

OPERATOR MEWBOURNE OIL COMPANY
WELL/LEASE ZIRCON 1 STATE # 2H
COUNTY EDDY

STATE OF NEW MEXICO
DEVIATION REPORT

30-015-39833

402	0.50
712	0.68
1,010	1.21
1,265	1.87
1,576	1.43
1,704	1.38
1,920	1.35
2,176	1.24
2,684	1.06
3,192	1.14
3,380	0.90
3,890	0.86
4,363	0.43
4,870	0.28
5,347	0.36
5,852	0.43
6,327	0.66
6,613	0.87
6,963	0.83

STATE OF TEXAS

COUNTY OF MIDLAND

BY

Steve Moore

The foregoing instrument was acknowledged before me on
Steve Moore on behalf of Patterson-UTI Drilling Company LLC.

April 23, 2012, by

Gordon Daman Jr.
Notary Public for Midland County, Texas
My Commission Expires: July 31, 2015





Company: Mewbourne Oil Company
Lease/Well: Zircon 1 State/2H
Location: Sec - 1 T - 19S R - 29E
Rig Name: Patterson #47
State/County: New Mexico/Eddy
Latitude: 32.69
GRID North is 0.17 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB = 19 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: zircon 1 state #2h_ed.ut

Minimum Curvature Method

Report Date/Time: 3/19/2012 / 16:12

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Eric McMahon

Zircon 1 State 2H / API 30-015-39833

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	1.58	146.50	99.99	-1.15	0.76	-1.15	1.38	146.50	1.58
200.00	1.13	181.03	199.96	-3.28	1.50	-3.28	3.61	155.44	0.91
300.00	1.11	183.77	299.94	-5.24	1.42	-5.24	5.43	164.83	0.06
400.00	1.13	188.51	399.92	-7.18	1.21	-7.18	7.28	170.43	0.10
500.00	1.20	184.51	499.90	-9.19	0.98	-9.19	9.25	173.90	0.11
600.00	1.05	184.74	599.88	-11.15	0.82	-11.15	11.18	175.77	0.15
700.00	0.80	179.21	699.87	-12.76	0.76	-12.76	12.78	176.60	0.27
800.00	0.25	158.04	799.87	-13.66	0.85	-13.66	13.68	176.45	0.58
900.00	0.40	95.12	899.86	-13.89	1.27	-13.89	13.94	174.76	0.36
1000.00	1.13	80.94	999.85	-13.76	2.59	-13.76	14.00	169.34	0.75
1100.00	1.75	68.18	1099.82	-13.04	4.98	-13.04	13.96	159.11	0.70
1200.00	2.25	53.15	1199.76	-11.30	7.96	-11.30	13.82	144.83	0.72
1300.00	2.11	50.92	1299.69	-8.96	10.96	-8.96	14.16	129.29	0.16
1400.00	1.91	40.35	1399.63	-6.54	13.46	-6.54	14.97	115.90	0.42
1500.00	1.66	32.28	1499.58	-4.04	15.31	-4.04	15.84	104.79	0.35
1600.00	1.57	28.24	1599.54	-1.61	16.74	-1.61	16.81	95.50	0.14
1700.00	1.38	19.71	1699.51	0.73	17.79	0.73	17.81	87.65	0.30
1800.00	1.42	14.54	1799.48	3.06	18.51	3.06	18.76	80.62	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
1900.00	1.52	9.46	1899.45	5.56	19.03	5.56	19.83	73.72	0.17
