



Company: Mewbourne Oil
 Lease/Well: University B11 18/#3H
 Location: 17 Miles SW of Frankel City
 Rig Name: Patterson 80
 State/County: TX/Andrews
 Latitude: 31.14, Longitude: -102.84
 GRID North is 2.91 Degrees West of True North
 VS-Azi: 0.00 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = 18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...ity b11 18 #3h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 1/5/2014 / 15:41

Vaughn Energy Services
 Midland, Texas
 432-563-5444
 Chris Ellis

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	0.14	45.68	100.00	0.08	0.08	0.08	0.12	45.68	0.14
200.00	0.25	64.54	200.00	0.26	0.36	0.26	0.45	54.62	0.12
300.00	0.33	61.70	300.00	0.49	0.81	0.49	0.94	59.01	0.08
400.00	0.19	93.42	400.00	0.61	1.22	0.61	1.37	63.45	0.20
500.00	0.10	75.62	500.00	0.62	1.47	0.62	1.60	67.04	0.10
600.00	0.14	126.94	600.00	0.57	1.66	0.57	1.75	70.95	0.11
700.00	0.04	160.15	700.00	0.47	1.76	0.47	1.83	75.13	0.11
800.00	0.05	68.41	800.00	0.46	1.82	0.46	1.87	75.93	0.06
900.00	0.05	43.91	900.00	0.50	1.89	0.50	1.96	75.09	0.02
1000.00	0.08	124.11	1000.00	0.49	1.98	0.49	2.04	75.97	0.09
1100.00	0.07	101.80	1100.00	0.44	2.10	0.44	2.14	78.09	0.03
1200.00	0.07	99.10	1200.00	0.42	2.22	0.42	2.26	79.28	0.00
1300.00	0.19	55.09	1300.00	0.51	2.42	0.51	2.47	78.16	0.15
1400.00	0.05	34.85	1400.00	0.64	2.58	0.64	2.66	76.08	0.15
1500.00	0.05	71.27	1500.00	0.69	2.65	0.69	2.74	75.39	0.03
1600.00	0.19	37.75	1600.00	0.84	2.80	0.84	2.92	73.30	0.15
1700.00	1.13	72.56	1699.99	1.27	3.85	1.27	4.05	71.74	0.98
1800.00	1.50	65.23	1799.96	2.11	5.98	2.11	6.34	70.53	0.40
1900.00	1.66	63.41	1899.92	3.31	8.46	3.31	9.09	68.63	0.17
2000.00	2.08	64.58	1999.87	4.74	11.40	4.74	12.35	67.42	0.42
2100.00	2.06	60.95	2099.80	6.39	14.61	6.39	15.95	66.37	0.13
2200.00	2.31	59.55	2199.73	8.29	17.93	8.29	19.75	65.18	0.25
2300.00	2.68	59.95	2299.64	10.49	21.69	10.49	24.09	64.20	0.37
2400.00	3.90	57.34	2399.47	13.49	26.58	13.49	29.80	63.09	1.23
2500.00	4.59	53.96	2499.20	17.68	32.67	17.68	37.15	61.59	0.73
2600.00	4.82	63.13	2598.86	21.93	39.65	21.93	45.31	61.06	0.79
2700.00	5.08	66.05	2698.49	25.62	47.44	25.62	53.92	61.63	0.36
2800.00	4.88	63.33	2798.11	29.33	55.29	29.33	62.58	62.06	0.31
2900.00	4.15	57.16	2897.80	33.20	62.13	33.20	70.44	61.88	0.88
3000.00	4.06	62.37	2997.54	36.80	68.30	36.80	77.59	61.68	0.38
3100.00	3.96	64.29	3097.30	39.94	74.55	39.94	84.57	61.82	0.17
3200.00	3.96	64.07	3197.06	42.95	80.76	42.95	91.47	62.00	0.02
3300.00	4.14	64.38	3296.81	46.02	87.12	46.02	98.53	62.16	0.17
3400.00	3.99	59.85	3396.56	49.32	93.38	49.32	105.61	62.16	0.35

