



Company: Noble Energy
Lease/Well: Wells Ranch USX AA / 25-16
Location: S-25 T-6N R-63W
Rig Name: Production
State/County: Colorado / Weld County
Latitude: 40.45, Longitude: -104.38
GRID North is 0.72 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: 6/24/2011 / 22:18

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	0.04	241.46	100.00	-0.02	-0.03	-0.02	0.03	241.46	0.04
200.00	0.16	249.12	200.00	-0.08	-0.19	-0.08	0.21	246.73	0.13
300.00	0.16	333.14	300.00	0.00	-0.39	0.00	0.39	269.41	0.22
400.00	0.19	298.70	400.00	0.20	-0.60	0.20	0.63	288.86	0.11
500.00	0.10	58.71	500.00	0.33	-0.67	0.33	0.74	296.38	0.26
600.00	0.10	157.95	600.00	0.29	-0.56	0.29	0.63	297.86	0.16
700.00	0.22	164.33	700.00	0.02	-0.47	0.02	0.47	272.67	0.12
800.00	0.14	157.58	800.00	-0.28	-0.37	-0.28	0.46	232.44	0.08
900.00	0.13	103.59	900.00	-0.43	-0.21	-0.43	0.47	206.17	0.13
1000.00	0.04	321.74	1000.00	-0.43	-0.12	-0.43	0.44	195.71	0.16
1100.00	0.05	45.98	1100.00	-0.37	-0.11	-0.37	0.38	196.36	0.06
1200.00	0.08	282.07	1200.00	-0.32	-0.15	-0.32	0.35	204.65	0.12
1300.00	0.28	164.90	1300.00	-0.54	-0.16	-0.54	0.56	196.22	0.32
1400.00	0.27	112.99	1400.00	-0.86	0.12	-0.86	0.87	171.83	0.24
1500.00	0.38	109.31	1499.99	-1.06	0.65	-1.06	1.25	148.42	0.11
1600.00	0.47	138.93	1599.99	-1.48	1.24	-1.48	1.93	140.17	0.24
1700.00	0.21	187.72	1699.99	-1.97	1.49	-1.97	2.47	143.04	0.37
1800.00	0.09	198.04	1799.99	-2.23	1.44	-2.23	2.65	147.23	0.11
1900.00	0.16	93.85	1899.99	-2.32	1.55	-2.32	2.79	146.25	0.20
2000.00	0.10	214.28	1999.99	-2.40	1.64	-2.40	2.91	145.74	0.23
2100.00	0.10	232.02	2099.99	-2.53	1.52	-2.53	2.95	149.04	0.03
2200.00	0.13	330.46	2199.99	-2.48	1.39	-2.48	2.85	150.68	0.18
2300.00	0.06	12.21	2299.99	-2.33	1.35	-2.33	2.69	149.91	0.10
2400.00	0.10	11.10	2399.99	-2.19	1.38	-2.19	2.58	147.78	0.04
2500.00	0.13	163.61	2499.99	-2.20	1.43	-2.20	2.62	147.09	0.22
2600.00	0.13	148.81	2599.99	-2.40	1.51	-2.40	2.84	147.79	0.03
2700.00	0.14	61.27	2699.99	-2.44	1.67	-2.44	2.96	145.54	0.18
2800.00	0.10	212.59	2799.99	-2.45	1.73	-2.45	3.00	144.79	0.23
2900.00	0.12	94.93	2899.99	-2.53	1.79	-2.53	3.11	144.71	0.19
3000.00	0.07	100.38	2999.99	-2.56	1.96	-2.56	3.22	142.44	0.05
3100.00	0.11	4.59	3099.99	-2.47	2.04	-2.47	3.20	140.48	0.14
3200.00	0.09	319.12	3199.99	-2.31	1.99	-2.31	3.05	139.21	0.08
3300.00	0.29	56.57	3299.99	-2.11	2.16	-2.11	3.02	134.39	0.32
3400.00	0.23	77.66	3399.99	-1.93	2.57	-1.93	3.21	126.88	0.11

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	0.30	208.40	3499.99	-2.12	2.64	-2.12	3.39	128.70	0.49
3600.00	0.32	158.01	3599.98	-2.61	2.62	-2.61	3.70	134.87	0.27
3700.00	0.49	185.81	3699.98	-3.30	2.69	-3.30	4.25	140.82	0.25
3800.00	0.18	254.73	3799.98	-3.76	2.50	-3.76	4.51	146.42	0.45
3900.00	0.15	263.66	3899.98	-3.81	2.22	-3.81	4.41	149.79	0.04
4000.00	0.08	65.61	3999.98	-3.80	2.16	-3.80	4.37	150.42	0.22
4100.00	0.66	241.82	4099.98	-4.04	1.71	-4.04	4.39	157.05	0.74
4200.00	0.73	234.87	4199.97	-4.68	0.68	-4.68	4.73	171.73	0.11
4300.00	0.17	226.04	4299.97	-5.15	0.05	-5.15	5.15	179.43	0.56
4400.00	0.14	208.65	4399.97	-5.37	-0.12	-5.37	5.37	181.24	0.05
4500.00	0.16	29.17	4499.97	-5.35	-0.11	-5.35	5.35	181.15	0.31
4600.00	0.45	54.13	4599.97	-5.00	0.28	-5.00	5.01	176.79	0.31
4700.00	0.68	78.80	4699.96	-4.65	1.18	-4.65	4.80	165.75	0.33
4800.00	0.06	275.77	4799.96	-4.53	1.71	-4.53	4.84	159.30	0.74
4900.00	0.20	193.64	4899.96	-4.70	1.62	-4.70	4.97	161.01	0.20
5000.00	0.15	34.18	4999.96	-4.76	1.65	-4.76	5.04	160.89	0.35
5100.00	0.10	298.49	5099.96	-4.61	1.65	-4.61	4.90	160.34	0.19
5200.00	0.17	96.50	5199.96	-4.59	1.72	-4.59	4.90	159.46	0.26
5300.00	0.12	304.13	5299.96	-4.54	1.78	-4.54	4.88	158.61	0.28
5400.00	0.14	56.40	5399.96	-4.42	1.79	-4.42	4.77	157.90	0.21
5500.00	0.11	294.84	5499.96	-4.31	1.80	-4.31	4.67	157.29	0.22
5600.00	0.10	172.28	5599.96	-4.35	1.72	-4.35	4.68	158.39	0.19
5700.00	0.05	258.84	5699.96	-4.45	1.69	-4.45	4.76	159.13	0.11
5800.00	0.15	77.34	5799.96	-4.42	1.78	-4.42	4.77	158.04	0.20
5900.00	0.14	92.63	5899.96	-4.40	2.04	-4.40	4.85	155.17	0.04
6000.00	0.13	320.97	5999.96	-4.32	2.09	-4.32	4.79	154.21	0.25
6100.00	0.11	345.06	6099.96	-4.13	1.99	-4.13	4.59	154.31	0.06
6200.00	0.10	265.27	6199.96	-4.05	1.88	-4.05	4.46	155.12	0.14
6300.00	0.21	141.60	6299.96	-4.20	1.91	-4.20	4.61	155.59	0.28
6400.00	0.44	31.42	6399.95	-4.02	2.22	-4.02	4.59	151.04	0.55
6500.00	0.23	218.88	6499.95	-3.84	2.30	-3.84	4.48	149.13	0.67
6600.00	0.40	138.58	6599.95	-4.26	2.40	-4.26	4.89	150.59	0.42

HORIZONTAL DISPLACEMENT IS 4.89 FEET AT 150.59 DEGREES									
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