

VES

VAUGHN ENERGY SERVICES

Company: Noble

Lease/Well: Reinick/3

Location:

Rig Name: Production

State/County: Colorado/Weld County

Latitude: 40.32

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 : GL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01.ut

Minimum Curvature Method

Report Date/Time: 3/24/2011 / 09:29

Vaughn Energy Services

Rifle, Colorado

970-456-2071

Garry Fowler

Reinick 3/05-123-12637

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	0.35	174.29	100.00	-0.30	0.03	-0.30	0.30	174.29	0.35
200.00	0.31	172.03	200.00	-0.87	0.10	-0.87	0.88	173.59	0.04
300.00	0.31	171.49	300.00	-1.41	0.18	-1.41	1.42	172.89	0.01
400.00	0.31	176.61	399.99	-1.95	0.23	-1.95	1.97	173.21	0.03
500.00	0.48	251.81	499.99	-2.36	-0.15	-2.36	2.36	183.64	0.50
600.00	0.49	253.44	599.99	-2.61	-0.96	-2.61	2.78	200.19	0.02
700.00	0.51	251.98	699.99	-2.87	-1.79	-2.87	3.38	212.02	0.02
800.00	0.35	267.28	799.98	-3.02	-2.52	-3.02	3.94	219.86	0.20
900.00	0.39	260.34	899.98	-3.09	-3.16	-3.09	4.42	225.62	0.06
1000.00	0.33	268.80	999.98	-3.16	-3.79	-3.16	4.93	230.19	0.08
1100.00	0.21	262.21	1099.98	-3.19	-4.26	-3.19	5.32	233.20	0.13
1200.00	0.51	269.42	1199.98	-3.22	-4.89	-3.22	5.85	236.67	0.31
1300.00	0.51	274.95	1299.97	-3.18	-5.78	-3.18	6.60	241.18	0.05
1400.00	0.49	274.11	1399.97	-3.11	-6.66	-3.11	7.35	244.94	0.02
1500.00	0.52	289.83	1499.96	-2.93	-7.51	-2.93	8.06	248.69	0.14
1600.00	0.42	267.17	1599.96	-2.80	-8.30	-2.80	8.76	251.40	0.21
1700.00	0.40	267.40	1699.96	-2.83	-9.02	-2.83	9.45	252.59	0.03
1800.00	0.32	266.09	1799.96	-2.86	-9.64	-2.86	10.06	253.46	0.08
1900.00	0.56	271.32	1899.95	-2.87	-10.40	-2.87	10.79	254.57	0.24
2000.00	0.52	288.05	1999.95	-2.72	-11.32	-2.72	11.64	256.48	0.16
2100.00	0.56	285.97	2099.94	-2.45	-12.22	-2.45	12.46	258.68	0.05
2200.00	0.40	294.71	2199.94	-2.16	-13.01	-2.16	13.19	260.56	0.18
2300.00	0.39	262.32	2299.94	-2.06	-13.66	-2.06	13.81	261.41	0.22
2400.00	0.37	205.65	2399.94	-2.40	-14.13	-2.40	14.34	260.36	0.36
2500.00	0.41	206.97	2499.93	-3.01	-14.44	-3.01	14.75	258.21	0.04
2600.00	0.33	209.19	2599.93	-3.58	-14.74	-3.58	15.17	256.33	0.08
2700.00	0.39	211.59	2699.93	-4.12	-15.06	-4.12	15.61	254.68	0.06
2800.00	0.19	208.43	2799.93	-4.56	-15.32	-4.56	15.98	253.41	0.19
2900.00	0.14	206.58	2899.93	-4.82	-15.45	-4.82	16.18	252.68	0.06
3000.00	0.17	201.00	2999.93	-5.06	-15.55	-5.06	16.36	251.98	0.03
3100.00	0.20	208.16	3099.93	-5.35	-15.69	-5.35	16.57	251.18	0.04