2000.00	1.34	356.56	1999.41	8.04	19.18	8.04	20.80	67.27	0.37
2100.00	1.37	356.27	2099.39	10.40	19.03	10.40	21.69	61.35	0.03
2200.00	1.40	356.99	2199.36	12.81	18.89	12.81	22.83	55.86	0.03
2300.00	1.35	348.75	2299.33	15.18	18.60	15.18	24.01	50.78	0.20
2400.00	1.34	349.58	2399.30	17.48	18.16	17.48	25.21	46.08	0.02
2500.00	1.32	350.30	2499.27	19.77	17.75	19.77	26.57	41.92	0.03
2600.00	1.23	350.60	2599.25	21.96	17.38	21.96	28.01	38.37	0.09
2700.00	1.29	352.80	2699.23	24.13	17.07	24.13	29.56	35.27	0.08
2800.00	1.16	347.07	2799.20	26.24	16.70	26.24	31.11	32.47	0.18
2900.00	1.10	350.12	2899.18	28.18	16.31	28.18	32.56	30.06	0.09
3000.00	1.09	358.27	2999.16	30.07	16.11	30.07	34.12	28.18	0.16
3100.00	1.14	357.42	3099.15	32.02	16.04	32.02	35.82	26.61	0.05
3200.00	1.06	351.82	3199.13	33.93	15.86	33.93	37.46	25.05	0.14
3300.00	0.98	348.59	3299.11	35.69	15.56	35.69	38.93	23.56	0.10
3400.00	1.19	349.74	3399.09	37.55	15.21	37.55	40.51	22.05	0.21
3500.00	0.98	345.18	3499.08	39.40	14.80	39.40	42.09	20.59	0.23
3600.00	1.01	347.97	3599.06	41.09	14.40	41.09	43.54	19.32	0.05
3700.00	0.95	346.28	3699.05	42.75	14.02	42.75	45.00	18.16	0.06
3800.00	0.98	345.56	3799.03	44.39	13.61	44.39	46.43	17.05	0.03
3900.00	1.03	343.37	3899.02	46.08	13.14	46.08	47.91	15.92	0.07
4000.00	1.05	340.83	3999.00	47.81	12.58	47.81	49.43	14.75	0.05
4100.00	1.09	330.91	4098.98	49.50	11.82	49.50	50.90	13.43	0.19
4200.00	0.90	331.43	4198.97	51.02	10.98	51.02	52.19	12.15	0.19
4300.00	0.48	334.60	4298.96	52.09	10.43	52.09	53.12	11.32	0.42
4400.00	0.59	340.09	4398.96	52.96	10.07	52.96	53.90	10.77	0.12
4500.00	0.35	318.95	4498.95	53.67	9.70	53.67	54.54	10.24	0.29
4600.00	0.53	312.51	4598.95	54.21	9.15	54.21	54.98	9.59	0.19
4700.00	0.55	307.52	4698.94	54.82	8.43	54.82	55.46	8.75	0.05
4800.00	0.32	301.25	4798.94	55.25	7.82	55.25	55.80	8.06	0.24
4900.00	0.43	303.59	4898.94	55.60	7.27	55.60	56.07	7.45	0.11
5000.00	0.22	307.17	4998.94	55.92	6.81	55.92	56.33	6.95	0.21
5100.00	0.41	275.58	5098.94	56.07	6.30	56.07	56.42	6.41	0.25
5200.00	0.36	264.56	5198.93	56.07	5.63	56.07	56.36	5.73	0.09
5300.00	0.37	265.95	5298.93	56.02	4.99	56.02	56.24	5.09	0.01
5400.00	0.43	277.50	5398.93	56.05	4.29	56.05	56.21	4.38	0.10
5500.00	0.27	293.47	5498.93	56.19	3.70	56.19	56.31	3.77	0.18
5600.00	0.03	233.78	5598.93	56.27	3.47	56.27	56.38	3.53	0.26
5700.00	0.35	198.76	5698.93	55.97	3.35	55.97	56.07	3.42	0.33

