



Company: NOBLE ENERGY
 Lease/Well: DINNER/1-45
 Location:
 Rig Name: PRODUCTION
 State/County: COLORADO/WELD
 Latitude: 40.34
 GRID North is 0.58 Degrees East of True North
 VS-Azi: 0.00 Degrees

FIELD COPY ONLY (NOT DEFINITIVE)

DEPTH REFERENCE : GL = 0'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: dinner1-45raw.ut
 Minimum Curvature Method
 Report Date/Time: 4/2/2011 / 14:14

Vaughn Energy Services
 Rifle, Colorado
 970 456 2071
 Surveyor: S.Anderson
 Dinner 1-45 API# 05-123-24050

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	0.89	188.38	100.00	-0.77	-0.11	-0.77	0.77	188.38	0.89
200.00	0.90	189.68	199.98	-2.30	-0.36	-2.30	2.33	188.82	0.02
300.00	0.79	193.97	299.97	-3.75	-0.66	-3.75	3.80	189.93	0.12
400.00	0.68	188.34	399.96	-5.01	-0.91	-5.01	5.09	190.29	0.13
500.00	0.43	184.17	499.96	-5.97	-1.02	-5.97	6.06	189.72	0.26
600.00	0.59	178.60	599.96	-6.86	-1.04	-6.86	6.94	188.60	0.17
700.00	0.45	166.20	699.95	-7.76	-0.93	-7.76	7.81	186.85	0.18
800.00	0.43	151.27	799.95	-8.47	-0.66	-8.47	8.49	184.44	0.12
900.00	0.49	132.64	899.95	-9.09	-0.16	-9.09	9.09	181.02	0.16
1000.00	0.64	131.28	999.94	-9.75	0.57	-9.75	9.76	176.63	0.15
1100.00	0.65	139.81	1099.93	-10.55	1.36	-10.55	10.63	172.66	0.10
1200.00	0.44	148.05	1199.93	-11.31	1.93	-11.31	11.47	170.32	0.23
1300.00	0.49	160.27	1299.93	-12.03	2.27	-12.03	12.24	169.30	0.11
1400.00	0.68	168.48	1399.92	-13.01	2.53	-13.01	13.25	168.97	0.21
1500.00	0.42	167.19	1499.92	-13.94	2.73	-13.94	14.21	168.91	0.26
1600.00	0.39	169.98	1599.91	-14.63	2.87	-14.63	14.91	168.89	0.03
1700.00	0.22	178.81	1699.91	-15.16	2.94	-15.16	15.44	169.04	0.17
1800.00	0.22	166.61	1799.91	-15.54	2.99	-15.54	15.82	169.13	0.05
1900.00	0.30	104.54	1899.91	-15.80	3.28	-15.80	16.13	168.27	0.28
2000.00	0.36	91.81	1999.91	-15.87	3.84	-15.87	16.33	166.39	0.09
2100.00	0.45	88.59	2099.91	-15.87	4.54	-15.87	16.51	164.03	0.09
2200.00	0.45	93.64	2199.90	-15.89	5.32	-15.89	16.75	161.48	0.04
2300.00	0.45	84.39	2299.90	-15.87	6.10	-15.87	17.01	158.97	0.07
2400.00	0.72	90.69	2399.90	-15.84	7.12	-15.84	17.37	155.80	0.28
2500.00	1.07	77.00	2499.88	-15.64	8.66	-15.64	17.87	151.04	0.41
2600.00	1.25	74.01	2599.86	-15.13	10.62	-15.13	18.48	144.94	0.19
2700.00	1.37	55.17	2699.84	-14.15	12.65	-14.15	18.97	138.21	0.44
2800.00	1.23	55.02	2799.81	-12.85	14.50	-12.85	19.38	131.55	0.14
2900.00	1.03	55.24	2899.79	-11.72	16.12	-11.72	19.93	126.03	0.19
3000.00	1.02	58.08	2999.78	-10.74	17.61	-10.74	20.63	121.37	0.05
3100.00	0.82	66.85	3099.76	-9.99	19.02	-9.99	21.49	117.70	0.25

