

VES

VAUGHN ENERGY SERVICES

Company: NOBLE
 Lease/Well: DL PHILLIPS/24-34
 Location:
 Rig Name: PRODUCTION
 State/County: COLORADO/WELD

Latitude: 40.38
 GRID North is 0.42 Degrees East of True North
 VS-Azi: 0.00 Degrees

GTI

GYRO TECHNOLOGIES, INC

FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : KB = 0 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: dlphillips243-01.ut
 Minimum Curvature Method
 Report Date/Time: 6/21/2010 / 12:21

Vaughn Energy Services
 Rifle, Colorado
 970-456-2071
 Dustin Skoruppa
 DL Phillips 24-34

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	0.24	120.68	100.00	-0.11	0.18	-0.11	0.21	120.68	0.24
200.00	0.72	125.68	200.00	-0.58	0.87	-0.58	1.05	123.69	0.48
300.00	0.85	124.60	299.99	-1.37	2.00	-1.37	2.43	124.49	0.13
400.00	0.83	136.33	399.98	-2.32	3.12	-2.32	3.89	126.71	0.17
500.00	0.96	135.61	499.96	-3.45	4.21	-3.45	5.44	129.36	0.13
600.00	1.40	140.70	599.94	-5.00	5.57	-5.00	7.48	131.90	0.45
700.00	1.42	137.07	699.91	-6.85	7.19	-6.85	9.93	133.62	0.09
800.00	1.55	141.64	799.88	-8.81	8.87	-8.81	12.50	134.83	0.17
900.00	1.45	139.09	899.84	-10.83	10.53	-10.83	15.10	135.79	0.12
1000.00	1.31	144.17	999.81	-12.71	12.03	-12.71	17.50	136.58	0.18
1100.00	1.24	153.85	1099.79	-14.61	13.18	-14.61	19.68	137.95	0.23
1200.00	1.11	166.32	1199.77	-16.53	13.89	-16.53	21.59	139.96	0.29
1300.00	1.14	171.72	1299.75	-18.45	14.26	-18.45	23.31	142.30	0.11
1400.00	1.15	186.09	1399.73	-20.43	14.29	-20.43	24.93	145.02	0.29
1500.00	1.10	182.77	1499.71	-22.39	14.14	-22.39	26.48	147.73	0.08
1600.00	0.96	198.96	1599.69	-24.15	13.82	-24.15	27.82	150.21	0.32
1700.00	0.71	195.11	1699.68	-25.54	13.39	-25.54	28.83	152.34	0.26
1800.00	0.74	203.46	1799.68	-26.73	12.97	-26.73	29.71	154.12	0.11
1900.00	0.66	206.96	1899.67	-27.84	12.45	-27.84	30.50	155.91	0.09
2000.00	0.69	217.07	1999.66	-28.83	11.82	-28.83	31.16	157.71	0.12
2100.00	0.76	202.40	2099.65	-29.93	11.21	-29.93	31.96	159.47	0.20
2200.00	0.70	239.46	2199.65	-30.85	10.43	-30.85	32.57	161.32	0.47
2300.00	0.90	241.58	2299.64	-31.53	9.21	-31.53	32.85	163.72	0.21
2400.00	1.17	231.88	2399.62	-32.54	7.72	-32.54	33.44	166.66	0.32
2500.00	1.19	244.29	2499.60	-33.62	5.98	-33.62	34.15	169.92	0.26
2600.00	1.47	239.75	2599.57	-34.72	3.93	-34.72	34.94	173.54	0.29
2700.00	1.53	238.34	2699.54	-36.06	1.69	-36.06	36.10	177.32	0.07
2800.00	1.72	246.88	2799.50	-37.35	-0.83	-37.35	37.36	181.27	0.31
2900.00	1.74	237.56	2899.45	-38.76	-3.49	-38.76	38.91	185.14	0.28
3000.00	1.69	238.21	2999.41	-40.34	-6.02	-40.34	40.79	188.48	0.05
3100.00	1.61	241.60	3099.37	-41.79	-8.50	-41.79	42.64	191.50	0.13