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
5800.00	0.52	180.82	5798.92	55.22	3.24	55.22	55.31	3.36	0.22
5900.00	0.77	182.70	5898.92	54.09	3.21	54.09	54.18	3.39	0.25
6000.00	0.74	185.18	5998.91	52.77	3.12	52.77	52.86	3.38	0.05
6100.00	0.90	188.96	6098.90	51.35	2.94	51.35	51.44	3.27	0.16
6200.00	0.80	197.83	6198.89	49.92	2.60	49.92	49.99	2.98	0.16
6300.00	0.96	218.68	6298.88	48.60	1.86	48.60	48.64	2.20	0.35
6400.00	0.78	229.03	6398.86	47.50	0.83	47.50	47.51	1.00	0.24
6500.00	1.10	233.48	6498.85	46.48	-0.46	46.48	46.49	359.44	0.32
6600.00	0.86	239.29	6598.84	45.53	-1.87	45.53	45.57	357.64	0.26
6700.00	1.07	249.10	6698.82	44.82	-3.39	44.82	44.94	355.68	0.26
6800.00	1.18	247.21	6798.80	44.09	-5.21	44.09	44.39	353.27	0.12
6900.00	0.88	259.12	6898.79	43.54	-6.91	43.54	44.09	350.98	0.36
7000.00	0.58	262.08	6998.78	43.33	-8.17	43.33	44.09	349.32	0.30
7100.00	0.39	262.99	7098.77	43.22	-9.01	43.22	44.14	348.23	0.19
7200.00	0.19	263.13	7198.77	43.15	-9.51	43.15	44.19	347.58	0.20
7300.00	0.30	270.52	7298.77	43.14	-9.93	43.14	44.27	347.03	0.12
7400.00	0.11	263.92	7398.77	43.13	-10.29	43.13	44.34	346.58	0.19
7500.00	0.21	208.71	7498.77	42.96	-10.48	42.96	44.22	346.29	0.17
7536.00	0.22	179.15	7534.77	42.84	-10.51	42.84	44.11	346.22	0.30



Stryker Energy Directional Services, LLC

SURVEY CALCULATION REPORT

Minimum Curvature Calculations

Operator: Mewbourne Oil Company
 Lease Name: Zircon 1 State #2H
 API/Job Number: 30-015-39833 S12-031
 Comments: Tie-in to Vaughn Energy Gyro Survey
 Survey Company: Stryker Energy Directional Services, LLC

