.00	1.33	189.97	4099.47	-15.13	4.54	-15.13	15.79	163.29	0.50
4200.00	1.34	187.44	4199.45	-17.43	4.19	-17.43	17.93	166.49	0.06
4300.00	1.04	202.21	4299.42	-19.44	3.69	-19.44	19.79	169.24	0.43
4400.00	1.49	196.66	4399.40	-21.52	2.98	-21.52	21.73	172.12	0.46
4500.00	1.01	210.45	4499.38	-23.52	2.16	-23.52	23.62	174.76	0.56
4600.00	1.77	202.23	4599.35	-25.72	1.13	-25.72	25.74	177.50	0.79
4700.00	2.24	198.11	4699.28	-29.01	-0.07	-29.01	29.01	180.13	0.49
4800.00	2.54	186.26	4799.20	-33.07	-0.92	-33.07	33.08	181.59	0.57
4900.00	2.57	189.42	4899.10	-37.47	-1.53	-37.47	37.51	182.33	0.14
5000.00	1.94	187.61	4999.02	-41.36	-2.12	-41.36	41.41	182.93	0.64
5100.00	1.67	183.27	5098.97	-44.49	-2.42	-44.49	44.55	183.12	0.30
5200.00	1.44	189.25	5198.94	-47.18	-2.71	-47.18	47.26	183.28	0.29
5300.00	1.52	182.46	5298.90	-49.74	-2.96	-49.74	49.83	183.41	0.19
5400.00	1.60	185.65	5398.87	-52.45	-3.16	-52.45	52.54	183.45	0.12
5500.00	1.57	181.72	5498.83	-55.20	-3.34	-55.20	55.30	183.46	0.11
5600.00	1.41	181.52	5598.79	-57.80	-3.41	-57.80	57.90	183.38	0.17
5700.00	1.10	177.37	5698.77	-59.98	-3.40	-59.98	60.08	183.24	0.32
5800.00	0.98	183.64	5798.75	-61.79	-3.41	-61.79	61.89	183.16	0.17
5900.00	0.79	188.48	5898.74	-63.32	-3.56	-63.32	63.42	183.22	0.20
6000.00	0.63	184.33	5998.73	-64.55	-3.71	-64.55	64.66	183.29	0.16
6100.00	0.49	199.58	6098.73	-65.51	-3.89	-65.51	65.63	183.40	0.20
6200.00	0.56	246.01	6198.72	-66.12	-4.49	-66.12	66.27	183.88	0.42
6300.00	0.53	200.00	6298.72	-66.75	-5.10	-66.75	66.95	184.37	0.43
6400.00	1.40	181.89	6398.71	-68.41	-5.30	-68.41	68.62	184.43	0.91
6500.00	2.24	176.53	6498.65	-71.58	-5.22	-71.58	71.77	184.17	0.86
6600.00	1.37	177.54	6598.60	-74.73	-5.05	-74.73	74.90	183.86	0.87
6700.00	0.47	175.27	6698.59	-76.33	-4.96	-76.33	76.49	183.72	0.90
HORIZONTAL DISPLACEMENT IS 76.49 FEET AT 183.72 DEGREES									