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	4.41	60.36	3496.29	52.97	99.74	52.97	112.93	62.03	0.42
3600.00	4.47	60.75	3595.99	56.78	106.48	56.78	120.67	61.93	0.06
3700.00	4.68	62.71	3695.67	60.55	113.50	60.55	128.65	61.92	0.26
3800.00	4.73	61.25	3795.33	64.41	120.75	64.41	136.85	61.92	0.13
3900.00	4.75	62.90	3894.99	68.28	128.05	68.28	145.11	61.93	0.14
4000.00	4.72	64.06	3994.65	71.96	135.43	71.96	153.36	62.02	0.10
4100.00	4.15	63.49	4094.35	75.38	142.37	75.38	161.09	62.10	0.57
4200.00	3.50	60.57	4194.13	78.49	148.26	78.49	167.76	62.10	0.69
4300.00	2.73	62.50	4293.98	81.09	153.03	81.09	173.18	62.08	0.78
4400.00	2.55	67.28	4393.87	83.04	157.19	83.04	177.78	62.15	0.28
4500.00	2.22	66.99	4493.79	84.66	161.03	84.66	181.92	62.27	0.33
4600.00	2.05	71.34	4593.72	85.99	164.50	85.99	185.62	62.40	0.23
4700.00	1.89	76.00	4693.66	86.96	167.79	86.96	188.98	62.60	0.23
4800.00	1.71	78.44	4793.61	87.65	170.84	87.65	192.02	62.84	0.19
4900.00	1.46	92.58	4893.57	87.89	173.58	87.89	194.56	63.14	0.46
5000.00	1.49	96.14	4993.54	87.70	176.14	87.70	196.77	63.53	0.09
5100.00	1.47	97.09	5093.51	87.40	178.71	87.40	198.93	63.94	0.03
5200.00	1.45	101.77	5193.47	86.98	181.22	86.98	201.01	64.36	0.12
5300.00	1.44	107.84	5293.44	86.34	183.66	86.34	202.94	64.82	0.15
5400.00	1.83	118.20	5393.40	85.20	186.26	85.20	204.82	65.42	0.49
5500.00	1.89	118.82	5493.35	83.65	189.11	83.65	206.79	66.14	0.07
5600.00	2.05	121.48	5593.29	81.92	192.08	81.92	208.82	66.90	0.18
5700.00	2.17	116.98	5693.22	80.13	195.29	80.13	211.09	67.69	0.20
5800.00	2.11	119.47	5793.15	78.37	198.58	78.37	213.48	68.46	0.11
5900.00	2.29	108.03	5893.08	76.85	202.08	76.85	216.20	69.18	0.48
6000.00	2.70	105.97	5992.98	75.58	206.25	75.58	219.66	69.88	0.42
6100.00	3.01	89.56	6092.86	74.95	211.14	74.95	224.05	70.46	0.87
6200.00	1.88	99.62	6192.77	74.69	215.39	74.69	227.98	70.87	1.21
6300.00	1.53	112.58	6292.72	73.91	218.25	73.91	230.42	71.29	0.52
6400.00	1.71	101.52	6392.68	73.09	220.94	73.09	232.72	71.69	0.36
6465.00	1.73	94.72	6457.66	72.82	222.87	72.82	234.47	71.91	0.32

HORIZONTAL DISPLACEMENT IS
234.47 FEET AT 71.91 DEGREES



Stryker Energy Directional Services, LLC

SURVEY CALCULATION REPORT

Minimum Curvature Calculations

Operator: Mewbourne Oil Company
 Lease Name: University B11 '18' #3H
 API /Job Number: 42-003-45756 C14-1001
 Comments: Tie-in to Vaughn Energy Gyro Survey
 Survey Company: Stryker Energy Directional Services, LLC

7/2/14

Target KBTVD: 7,054 Feet
 Target Angle: 89.15 Degrees
 Section Plane: 166.92 Degrees
 Declination Corrected to Grid: 9.31 Degrees
 Bit to Survey Offset: 46 Feet

