



Company: NOBLE ENERGY

Well: HEMPLE 7-13G

Rig Name: PRODUCTION

State/County: COLORADO/WELD

Latitude: 40.32

GRID North is 0.51 Degrees East of True North

VS-Azi: 0.00 Degrees



**FIELD COPY ONLY (NOT DEFINITIVE)**

Service Company : VAUGHN ENERGY SERVICES

**DRILLOG MS GYRO SURVEY CALCULATIONS**

Filename: msgyro\_run01-01\_ed.ut

Minimum Curvature Method

Report Date/Time: 12/14/2010 / 12:19

Vaughn Energy Services

Rifle, Colorado

800-606-4976

Surveyor: Nick Campbell

HEMPLE 7-13G

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	0.17	261.07	100.00	-0.02	-0.15	-0.02	0.15	261.07	0.17
200.00	0.53	310.83	200.00	0.26	-0.65	0.26	0.70	291.58	0.44
300.00	0.11	164.24	300.00	0.47	-0.97	0.47	1.08	295.52	0.63
400.00	0.41	352.12	400.00	0.72	-1.00	0.72	1.23	306.03	0.52
500.00	0.18	229.71	500.00	0.98	-1.17	0.98	1.52	309.92	0.53
600.00	0.52	260.64	599.99	0.80	-1.74	0.80	1.91	294.70	0.38
700.00	0.36	179.21	699.99	0.41	-2.18	0.41	2.22	280.62	0.59
800.00	0.42	198.41	799.99	-0.26	-2.30	-0.26	2.31	263.63	0.14
900.00	0.52	312.30	899.99	-0.30	-2.75	-0.30	2.77	263.77	0.79
1000.00	0.36	193.10	999.99	-0.30	-3.16	-0.30	3.17	264.64	0.76
1100.00	0.60	304.69	1099.98	-0.30	-3.66	-0.30	3.67	265.28	0.80
1200.00	0.54	295.80	1199.98	0.20	-4.51	0.20	4.51	272.55	0.10
1300.00	0.84	326.43	1299.97	1.02	-5.34	1.02	5.44	280.79	0.47
1400.00	1.44	318.96	1399.95	2.58	-6.57	2.58	7.06	291.41	0.62
1500.00	1.48	328.12	1499.92	4.62	-8.07	4.62	9.30	299.76	0.24
1600.00	1.36	339.42	1599.89	6.82	-9.17	6.82	11.43	306.64	0.30
1700.00	1.54	327.51	1699.86	9.06	-10.31	9.06	13.73	311.32	0.35
1800.00	1.59	335.46	1799.82	11.45	-11.61	11.45	16.31	314.62	0.22
1900.00	1.65	329.90	1899.78	13.96	-12.90	13.96	19.01	317.25	0.17
2000.00	1.44	337.08	1999.74	16.36	-14.11	16.36	21.61	319.22	0.28
2100.00	0.96	7.53	2099.72	18.36	-14.49	18.36	23.39	321.71	0.78
2200.00	0.42	333.10	2199.71	19.52	-14.55	19.52	24.35	323.30	0.66
2300.00	0.64	320.67	2299.71	20.29	-15.07	20.29	25.27	323.38	0.25
2400.00	0.69	269.81	2399.70	20.72	-16.03	20.72	26.20	322.26	0.58
2500.00	0.84	264.44	2499.70	20.65	-17.37	20.65	26.98	319.92	0.17
2600.00	1.00	257.50	2599.68	20.39	-18.95	20.39	27.84	317.08	0.19
2700.00	1.06	256.54	2699.67	19.98	-20.70	19.98	28.77	313.99	0.06
2800.00	0.58	230.27	2799.66	19.44	-21.99	19.44	29.35	311.49	0.59

