



Company: NOBLE WIRE
Lease/Well: API 05123-3052/WELLS RANCH BB 12-03
Location: SWNW SEC.12 -T5N-R63W
Rig Name: LIGHTNING WIRE
State/County: COLORADO/WELD
Latitude: 40.42
GRID North is 0.72 Degrees East of True North
VS-Azi: 0.00 Degrees



Service Company : Vaughn Energy Services

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01.ut
Minimum Curvature Method
Report Date/Time: 7/27/2009 / 11:15

VAUGHN ENERGY SERVICES
PINEDALE, WYOMING
307-367-2691

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	0.09	79.46	100.00	0.01	0.07	0.01	0.07	79.46	0.09
200.00	0.01	290.63	200.00	0.03	0.14	0.03	0.14	77.24	0.10
300.00	0.01	249.86	300.00	0.03	0.12	0.03	0.12	75.01	0.01
400.00	0.06	294.29	400.00	0.05	0.07	0.05	0.09	54.77	0.05
500.00	0.10	328.76	500.00	0.15	-0.02	0.15	0.15	352.23	0.07
600.00	0.18	350.94	600.00	0.38	-0.09	0.38	0.39	346.43	0.09
700.00	0.26	330.75	700.00	0.73	-0.23	0.73	0.77	342.77	0.11
800.00	0.25	357.79	800.00	1.14	-0.35	1.14	1.20	343.19	0.12
900.00	0.41	353.47	900.00	1.72	-0.39	1.72	1.76	347.05	0.16
1000.00	0.44	68.28	999.99	2.21	-0.08	2.21	2.22	357.93	0.52
1100.00	0.51	71.45	1099.99	2.50	0.69	2.50	2.59	15.53	0.07
1200.00	0.51	68.36	1199.99	2.80	1.52	2.80	3.19	28.56	0.03
1300.00	0.49	65.52	1299.98	3.14	2.32	3.14	3.91	36.51	0.03
1400.00	0.54	60.73	1399.98	3.55	3.12	3.55	4.73	41.37	0.07
1500.00	0.58	43.09	1499.97	4.15	3.88	4.15	5.68	43.10	0.18
1600.00	0.59	35.61	1599.97	4.94	4.53	4.94	6.70	42.52	0.08
1700.00	0.75	43.19	1699.96	5.83	5.28	5.83	7.87	42.13	0.18
1800.00	0.51	45.22	1799.96	6.62	6.04	6.62	8.96	42.36	0.24
1900.00	0.54	4.83	1899.95	7.40	6.39	7.40	9.78	40.81	0.36
2000.00	1.03	10.08	1999.94	8.76	6.59	8.76	10.96	36.95	0.49
2100.00	0.90	10.24	2099.93	10.42	6.89	10.42	12.49	33.47	0.13
2200.00	1.02	25.61	2199.91	11.99	7.41	11.99	14.10	31.71	0.28
2300.00	0.81	81.37	2299.90	12.90	8.49	12.90	15.44	33.35	0.87
2400.00	0.42	134.42	2399.90	12.75	9.45	12.75	15.87	36.55	0.65