Lead Driller: Gary Burow

Survey Number	Measured Depth	Drift (Degrees)	Azimuth (Degrees)	Course Length	TVD (Feet)	Vertical Section	+N/-S (Feet)	+E/-W (Feet)	BUR	DLS	KBTVD	+Above -Below Target	Distance From Proposed Line	Distance from Plan
T/I	6465	1.73	94.72	N/A	6,457.70	-20.5	72.80	222.90	N/A	0.3	6458.0	595.8	105.5	-4383.13
1	6555	2.80	145.00	90	6,547.64	-18.0	70.9	225.5	1.2	2.4	6547.9	505.9	-235.7	-4724.31
2	6587	6.00	162.40	32	6,579.54	-15.6	68.7	226.5	10.0	10.7	6579.8	474.0	-236.1	-236.13
3	6618	10.80	168.90	31	6,610.20	-11.1	64.3	227.5	15.5	15.8	6610.4	443.4	-236.2	-236.16
4	6650	14.20	178.90	32	6,641.44	-4.3	57.4	228.2	10.6	12.6	6641.5	412.3	-235.2	-235.24
5	6682	18.30	179.50	32	6,672.15	4.5	48.4	228.3	12.8	12.8	6672.1	381.7	-233.3	-233.33
6	6714	23.20	176.50	32	6,702.07	15.6	37.1	228.7	15.3	15.7	6701.8	352.0	-231.2	-231.18
7	6746	27.10	174.40	32	6,731.03	29.1	23.6	229.8	12.2	12.5	6730.6	323.2	-229.2	-229.19
8	6777	29.90	174.00	31	6,758.27	43.7	8.8	231.3	9.0	9.1	6757.6	296.2	-227.3	-227.31
9	6809	32.40	174.70	32	6,785.66	60.1	-7.6	232.9	7.8	7.9	6784.8	269.0	-225.2	-225.17
10	6841	35.20	175.80	32	6,812.25	77.8	-25.4	234.4	8.8	9.0	6811.1	242.7	-222.6	-222.59
11	6872	38.70	177.40	31	6,837.02	96.1	-44.0	235.5	11.3	11.7	6835.6	218.2	-219.4	-219.44
12	6904	41.80	178.60	32	6,861.44	116.4	-64.6	236.2	9.7	10.0	6859.7	194.1	-215.5	-215.46
13	6936	44.10	180.20	32	6,884.86	137.7	-86.4	236.4	7.2	8.0	6882.8	171.0	-210.7	-210.75
14	6967	46.50	181.20	31	6,906.66	159.1	-108.5	236.2	7.7	8.1	6904.3	149.5	-205.5	-205.49
15	6998	49.20	178.40	31	6,927.47	181.5	-131.4	236.3	8.7	11.0	6924.8	129.0	-200.4	-200.38
16	7030	52.30	181.00	32	6,947.71	205.6	-156.2	236.4	9.7	11.6	6944.7	109.1	-194.9	-194.89
17	7062	55.50	181.20	32	6,966.56	230.7	-182.0	235.9	10.0	10.0	6963.1	90.6	-188.6	-188.56
18	7094	57.60	181.90	32	6,984.20	256.5	-208.7	235.2	6.6	6.8	6980.4	73.4	-181.8	-181.81
19	7125	59.40	181.90	31	7,000.40	282.1	-235.2	234.3	5.8	5.8	6996.2	57.6	-175.0	-174.98
20	7157	61.70	181.20	32	7,016.13	309.0	-263.0	233.5	7.2	7.4	7011.5	42.2	-167.9	-167.94