4/20/12

Target KBTVD: 8,116 Feet
 Target Angle: 91.08 Degrees
 Section Plane: 270.12 Degrees
 Declination Corrected to Grid: 7.58 Degrees
 Bit to Survey Offset: 47 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
T/I	7,536	0.22	179.15	N/A	7,534.77	42.8	42.84	-10.51	N/A	0.3	7535.6	580.7
1	7613	0.90	196.70	77	7,611.77	10.8	42.1	-10.7	0.9	0.9	7612.0	504.3
2	7644	3.50	244.50	31	7,642.74	11.7	41.5	-11.6	8.4	9.6	7643.0	473.3
3	7676	7.90	253.10	32	7,674.58	14.7	40.4	-14.6	13.8	14.0	7674.9	441.4
4	7707	11.80	255.10	31	7,705.11	19.8	39.0	-19.7	12.6	12.6	7705.5	410.8
5	7739	15.20	256.10	32	7,736.23	27.0	37.1	-26.9	10.6	10.6	7736.7	379.5
6	7770	18.50	258.20	31	7,765.89	35.8	35.1	-35.7	10.6	10.8	7766.6	349.7
7	7802	21.00	261.90	32	7,796.01	46.4	33.3	-46.3	7.8	8.7	7796.9	319.4
8	7833	23.40	266.50	31	7,824.71	58.1	32.1	-58.0	7.7	9.6	7825.8	290.4
9	7865	26.90	269.00	32	7,853.67	71.6	31.6	-71.6	10.9	11.4	7855.0	261.2
10	7897	30.00	268.80	32	7,881.80	86.9	31.3	-86.8	9.7	9.7	7883.4	232.8
11	7929	33.20	266.20	32	7,909.06	103.6	30.6	-103.6	10.0	10.9	7911.0	205.2
12	7960	36.30	263.20	31	7,934.53	121.2	28.9	-121.1	10.0	11.4	7936.8	179.4
13	7991	40.20	261.60	31	7,958.87	140.2	26.4	-140.2	12.6	13.0	7961.5	154.7
14	8023	44.20	261.40	32	7,982.57	161.5	23.2	-161.4	12.5	12.5	7985.6	130.6
15	8054	48.10	262.50	31	8,004.04	183.6	20.1	-183.5	12.6	12.8	8007.5	108.7
16	8086	50.80	263.20	32	8,024.84	207.7	17.1	-207.7	8.4	8.6	8028.8	87.5
17	8117	54.90	264.60	31	8,043.56	232.3	14.4	-232.2	13.2	13.7	8047.9	68.3
18	8149	58.00	265.80	32	8,061.24	258.8	12.2	-258.8	9.7	10.2	8066.1	50.1
19	8180	62.70	265.60	31	8,076.57	285.7	10.2	-285.7	15.2	15.2	8082.0	34.3
20	8212	67.00	266.00	32	8,090.17	314.6	8.1	-314.5	13.4	13.5	8096.1	20.1
21	8243	71.20	267.00	31	8,101.23	343.5	6.3	-343.4	13.5	13.9	8107.7	8.5
22	8275	75.20	267.70	32	8,110.47	374.0	4.9	-374.0	12.5	12.7	8117.5	-1.3
23	8307	78.10	268.10	32	8,117.86	405.2	3.8	-405.2	9.1	9.1	8125.5	-9.3
24	8339	81.80	267.90	32	8,123.45	436.6	2.7	-436.6	11.6	11.6	8131.7	-15.4
25	8371	86.60	268.10	32	8,126.68	468.4	1.5	-468.4	15.0	15.0	8135.5	-19.3
26	8386	88.00	268.80	15	8,127.39	483.4	1.1	-483.4	9.3	10.4	8136.5	-20.3
27	8464	91.40	270.40	78	8,127.79	561.4	0.6	-561.4	4.4	4.8	8138.4	-22.1
28	8496	91.50	270.20	32	8,126.98	593.4	0.8	-593.4	0.3	0.7	8138.2	-21.9
29	8528	91.40	269.80	32	8,126.17	625.4	0.8	-625.4	-0.3	1.3	8138.0	-21.7
30	8560	91.20	269.70	32	8,125.45	657.4	0.6	-657.4	-0.6	0.7	8137.8	-21.6
31	8591	91.10	269.50	31	8,124.83	688.4	0.4	-688.4	-0.3	0.7	8137.8	-21.6
32	8623	91.20	269.50	32	8,124.18	720.4	0.1	-720.4	0.3	0.3	8137.8	-21.5
33	8655	91.50	269.80	32	8,123.43	752.3	-0.1	-752.3	0.9	1.3	8137.6	-21.4
34	8687	92.80	269.80	32	8,122.23	784.3	-0.2	-784.3	4.1	4.1	8137.0	-20.8
35	8719	92.90	269.80	32	8,120.64	816.3	-0.3	-816.3	0.3	0.3	8136.0	-19.8
36	8749	93.40	269.80	30	8,118.99	846.2	-0.4	-846.2	1.7	1.7	8134.9	-18.7