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
3200.00	0.16	88.61	3199.93	-5.49	-15.63	-5.49	16.57	250.64	0.31
3300.00	0.10	6.37	3299.93	-5.41	-15.49	-5.41	16.40	250.76	0.17
3400.00	0.32	21.79	3399.93	-5.06	-15.37	-5.06	16.18	251.77	0.23
3500.00	0.42	330.37	3499.92	-4.48	-15.45	-4.48	16.09	253.82	0.34
3600.00	0.59	308.20	3599.92	-3.85	-16.04	-3.85	16.49	256.51	0.25
3700.00	0.55	351.39	3699.92	-3.06	-16.51	-3.06	16.79	259.51	0.42
3800.00	0.88	7.96	3799.91	-1.82	-16.47	-1.82	16.57	263.70	0.39
3900.00	0.86	327.68	3899.90	-0.42	-16.77	-0.42	16.77	268.55	0.60
4000.00	0.82	329.01	3999.89	0.82	-17.53	0.82	17.55	272.68	0.04
4100.00	0.88	322.19	4099.88	2.04	-18.37	2.04	18.48	276.33	0.12
4200.00	1.06	272.49	4199.86	2.69	-19.77	2.69	19.95	277.74	0.83
4300.00	1.52	273.21	4299.84	2.80	-22.02	2.80	22.20	277.25	0.46
4400.00	1.53	274.71	4399.80	2.98	-24.68	2.98	24.86	276.90	0.04
4500.00	1.47	272.55	4499.77	3.15	-27.29	3.15	27.47	276.59	0.08
4600.00	1.32	273.00	4599.74	3.27	-29.72	3.27	29.90	276.28	0.16
4700.00	1.12	272.62	4699.72	3.37	-31.84	3.37	32.02	276.05	0.20
4800.00	1.07	276.99	4799.70	3.53	-33.74	3.53	33.92	275.97	0.10
4900.00	0.97	279.75	4899.68	3.79	-35.50	3.79	35.70	276.09	0.11
5000.00	0.87	277.53	4999.67	4.03	-37.09	4.03	37.31	276.20	0.11
5100.00	1.18	274.49	5099.65	4.21	-38.87	4.21	39.10	276.18	0.31
5200.00	1.40	273.83	5199.63	4.37	-41.12	4.37	41.35	276.07	0.21
5300.00	0.93	239.55	5299.61	4.04	-43.03	4.04	43.22	275.37	0.82
5400.00	0.74	189.88	5399.60	3.00	-43.84	3.00	43.94	273.91	0.72
5500.00	0.83	186.63	5499.59	1.64	-44.03	1.64	44.06	272.13	0.10
5600.00	1.63	176.88	5599.56	-0.50	-44.04	-0.50	44.04	269.35	0.82
5700.00	2.34	161.37	5699.50	-3.86	-43.31	-3.86	43.48	264.91	0.88
5800.00	3.31	163.56	5799.38	-8.56	-41.84	-8.56	42.71	258.44	0.98
5900.00	3.65	168.45	5899.20	-14.45	-40.39	-14.45	42.89	250.32	0.45
6000.00	3.34	181.32	5999.01	-20.48	-39.81	-20.48	44.77	242.78	0.84
6100.00	2.49	188.74	6098.88	-25.54	-40.21	-25.54	47.64	237.58	0.92
6200.00	1.58	199.94	6198.82	-28.99	-41.01	-28.99	50.22	234.75	0.99
6300.00	0.93	230.97	6298.80	-30.80	-42.12	-30.80	52.17	233.82	0.92
6400.00	0.25	192.07	6398.79	-31.52	-42.79	-31.52	53.15	233.62	0.75
6500.00	0.25	28.32	6498.79	-31.54	-42.73	-31.54	53.11	233.57	0.49
6600.00	0.61	60.72	6598.79	-31.09	-42.17	-31.09	52.39	233.60	0.42
6700.00	0.66	81.58	6698.78	-30.75	-41.14	-30.75	51.36	233.22	0.23
6800.00	0.95	68.22	6798.77	-30.36	-39.80	-30.36	50.06	232.67	0.34

<div> HORIZONTAL DISPLACEMENT IS 50.06 FEET AT 232.67 DEGREES </div>