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Lead Driller: Gary Burow

Survey Number	Measured Depth	Drift (Degrees)	Azimuth (Degrees)	Course Length	TVD (Feet)	Vertical Section	+N/-S (Feet)	+E/-W (Feet)	BUR	DLS	KBTVD	+Above -Below Target	Distance From Proposed Line	Distance from Plan
21	7189	65.10	180.70	32	7,030.46	336.8	-291.6	233.1	10.6	10.7	7025.5	28.3	-161.0	-161.01
22	7220	67.80	180.20	31	7,042.84	364.4	-320.0	232.8	8.7	8.8	7037.4	16.4	-154.4	-154.36
23	7252	70.10	179.60	32	7,054.33	393.5	-349.9	232.9	7.2	7.4	7048.5	5.3	-147.7	-147.66
24	7284	73.60	179.50	32	7,064.30	423.2	-380.3	233.1	10.9	10.9	7058.0	-4.2	-141.0	-141.01
25	7315	78.20	179.30	31	7,071.85	452.5	-410.3	233.4	14.8	14.9	7065.1	-11.3	-134.5	-134.52
26	7347	81.30	179.50	32	7,077.55	483.3	-441.8	233.8	9.7	9.7	7070.4	-16.6	-127.7	-127.71
27	7379	84.20	179.50	32	7,081.58	514.2	-473.6	234.0	9.1	9.1	7074.0	-20.2	-120.8	-120.80
28	7413	86.40	178.60	34	7,084.37	547.4	-507.4	234.6	6.5	7.0	7076.2	-22.5	-113.7	-113.68
29	7470	89.10	176.30	57	7,086.61	603.4	-564.3	237.1	4.7	6.2	7077.7	-23.9	-103.3	-103.27
30	7502	89.00	176.00	32	7,087.14	634.9	-596.3	239.3	-0.3	1.0	7077.7	-23.9	-98.1	-98.14
31	7534	88.80	176.00	32	7,087.75	666.5	-628.2	241.5	-0.6	0.6	7077.9	-24.1	-93.1	-93.09
32	7629	91.10	176.50	95	7,087.83	760.3	-723.0	247.7	2.4	2.5	7076.6	-22.8	-77.7	-77.69
33	7724	88.50	174.20	95	7,088.17	854.2	-817.6	255.4	-2.7	3.7	7075.5	-21.7	-63.8	-63.77
34	7819	87.30	173.50	95	7,091.65	948.4	-912.0	265.6	-1.3	1.5	7077.6	-23.8	-52.3	-52.32
35	7914	88.60	170.70	95	7,095.05	1,043.0	-1,006.0	278.6	1.4	3.2	7079.6	-25.8	-43.7	-43.75
36	7976	89.70	171.60	62	7,095.97	1,104.8	-1,067.3	288.2	1.8	2.3	7079.6	-25.8	-39.2	-39.17
37	8039	88.40	170.10	63	7,097.01	1,167.6	-1,129.5	298.2	-2.1	3.2	7079.7	-25.9	-34.9	-34.86
38	8101	87.70	169.40	62	7,099.12	1,229.5	-1,190.4	309.2	-1.1	1.6	7080.9	-27.1	-31.8	-31.80
39	8163	86.50	169.10	62	7,102.26	1,291.4	-1,251.3	320.8	-1.9	2.0	7083.1	-29.3	-29.3	-29.28
40	8224	86.50	166.80	61	7,105.98	1,352.3	-1,310.8	333.5	0.0	3.8	7085.9	-32.1	-28.2	-28.19
41	8285	89.00	166.30	61	7,108.38	1,413.2	-1,370.1	347.7	4.1	4.2	7087.4	-33.6	-28.6	-28.58