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	0.61	73.32	3199.76	-9.56	20.19	-9.56	22.34	115.32	0.22
3300.00	0.38	80.03	3299.75	-9.34	21.03	-9.34	23.01	113.96	0.24
3400.00	0.53	125.76	3399.75	-9.56	21.73	-9.56	23.74	113.74	0.38
3500.00	0.56	133.69	3499.74	-10.16	22.46	-10.16	24.65	114.34	0.08
3600.00	0.60	139.19	3599.74	-10.89	23.15	-10.89	25.58	115.20	0.07
3700.00	0.64	143.25	3699.73	-11.73	23.82	-11.73	26.56	116.22	0.06
3800.00	0.66	143.19	3799.73	-12.64	24.50	-12.64	27.57	117.29	0.02
3900.00	0.53	154.53	3899.72	-13.52	25.05	-13.52	28.46	118.36	0.17
4000.00	0.48	149.64	3999.72	-14.30	25.46	-14.30	29.20	119.32	0.07
4100.00	0.36	142.86	4099.72	-14.91	25.86	-14.91	29.85	119.96	0.13
4200.00	0.29	115.37	4199.71	-15.26	26.27	-15.26	30.38	120.16	0.17
4300.00	0.30	68.52	4299.71	-15.28	26.74	-15.28	30.80	119.74	0.23
4400.00	0.07	100.66	4399.71	-15.19	27.04	-15.19	31.02	119.33	0.24
4500.00	0.20	123.26	4499.71	-15.30	27.25	-15.30	31.26	119.31	0.14
4600.00	0.16	110.59	4599.71	-15.45	27.54	-15.45	31.57	119.29	0.05
4700.00	0.36	99.44	4699.71	-15.55	27.98	-15.55	32.01	119.06	0.20
4800.00	0.20	96.00	4799.71	-15.62	28.47	-15.62	32.47	118.75	0.16
4900.00	0.33	99.47	4899.71	-15.69	28.93	-15.69	32.91	118.47	0.12
5000.00	0.35	65.20	4999.71	-15.60	29.49	-15.60	33.36	117.89	0.20
5100.00	0.70	44.04	5099.70	-15.04	30.19	-15.04	33.73	116.48	0.39
5200.00	0.53	26.69	5199.70	-14.18	30.82	-14.18	33.93	114.71	0.25
5300.00	0.75	14.82	5299.69	-13.13	31.20	-13.13	33.85	112.82	0.25
5400.00	0.80	10.60	5399.68	-11.80	31.50	-11.80	33.64	110.54	0.08
5500.00	0.86	32.24	5499.67	-10.48	32.03	-10.48	33.70	108.11	0.32
5600.00	0.85	26.21	5599.66	-9.17	32.76	-9.17	34.02	105.64	0.09
5700.00	0.72	25.33	5699.65	-7.93	33.36	-7.93	34.29	103.38	0.13
5800.00	0.57	38.10	5799.64	-6.97	33.93	-6.97	34.64	101.61	0.21
5900.00	0.86	69.54	5899.64	-6.32	34.94	-6.32	35.51	100.25	0.48
6000.00	0.98	76.44	5999.62	-5.86	36.47	-5.86	36.94	99.13	0.16
6100.00	1.14	72.58	6099.61	-5.36	38.25	-5.36	38.63	97.98	0.18
6200.00	1.55	86.31	6199.58	-4.98	40.55	-4.98	40.85	97.00	0.52
6300.00	1.98	94.52	6299.53	-5.03	43.62	-5.03	43.91	96.57	0.50
6400.00	2.01	93.28	6399.47	-5.26	47.09	-5.26	47.39	96.37	0.05
6500.00	2.17	90.44	6499.40	-5.38	50.73	-5.38	51.02	96.05	0.19
6600.00	1.70	93.18	6599.35	-5.47	54.11	-5.47	54.38	95.78	0.47
6700.00	1.24	87.94	6699.31	-5.52	56.67	-5.52	56.94	95.56	0.48
6800.00	0.96	92.38	6799.29	-5.51	58.59	-5.51	58.85	95.37	0.29
6900.00	1.00	88.57	6899.28	-5.52	60.29	-5.52	60.55	95.24	0.07
7000.00	0.57	105.55	6999.27	-5.64	61.65	-5.64	61.90	95.22	0.48
HORIZONTAL DISPLACEMENT IS 61.90 FEET AT 95.22 DEGREES									