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
2500.00	0.57	148.94	2499.89	12.06	9.97	12.06	15.65	39.58	0.19
2600.00	0.56	151.97	2599.89	11.21	10.45	11.21	15.33	43.00	0.03
2700.00	0.63	153.92	2699.88	10.29	10.92	10.29	15.01	46.71	0.08
2800.00	0.67	164.08	2799.88	9.24	11.32	9.24	14.61	50.80	0.12
2900.00	0.54	132.45	2899.87	8.35	11.83	8.35	14.49	54.78	0.35
3000.00	0.54	133.22	2999.87	7.71	12.53	7.71	14.71	58.38	0.01
3100.00	0.73	125.12	3099.86	7.02	13.39	7.02	15.12	62.33	0.21
3200.00	1.34	127.26	3199.85	5.95	14.85	5.95	15.99	68.17	0.60
3300.00	1.34	86.82	3299.82	5.31	16.94	5.31	17.76	72.61	0.93
3400.00	2.09	63.72	3399.78	6.18	19.75	6.18	20.69	72.63	1.00
3500.00	2.29	53.08	3499.70	8.18	22.98	8.18	24.39	70.40	0.45
3600.00	2.63	57.18	3599.61	10.62	26.50	10.62	28.55	68.15	0.38
3700.00	2.51	51.58	3699.51	13.23	30.15	13.23	32.92	66.30	0.27
3800.00	2.41	54.37	3799.42	15.82	33.57	15.82	37.11	64.77	0.16
3900.00	2.61	57.16	3899.32	18.28	37.20	18.28	41.44	63.83	0.23
4000.00	2.59	52.44	3999.22	20.89	40.90	20.89	45.92	62.94	0.21
4100.00	2.42	50.18	4099.12	23.61	44.31	23.61	50.21	61.94	0.20
4200.00	2.40	42.83	4199.04	26.50	47.35	26.50	54.26	60.77	0.31
4300.00	2.31	37.79	4298.95	29.63	50.01	29.63	58.12	59.36	0.23
4400.00	2.48	35.28	4398.86	32.98	52.49	32.98	61.99	57.86	0.20
4500.00	2.85	36.28	4498.76	36.75	55.21	36.75	66.32	56.35	0.37
4600.00	1.85	39.91	4598.67	39.99	57.71	39.99	70.21	55.28	1.01
4700.00	1.48	60.15	4698.63	41.87	59.86	41.87	73.05	55.03	0.69
4800.00	1.00	52.77	4798.61	43.04	61.68	43.04	75.21	55.09	0.50
4900.00	0.66	70.93	4898.60	43.76	62.92	43.76	76.64	55.18	0.43
5000.00	0.46	163.42	4998.59	43.56	63.57	43.56	77.06	55.58	0.82
5100.00	0.62	168.74	5098.59	42.64	63.79	42.64	76.73	56.24	0.17
5200.00	1.12	183.48	5198.58	41.13	63.84	41.13	75.94	57.21	0.54
5300.00	1.42	187.23	5298.55	38.93	63.62	38.93	74.59	58.54	0.30
5400.00	1.17	180.06	5398.53	36.68	63.47	36.68	73.30	59.98	0.29
5500.00	1.26	186.41	5498.50	34.56	63.34	34.56	72.16	61.38	0.16
5600.00	1.26	219.29	5598.48	32.62	62.52	32.62	70.52	62.45	0.71
5700.00	1.22	224.97	5698.46	31.01	61.08	31.01	68.50	63.08	0.13
5800.00	0.86	242.01	5798.44	29.91	59.66	29.91	66.74	63.37	0.47
5900.00	0.90	254.17	5898.43	29.34	58.24	29.34	65.22	63.26	0.19
6000.00	0.60	267.47	5998.42	29.10	56.97	29.10	63.97	62.94	0.35
6100.00	0.67	258.62	6098.41	28.97	55.87	28.97	62.94	62.60	0.12
6200.00	0.67	233.52	6198.41	28.51	54.83	28.51	61.80	62.53	0.29
6300.00	0.14	215.93	6298.41	28.06	54.29	28.06	61.12	62.67	0.53
6400.00	0.40	170.65	6398.40	27.62	54.28	27.62	60.90	63.03	0.32
6500.00	0.46	167.39	6498.40	26.89	54.42	26.89	60.70	63.71	0.06
6600.00	0.37	152.80	6598.40	26.21	54.66	26.21	60.62	64.39	0.13
6700.00	0.12	115.47	6698.40	25.87	54.91	25.87	60.70	64.77	0.29

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
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6757.00	0.17	100.03	6755.40	25.83	55.04	25.83	60.80	64.86	0.10
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