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Survey Number	Measured Depth	Drift (Degrees)	Azimuth (Degrees)	Course Length	TVD (Feet)	Vertical Section	+N/-S (Feet)	+E/-W (Feet)	BUR	DLS	KBTVD	+Above -Below Target	Distance From Proposed Line	Distance from Plan
42	8345	90.60	166.10	60	7,108.58	1,473.2	-1,428.3	362.0	2.7	2.7	7086.7	-32.9	-29.3	-29.33
43	8406	87.50	166.10	61	7,109.60	1,534.2	-1,487.5	376.6	-5.1	5.1	7086.8	-33.0	-30.2	-30.21
44	8468	89.40	166.30	62	7,111.27	1,596.1	-1,547.7	391.4	3.1	3.1	7087.6	-33.8	-31.0	-30.99
45	8530	89.10	164.70	62	7,112.08	1,658.1	-1,607.7	406.9	-0.5	2.6	7087.5	-33.7	-32.5	-32.52
46	8593	90.90	166.30	63	7,112.08	1,721.1	-1,668.7	422.7	2.9	3.8	7086.5	-32.8	-34.1	-34.08
47	8653	89.20	164.90	60	7,112.03	1,781.0	-1,726.8	437.6	-2.8	3.7	7085.6	-31.8	-35.5	-35.46
48	8715	89.80	164.90	62	7,112.57	1,843.0	-1,786.7	453.8	1.0	1.0	7085.2	-31.4	-37.6	-37.65
49	8777	90.40	166.10	62	7,112.46	1,905.0	-1,846.7	469.3	1.0	2.2	7084.2	-30.4	-39.2	-39.19
50	8838	90.00	165.40	61	7,112.25	1,966.0	-1,905.8	484.3	-0.7	1.3	7083.1	-29.3	-40.4	-40.43
51	8900	89.80	165.40	62	7,112.36	2,027.9	-1,965.8	499.9	-0.3	0.3	7082.3	-28.5	-42.1	-42.08
52	8962	90.40	165.60	62	7,112.25	2,089.9	-2,025.8	515.5	1.0	1.0	7081.2	-27.5	-43.6	-43.61
53	9025	90.80	166.10	63	7,111.59	2,152.9	-2,086.9	530.9	0.6	1.0	7079.7	-25.9	-44.8	-44.79
54	9087	89.30	166.80	62	7,111.54	2,214.9	-2,147.2	545.4	-2.4	2.7	7078.7	-24.9	-45.3	-45.30
55	9149	88.50	166.80	62	7,112.73	2,276.9	-2,207.5	559.5	-1.3	1.3	7078.9	-25.2	-45.4	-45.43
56	9211	88.50	167.70	62	7,114.35	2,338.9	-2,268.0	573.2	0.0	1.5	7079.7	-25.9	-45.1	-45.07
57	9306	88.20	167.00	95	7,117.09	2,433.8	-2,360.6	594.0	-0.3	0.8	7081.0	-27.2	-44.4	-44.36
58	9401	88.60	167.30	95	7,119.74	2,528.8	-2,453.2	615.1	0.4	0.5	7082.2	-28.4	-44.0	-43.98
59	9496	88.40	168.00	95	7,122.23	2,623.7	-2,546.0	635.4	-0.2	0.8	7083.3	-29.5	-42.8	-42.77
60	9590	89.10	167.70	94	7,124.28	2,717.7	-2,637.9	655.2	0.7	0.8	7084.0	-30.2	-41.2	-41.24
61	9685	88.50	168.00	95	7,126.27	2,812.7	-2,730.7	675.2	-0.6	0.7	7084.5	-30.7	-39.7	-39.70
62	9780	90.70	166.80	95	7,126.93	2,907.7	-2,823.4	695.9	2.3	2.6	7083.8	-30.0	-38.9	-38.90



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 Bit to Survey Offset: 46 Feet