Stryker Energy Directional Services, LLC

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Lead Driller: Gary Burow

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37	8781	92.80	270.40	32	8,117.26	878.2	-0.3	-878.2	-1.9	2.6	8133.8	-17.6
38	8812	92.30	270.70	31	8,115.88	909.2	0.0	-909.2	-1.6	1.9	8133.0	-16.8
39	8844	91.70	270.50	32	8,114.76	941.1	0.3	-941.1	-1.9	2.0	8132.5	-16.3
40	8876	90.40	270.40	32	8,114.18	973.1	0.5	-973.1	-4.1	4.1	8132.5	-16.3
41	8907	90.10	270.00	31	8,114.04	1,004.1	0.7	-1,004.1	-1.0	1.6	8133.0	-16.7
42	8939	90.10	269.80	32	8,113.99	1,036.1	0.6	-1,036.1	0.0	0.6	8133.5	-17.3
43	8971	90.10	269.80	32	8,113.93	1,068.1	0.5	-1,068.1	0.0	0.0	8134.1	-17.8
44	9002	90.60	269.80	31	8,113.74	1,099.1	0.4	-1,099.1	1.6	1.6	8134.5	-18.2
45	9034	90.60	269.30	32	8,113.41	1,131.1	0.1	-1,131.1	0.0	1.6	8134.7	-18.5
46	9066	90.60	269.00	32	8,113.07	1,163.1	-0.3	-1,163.1	0.0	0.9	8135.0	-18.8
47	9098	91.30	269.10	32	8,112.54	1,195.1	-0.9	-1,195.1	2.2	2.2	8135.1	-18.8
48	9130	91.50	269.10	32	8,111.76	1,227.1	-1.4	-1,227.1	0.6	0.6	8134.9	-18.6
49	9162	91.70	269.50	32	8,110.86	1,259.1	-1.8	-1,259.1	0.6	1.4	8134.6	-18.4
50	9193	91.60	271.30	31	8,109.97	1,290.1	-1.6	-1,290.1	-0.3	5.8	8134.3	-18.0
51	9225	91.90	271.30	32	8,109.00	1,322.0	-0.8	-1,322.0	0.9	0.9	8133.9	-17.7
52	9257	92.30	271.30	32	8,107.82	1,354.0	-0.1	-1,354.0	1.2	1.3	8133.3	-17.1
53	9288	92.00	270.70	31	8,106.66	1,385.0	0.4	-1,385.0	-1.0	2.2	8132.8	-16.5
54	9320	90.90	270.20	32	8,105.85	1,417.0	0.7	-1,417.0	-3.4	3.8	8132.6	-16.3
55	9352	91.20	270.20	32	8,105.26	1,449.0	0.8	-1,449.0	0.9	0.9	8132.6	-16.3
56	9384	91.50	270.00	32	8,104.51	1,481.0	0.9	-1,481.0	0.9	1.1	8132.4	-16.2
57	9416	91.50	269.50	32	8,103.67	1,512.9	0.7	-1,512.9	0.0	1.6	8132.2	-15.9
58	9448	91.80	269.70	32	8,102.75	1,544.9	0.5	-1,544.9	0.9	1.1	8131.9	-15.6
59	9480	91.90	270.00	32	8,101.72	1,576.9	0.4	-1,576.9	0.3	1.0	8131.4	-15.2
60	9512	91.50	270.90	32	8,100.77	1,608.9	0.7	-1,608.9	-1.3	3.1	8131.1	-14.9
61	9544	91.70	270.90	32	8,099.87	1,640.9	1.2	-1,640.9	0.6	0.6	8130.8	-14.6
62	9575	91.10	271.10	31	8,099.12	1,671.9	1.7	-1,671.9	-1.9	2.0	8130.6	-14.4
63	9607	90.30	271.40	32	8,098.73	1,703.9	2.4	-1,703.9	-2.5	2.7	8130.8	-14.6
64	9639	90.10	270.90	32	8,098.61	1,735.9	3.0	-1,735.8	-0.6	1.7	8131.3	-15.1
65	9671	90.10	270.50	32	8,098.56	1,767.9	3.4	-1,767.8	0.0	1.2	8131.9	-15.6
66	9702	90.30	270.50	31	8,098.45	1,798.8	3.7	-1,798.8	0.6	0.6	8132.4	-16.1
67	9734	91.50	270.50	32	8,097.95	1,830.8	4.0	-1,830.8	3.8	3.7	8132.5	-16.2
68	9766	91.80	270.90	32	8,097.03	1,862.8	4.4	-1,862.8	0.9	1.6	8132.1	-15.9
69	9798	91.50	270.20	32	8,096.11	1,894.8	4.7	-1,894.8	-0.9	2.4	8131.8	-15.6
70	9861	91.00	269.00	63	8,094.73	1,957.8	4.2	-1,957.8	-0.8	2.1	8131.6	-15.4
71	9925	91.80	269.70	64	8,093.17	2,021.8	3.5	-2,021.8	1.3	1.7	8131.3	-15.0
72	9989	92.00	269.70	64	8,091.05	2,085.7	3.2	-2,085.7	0.3	0.3	8130.4	-14.1
73	10052	92.20	269.50	63	8,088.74	2,148.7	2.7	-2,148.7	0.3	0.4	8129.2	-13.0