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
2900.00	1.15	219.76	2899.64	18.35	-23.02	18.35	29.44	308.56	0.58
3000.00	0.95	220.37	2999.63	16.95	-24.20	16.95	29.54	305.00	0.19
3100.00	1.05	227.85	3099.61	15.70	-25.41	15.70	29.87	301.70	0.16
3200.00	1.05	250.11	3199.60	14.77	-26.95	14.77	30.73	298.73	0.40
3300.00	1.23	265.15	3299.58	14.37	-28.88	14.37	32.26	296.45	0.35
3400.00	0.79	292.04	3399.56	14.54	-30.60	14.54	33.88	295.42	0.64
3500.00	0.67	278.27	3499.55	14.88	-31.82	14.88	35.12	295.07	0.21
3600.00	0.55	291.78	3599.55	15.15	-32.84	15.15	36.16	294.76	0.19
3700.00	0.39	307.13	3699.54	15.53	-33.56	15.53	36.98	294.83	0.20
3800.00	0.10	359.77	3799.54	15.82	-33.83	15.82	37.35	295.07	0.34
3900.00	0.11	70.46	3899.54	15.94	-33.75	15.94	37.32	295.29	0.12
4000.00	0.10	92.91	3999.54	15.97	-33.57	15.97	37.17	295.44	0.04
4100.00	0.52	262.20	4099.54	15.90	-33.93	15.90	37.47	295.12	0.62
4200.00	0.53	214.05	4199.54	15.46	-34.63	15.46	37.93	294.05	0.43
4300.00	0.57	210.16	4299.53	14.64	-35.14	14.64	38.07	292.61	0.05
4400.00	1.13	243.03	4399.52	13.76	-36.27	13.76	38.80	290.78	0.72
4500.00	0.98	237.14	4499.51	12.85	-37.87	12.85	39.99	288.75	0.19
4600.00	1.14	222.73	4599.49	11.66	-39.26	11.66	40.95	286.54	0.31
4700.00	0.85	194.90	4699.47	10.21	-40.12	10.21	41.40	284.28	0.55
4800.00	1.10	142.57	4799.46	8.74	-39.73	8.74	40.68	282.40	0.89
4900.00	1.19	99.97	4899.44	7.80	-38.12	7.80	38.91	281.56	0.84
5000.00	1.15	78.92	4999.42	7.81	-36.11	7.81	36.95	282.20	0.43
5100.00	1.20	53.01	5099.40	8.63	-34.30	8.63	35.37	284.13	0.53
5200.00	1.00	48.51	5199.38	9.84	-32.81	9.84	34.25	286.70	0.22
5300.00	0.91	80.17	5299.37	10.55	-31.37	10.55	33.10	288.59	0.53
5400.00	0.83	92.02	5399.36	10.66	-29.86	10.66	31.70	289.65	0.20
5500.00	0.49	86.61	5499.35	10.66	-28.70	10.66	30.61	290.38	0.35
5600.00	0.70	125.21	5599.35	10.33	-27.77	10.33	29.63	290.42	0.44
5700.00	0.75	117.68	5699.34	9.68	-26.69	9.68	28.39	289.93	0.11
5800.00	0.47	105.34	5799.33	9.26	-25.71	9.26	27.33	289.82	0.30
5900.00	0.62	119.08	5899.33	8.89	-24.84	8.89	26.39	289.70	0.19
6000.00	0.26	127.33	5999.33	8.49	-24.19	8.49	25.64	289.35	0.36
6100.00	0.55	174.52	6099.32	7.88	-23.96	7.88	25.22	288.19	0.42
6200.00	0.89	145.75	6199.32	6.75	-23.48	6.75	24.43	286.05	0.49
6300.00	0.60	170.91	6299.31	5.59	-22.96	5.59	23.63	283.68	0.43
6400.00	0.27	102.00	6399.30	5.02	-22.65	5.02	23.20	282.50	0.57
6500.00	0.37	129.67	6499.30	4.76	-22.17	4.76	22.67	282.13	0.18
6600.00	0.88	151.49	6599.30	3.88	-21.55	3.88	21.90	280.21	0.56
6700.00	0.77	168.19	6699.29	2.55	-21.04	2.55	21.20	276.91	0.27
6800.00	0.72	154.52	6799.28	1.33	-20.64	1.33	20.68	273.68	0.18
6900.00	0.30	102.33	6899.27	0.70	-20.11	0.70	20.12	272.00	0.59
7000.00	0.37	30.36	6999.27	0.92	-19.69	0.92	19.71	272.69	0.40
7100.00	0.24	23.10	7099.27	1.40	-19.44	1.40	19.49	274.12	0.13
7147.00	0.26	24.71	7146.27	1.59	-19.36	1.59	19.42	274.69	0.04
HORIZONTAL DISPLACEMENT IS 19.42 FEET AT 274.69 DEGREES									