Lead Driller: Gary Burow

Survey Number	Measured Depth	Drift (Degrees)	Azimuth (Degrees)	Course Length	TVD (Feet)	Vertical Section	+N/-S (Feet)	+E/-W (Feet)	BUR	DLS	KBTVD	+Above -Below Target	Distance From Proposed Line	Distance from Plan
63	9875	90.20	167.00	95	7,126.18	3,002.7	-2,915.9	717.5	-0.5	0.6	7081.6	-27.8	-38.9	-38.94
64	9970	89.70	167.00	95	7,126.27	3,097.7	-3,008.5	738.8	-0.5	0.5	7080.3	-26.5	-38.8	-38.80
65	10064	89.10	167.00	94	7,127.25	3,191.6	-3,100.1	760.0	-0.6	0.6	7079.9	-26.1	-38.7	-38.67
66	10159	87.10	166.60	95	7,130.40	3,286.6	-3,192.5	781.7	-2.1	2.1	7081.6	-27.8	-38.9	-38.87
67	10254	89.30	165.90	95	7,133.38	3,381.5	-3,284.7	804.2	2.3	2.4	7083.2	-29.4	-40.0	-39.98
68	10349	88.90	167.00	95	7,134.88	3,476.5	-3,377.1	826.5	-0.4	1.2	7083.3	-29.5	-40.8	-40.76
69	10444	90.90	166.30	95	7,135.04	3,571.5	-3,469.5	848.4	2.1	2.2	7082.1	-28.3	-41.2	-41.21
70	10539	89.20	165.80	95	7,134.96	3,666.5	-3,561.7	871.3	-1.8	1.9	7080.6	-26.8	-42.7	-42.65
71	10633	90.20	166.10	94	7,135.45	3,760.5	-3,652.9	894.1	1.1	1.1	7079.7	-25.9	-44.2	-44.24
72	10753	91.20	166.10	120	7,133.98	3,880.4	-3,769.4	923.0	0.8	0.8	7076.4	-22.6	-46.0	-45.96
73	10848	87.80	167.20	95	7,134.81	3,975.4	-3,861.7	944.9	-3.6	3.8	7075.8	-22.0	-46.4	-46.41
74	10942	87.80	170.90	94	7,138.42	4,069.2	-3,953.9	962.7	0.0	3.9	7078.0	-24.3	-42.9	-42.92
75	11037	91.50	170.00	95	7,139.00	4,164.0	-4,047.6	978.5	3.9	4.0	7077.2	-23.4	-37.1	-37.07
76	11132	92.20	170.00	95	7,135.94	4,258.8	-4,141.1	995.0	0.7	0.7	7072.7	-19.0	-32.0	-31.97
77	11226	90.10	170.10	94	7,134.05	4,352.6	-4,233.6	1,011.2	-2.2	2.2	7069.5	-15.7	-26.8	-26.84
78	11320	92.20	168.70	94	7,132.16	4,446.5	-4,326.0	1,028.5	2.2	2.7	7066.2	-12.4	-22.8	-22.77
79	11415	91.00	169.40	95	7,129.51	4,541.4	-4,419.2	1,046.5	-1.3	1.5	7062.1	-8.3	-19.2	-19.24
80	11510	91.40	169.40	95	7,127.52	4,636.3	-4,512.6	1,064.0	0.4	0.4	7058.7	-4.9	-15.1	-15.13
81	11605	88.40	168.40	95	7,127.69	4,731.2	-4,605.8	1,082.3	-3.2	3.3	7057.5	-3.7	-11.9	-11.85
82	11700	88.70	167.70	95	7,130.09	4,826.2	-4,698.7	1,101.9	0.3	0.8	7058.5	-4.7	-10.0	-9.98
83	11795	89.40	167.50	95	7,131.67	4,921.1	-4,791.5	1,122.3	0.7	0.8	7058.7	-4.9	-8.9	-8.85



Stryker Energy Directional Services, LLC

SURVEY CALCULATION REPORT

Minimum Curvature Calculations

Operator: Mewbourne Oil Company
 Lease Name: University B11 '18' #3H
 API/Job Number: 42-003-45756 C14-1001
 Comments: Tie-in to Vaughn Energy Gyro Survey
 Survey Company: Stryker Energy Directional Services, LLC

7/2/14

Target KBTVD: 7,054 Feet
 Target Angle: 89.15 Degrees
 Section Plane: 166.92 Degrees
 Declination Corrected to Grid: 9.31 Degrees
 Bit to Survey Offset: 46 Feet