Stryker Energy Directional Services, LLC

SURVEY CALCULATION REPORT

Minimum Curvature Calculations

Operator: Mewbourne Oil Company
 Lease Name: Zircon 1 State #2H
 API /Job Number: 30-015-39833 S12-031
 Comments: Tie-in to Vaughn Energy Gyro Survey
 Survey Company: Stryker Energy Directional Services, LLC

4/20/12

Target KBTVD: 8,116 Feet
 Target Angle: 91.08 Degrees
 Section Plane: 270.12 Degrees
 Declination Corrected to Grid: 7.58 Degrees
 Bit to Survey Offset: 47 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
74	10116	92.40	269.30	64	8,086.17	2,212.6	2.1	-2,212.6	0.3	0.4	8127.9	-11.6
75	10179	91.20	269.50	63	8,084.19	2,275.6	1.4	-2,275.6	-1.9	1.9	8127.1	-10.8
76	10243	90.80	269.10	64	8,083.07	2,339.6	0.6	-2,339.6	-0.6	0.9	8127.2	-10.9
77	10306	91.00	268.80	63	8,082.08	2,402.6	-0.5	-2,402.6	0.3	0.6	8127.4	-11.1
78	10369	91.40	269.00	63	8,080.76	2,465.5	-1.7	-2,465.5	0.6	0.7	8127.2	-11.0
79	10433	91.50	269.80	64	8,079.14	2,529.5	-2.4	-2,529.5	0.2	1.3	8126.8	-10.6
80	10496	91.60	269.80	63	8,077.44	2,592.5	-2.6	-2,592.5	0.2	0.2	8126.3	-10.1
81	10560	91.50	269.30	64	8,075.71	2,656.4	-3.1	-2,656.5	-0.2	0.8	8125.8	-9.5
82	10624	91.70	270.00	64	8,073.92	2,720.4	-3.5	-2,720.4	0.3	1.1	8125.2	-9.0
83	10688	92.00	269.80	64	8,071.86	2,784.4	-3.6	-2,784.4	0.5	0.6	8124.3	-8.1
84	10751	91.50	270.00	63	8,069.93	2,847.4	-3.7	-2,847.4	-0.8	0.9	8123.6	-7.4
85	10814	90.70	268.60	63	8,068.72	2,910.3	-4.5	-2,910.3	-1.3	2.6	8123.6	-7.3
86	10878	90.70	267.90	64	8,067.94	2,974.3	-6.5	-2,974.3	0.0	1.1	8124.0	-7.8
87	10942	92.20	269.00	64	8,066.32	3,038.2	-8.2	-3,038.3	2.3	2.9	8123.6	-7.4
88	11006	92.90	270.70	64	8,063.47	3,102.2	-8.4	-3,102.2	1.1	2.9	8122.0	-5.7
89	11069	93.50	270.70	63	8,059.96	3,165.1	-7.6	-3,165.1	1.0	1.0	8119.6	-3.4
90	11133	92.00	271.40	64	8,056.89	3,229.0	-6.4	-3,229.0	-2.3	2.6	8117.8	-1.5
91	11196	90.90	271.60	63	8,055.29	3,291.9	-4.8	-3,292.0	-1.7	1.8	8117.4	-1.1
92	11260	91.30	271.60	64	8,054.06	3,355.9	-3.0	-3,355.9	0.6	0.6	8117.3	-1.1
93	11324	90.90	271.60	64	8,052.83	3,419.9	-1.2	-3,419.9	-0.6	0.6	8117.3	-1.1