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	1.41	249.05	3199.33	-42.89	-10.88	-42.89	44.25	194.24	0.28
3300.00	1.30	268.64	3299.30	-43.36	-13.16	-43.36	45.31	196.88	0.47
3400.00	1.29	299.43	3399.28	-42.83	-15.27	-42.83	45.47	199.62	0.69
3500.00	1.19	296.83	3499.26	-41.81	-17.17	-41.81	45.20	202.33	0.12
3600.00	0.89	296.28	3599.24	-41.00	-18.79	-41.00	45.10	204.62	0.30
3700.00	0.80	256.21	3699.23	-40.83	-20.17	-40.83	45.53	206.29	0.59
3800.00	0.94	215.61	3799.22	-41.66	-21.32	-41.66	46.80	207.10	0.62
3900.00	1.15	218.90	3899.20	-43.11	-22.43	-43.11	48.60	207.49	0.22
4000.00	1.23	205.02	3999.18	-44.87	-23.52	-44.87	50.66	207.66	0.30
4100.00	1.37	223.63	4099.16	-46.70	-24.80	-46.70	52.88	207.96	0.44
4200.00	1.31	215.54	4199.13	-48.50	-26.28	-48.50	55.16	208.46	0.20
4300.00	1.20	226.52	4299.11	-50.15	-27.71	-50.15	57.29	208.92	0.26
4400.00	1.02	244.27	4399.09	-51.25	-29.27	-51.25	59.02	209.73	0.38
4500.00	0.75	234.21	4499.08	-52.02	-30.59	-52.02	60.35	210.46	0.31
4600.00	0.30	274.68	4599.07	-52.38	-31.38	-52.38	61.06	210.93	0.55
4700.00	0.40	264.43	4699.07	-52.39	-31.99	-52.39	61.39	211.41	0.12
4800.00	0.92	305.61	4799.06	-51.95	-33.00	-51.95	61.55	212.42	0.68
4900.00	1.28	316.61	4899.04	-50.67	-34.42	-50.67	61.26	214.19	0.42
5000.00	1.29	308.76	4999.02	-49.15	-36.07	-49.15	60.96	216.27	0.18
5100.00	1.20	309.46	5098.99	-47.78	-37.76	-47.78	60.90	218.32	0.09
5200.00	1.15	314.49	5198.97	-46.40	-39.29	-46.40	60.80	220.25	0.12
5300.00	1.02	297.78	5298.96	-45.28	-40.79	-45.28	60.95	222.01	0.34
5400.00	0.89	295.54	5398.94	-44.54	-42.28	-44.54	61.41	223.51	0.14
5500.00	0.84	303.27	5498.93	-43.80	-43.59	-43.80	61.79	224.86	0.13
5600.00	0.77	291.93	5598.92	-43.15	-44.82	-43.15	62.22	226.09	0.17
5700.00	0.64	296.60	5698.91	-42.65	-45.94	-42.65	62.69	227.13	0.14
5800.00	0.65	232.64	5798.91	-42.75	-46.89	-42.75	63.45	227.65	0.68
5900.00	0.96	233.54	5898.90	-43.59	-48.02	-43.59	64.85	227.77	0.31
6000.00	0.96	263.60	5998.88	-44.18	-49.53	-44.18	66.37	228.27	0.50
6100.00	0.98	293.03	6098.87	-43.94	-51.15	-43.94	67.43	229.34	0.49
6200.00	1.32	296.50	6198.85	-43.09	-52.97	-43.09	68.28	230.87	0.34
6300.00	1.29	322.46	6298.83	-41.69	-54.69	-41.69	68.76	232.68	0.59
6400.00	1.17	319.35	6398.80	-40.02	-56.04	-40.02	68.86	234.47	0.14
6500.00	1.25	307.10	6498.78	-38.59	-57.57	-38.59	69.31	236.17	0.27
6600.00	1.30	324.05	6598.76	-37.01	-59.11	-37.01	69.74	237.95	0.38
6700.00	1.26	337.88	6698.73	-35.07	-60.19	-35.07	69.66	239.77	0.31
6800.00	1.41	328.90	6798.70	-33.00	-61.24	-33.00	69.57	241.68	0.26
6900.00	1.51	324.31	6898.67	-30.88	-62.64	-30.88	69.84	243.76	0.15
7000.00	1.84	319.07	6998.63	-28.60	-64.46	-28.60	70.52	246.07	0.36
7100.00	1.92	327.63	7098.58	-25.98	-66.41	-25.98	71.31	248.63	0.29
7200.00	1.79	332.93	7198.52	-23.17	-68.01	-23.17	71.85	251.19	0.22
7300.00	1.69	321.17	7298.48	-20.63	-69.65	-20.63	72.64	253.50	0.37
7400.00	1.43	330.93	7398.44	-18.39	-71.18	-18.39	73.52	255.51	0.38
7480.00	1.15	340.34	7478.42	-16.77	-71.93	-16.77	73.86	256.88	0.43
HORIZONTAL DISPLACEMENT IS 73.86 FEET AT 256.88 DEGREES									