Lead Driller: Gary Burow

Survey Number	Measured Depth	Drift (Degrees)	Azimuth (Degrees)	Course Length	TVD (Feet)	Vertical Section	+N/-S (Feet)	+E/-W (Feet)	BUR	DLS	KBTVD	+Above -Below Target	Distance From Proposed Line	Distance from Plan
84	11890	89.40	167.70	95	7,132.66	5,016.1	-4,884.2	1,142.7	0.0	0.2	7058.2	-4.4	-7.7	-7.72
85	11985	89.00	168.00	95	7,133.99	5,111.1	-4,977.1	1,162.7	-0.4	0.5	7058.2	-4.4	-6.2	-6.18
86	12080	92.30	168.20	95	7,132.91	5,206.1	-5,070.0	1,182.3	3.5	3.5	7055.7	-1.9	-4.2	-4.23
87	12175	93.70	170.10	95	7,127.94	5,300.9	-5,163.2	1,200.2	1.5	2.5	7049.3	4.5	-0.5	-0.54
88	12270	90.80	169.80	95	7,124.21	5,395.6	-5,256.6	1,216.7	-3.1	3.1	7044.2	9.6	4.5	4.48
89	12365	90.90	171.00	95	7,122.80	5,490.4	-5,350.3	1,232.6	0.1	1.3	7041.3	12.4	10.2	10.25
90	12460	86.90	168.70	95	7,124.62	5,585.2	-5,443.7	1,249.3	-4.2	4.9	7041.8	12.0	15.1	15.10
91	12555	91.50	171.20	95	7,125.95	5,680.0	-5,537.2	1,265.9	4.8	5.5	7041.7	12.1	20.1	20.12
92	12650	87.70	167.50	95	7,126.61	5,774.8	-5,630.5	1,283.4	-4.0	5.6	7040.9	12.9	24.1	24.14
93	12745	88.70	166.80	95	7,129.59	5,869.8	-5,723.1	1,304.5	1.1	1.3	7042.5	11.3	24.5	24.52
94	12840	87.80	166.30	95	7,132.50	5,964.7	-5,815.4	1,326.6	-0.9	1.1	7044.0	9.8	23.9	23.91
95	12935	90.00	166.30	95	7,134.32	6,059.7	-5,907.7	1,349.1	2.3	2.3	7044.4	9.4	22.9	22.88
96	13029	91.50	166.30	94	7,133.09	6,153.7	-5,999.0	1,371.4	1.6	1.6	7041.8	12.0	21.9	21.87
97	13125	89.00	164.50	96	7,132.67	6,249.6	-6,091.9	1,395.5	-2.6	3.2	7039.9	13.8	19.3	19.32
98	13219	89.20	164.50	94	7,134.15	6,343.5	-6,182.4	1,420.7	0.2	0.2	7040.0	13.8	15.4	15.35
99	13314	90.00	165.60	95	7,134.81	6,438.5	-6,274.2	1,445.2	0.8	1.4	7039.3	14.5	12.3	12.25
100	13409	88.20	165.90	95	7,136.30	6,533.4	-6,366.3	1,468.5	-1.9	1.9	7039.4	14.4	10.3	10.31
101	13504	88.50	165.90	95	7,139.04	6,628.4	-6,458.4	1,491.7	0.3	0.3	7040.7	13.1	8.6	8.62
102	13599	86.40	165.40	95	7,143.26	6,723.3	-6,550.3	1,515.2	-2.2	2.3	7043.5	10.3	6.5	6.52
103	13694	86.50	165.40	95	7,149.15	6,818.0	-6,642.0	1,539.1	0.1	0.1	7048.0	5.8	4.0	4.00
104	13789	86.90	165.20	95	7,154.61	6,912.8	-6,733.8	1,563.2	0.4	0.5	7052.1	1.7	1.3	1.32



Stryker Energy Directional Services, LLC

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 Bit to Survey Offset: 46 Feet

Lead Driller: Gary Burow

Survey Number	Measured Depth	Drift (Degrees)	Azimuth (Degrees)	Course Length	TVD (Feet)	Vertical Section	+N/-S (Feet)	+E/-W (Feet)	BUR	DLS	KBTVD	+Above -Below Target	Distance From Proposed Line	Distance from Plan
105	13884	87.10	165.10	95	7,159.59	7,007.7	-6,825.5	1,587.5	0.2	0.2	7055.6	-1.8	-1.6	-1.61
106	13979	89.10	163.80	95	7,162.74	7,102.5	-6,917.0	1,612.9	2.1	2.5	7057.4	-3.6	-5.7	-5.70
107	14074	90.00	163.50	95	7,163.48	7,197.4	-7,008.1	1,639.7	0.9	1.0	7056.7	-2.9	-11.1	-11.12
108	14124	90.20	163.60	50	7,163.39	7,247.3	-7,056.1	1,653.8	0.4	0.4	7055.9	-2.1	-14.1	-14.06
TD	14170	91.40	163.60	46	7,162.75	7,293.2	-7,100.2	1,666.8	2.6	2.6	7054.5	-0.8	-16.7	-4505.32

Closure Distance: 7247.3 Feet
 Closure Direction: 166.8 Degrees
 Distance from Line: -14.1 Feet Right of Section Line

Curve				Lateral Targets									
Target	1	2	3	Target	1	2	3	4	5	6	7	8	
VS	577.5	587.3		MD	11400	11900	12400	12900	13400	13900	14170		
TVD	7068	7085		TVD	7130	7130	7132	7134	7145	7158	7162		
				INC	90.8								

Closure Distance @ EOH: 7293.2 Feet
 Closure Direction @ EOH: 166.8 Degrees
 Distance from line @ EOH: -16.7 Feet Left of Section Line