94	11387	91.40	271.60	63	8,051.57	3,482.8	0.6	-3,482.8	0.8	0.8	8117.2	-1.0
95	11450	91.20	272.70	63	8,050.14	3,545.8	2.9	-3,545.8	-0.3	1.8	8117.0	-0.7
96	11514	89.80	272.70	64	8,049.58	3,609.7	5.9	-3,609.7	-2.2	2.2	8117.6	-1.4
97	11577	90.10	273.00	63	8,049.64	3,672.6	9.1	-3,672.6	0.5	0.7	8118.9	-2.6
98	11641	90.00	272.30	64	8,049.58	3,736.6	12.0	-3,736.6	-0.2	1.1	8120.0	-3.8
99	11705	90.90	271.60	64	8,049.08	3,800.5	14.2	-3,800.5	1.4	1.8	8120.7	-4.5
100	11768	90.60	271.10	63	8,048.25	3,863.5	15.7	-3,863.5	-0.5	0.9	8121.1	-4.8
101	11832	92.00	270.50	64	8,046.80	3,927.5	16.6	-3,927.5	2.2	2.4	8120.8	-4.6
102	11896	91.50	270.50	64	8,044.85	3,991.5	17.1	-3,991.4	-0.8	0.8	8120.1	-3.8
103	11959	91.50	270.70	63	8,043.20	4,054.4	17.8	-4,054.4	0.0	0.3	8119.6	-3.4
104	12023	90.70	270.90	64	8,041.97	4,118.4	18.7	-4,118.4	-1.3	1.3	8119.6	-3.4
105	12085	89.10	270.40	62	8,042.08	4,180.4	19.4	-4,180.4	-2.6	2.7	8120.9	-4.6
106	12148	90.30	268.80	63	8,042.41	4,243.4	19.0	-4,243.4	1.9	3.2	8122.4	-6.2
107	12212	92.30	269.00	64	8,040.96	4,307.4	17.7	-4,307.3	3.1	3.1	8122.2	-5.9
108	12276	92.20	268.80	64	8,038.44	4,371.3	16.5	-4,371.3	-0.2	0.3	8120.9	-4.6
109	12339	93.70	269.80	63	8,035.20	4,434.2	15.7	-4,434.2	2.4	2.9	8118.8	-2.5
110	12403	93.90	270.50	64	8,030.96	4,498.1	15.9	-4,498.0	0.3	1.1	8115.8	0.5



Stryker Energy Directional Services, LLC

SURVEY CALCULATION REPORT

Minimum Curvature Calculations

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 Comments: Tie-in to Vaughn Energy Gyro Survey
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4/20/12

Target KBTVD: 8,116 Feet
 Target Angle: 91.08 Degrees
 Section Plane: 270.12 Degrees
 Declination Corrected to Grid: 7.58 Degrees
 Bit to Survey Offset: 47 Feet

Lead Driller: Gary Burow

Survey Number	Measured Depth	Drift	Azimuth	Course	TVD	Vertical	+N/-S	+E/-W	BUR	DLS	KBTVD	+Above
		(Degrees)	(Degrees)	Length	(Feet)	Section	(Feet)	(Feet)				-Below
												Target
111	12466	92.70	269.80	63	8,027.33	4,561.0	16.1	-4,560.9	-1.9	2.2	8113.3	2.9
Bit	12514	92.00	269.80	48	8,025.37	4,608.9	15.9	-4,608.9	-1.5	1.5	8112.3	4.0