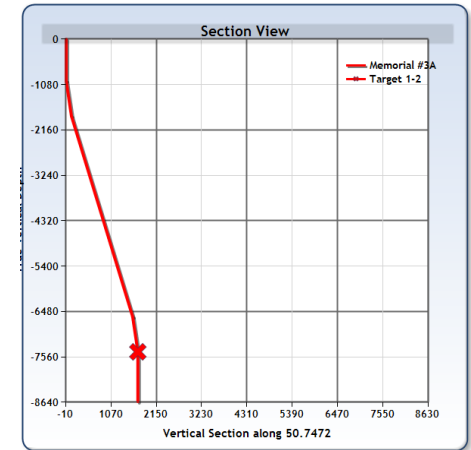
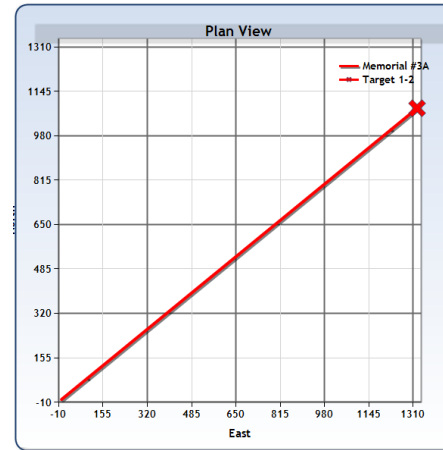


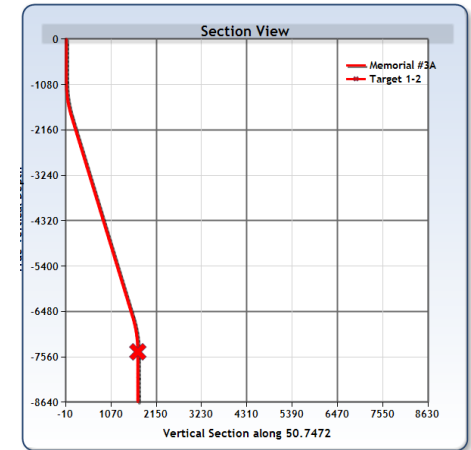
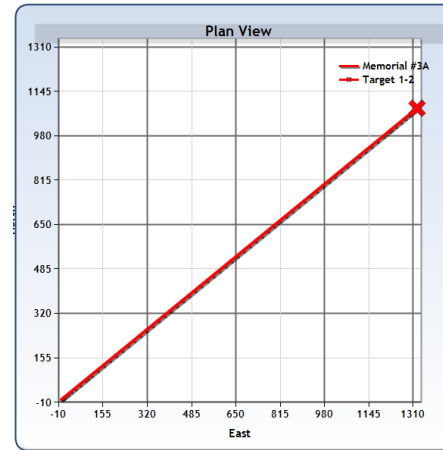
Company: Sovereign Operating Co., LLC
Well Name: Memorial #3A
Location: SWNE Sec. 3, T1S R68W
Info: North Reference Is True North
Info:
Vertical Section Calculated on an Azimuth of: 50.7472
Survey Calculation method: Minimum Curvature
File Name: Memorial #3B , Directional Surveys, 08-15-12.sr6



#	Depth Feet	Inc Degrees	Azimuth Degrees	TVD Feet	North Feet	East Feet	SubSea Feet	Section Feet	Dogleg /100 ft	BldRate /100 ft	Trnrate /100 ft	Comment
0	0.00	0.00	50.75	0.00	0.00	0.00	5208.00	0.00	0.00	0.00	0.00	
1	991.00	0.00	50.75	991.00	0.00	0.00	4217.00	0.00	0.00	0.00	0.00	
2	1841.00	17.00	50.75	1828.58	79.21	96.93	3379.42	125.18	2.00	2.00	0.00	
3	6834.00	17.00	50.75	6603.41	1002.89	1227.36	-1395.41	1584.99	0.00	0.00	0.00	
4	7684.00	0.00	50.75	7441.00	1082.10	1324.29	-2233.00	1710.17	2.00	2.00	0.00	
5	8868.00	0.00	50.75	8625.00	1082.10	1324.29	-3417.00	1710.17	0.00	0.00	0.00	

Closure is 1710.1672 feet on an Azimuth of 50.7472

Company: Sovereign Operating Co., LLC
Well Name: Memorial #3A
Location: SWNE Sec. 3, T1S R68W
Info: North Reference Is True North
Info:
Vertical Section Calculated on an Azimuth of: 50.7472
Survey Calculation method: Minimum Curvature
File Name: Memorial #3A, Directional Surveys, 08-15-12.sr6



#	Depth Feet	Inc Degrees	Azimuth Degrees	TVD Feet	North Feet	East Feet	SubSea Feet	Section Feet	Dogleg /100 ft	BldRate /100 ft	Trnrate /100 ft	Comment
0	0.00	0.00	50.75	0.00	0.00	0.00	5208.00	0.00	0.00	0.00	0.00	
1	100.00	0.00	50.75	100.00	0.00	0.00	5108.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	50.75	200.00	0.00	0.00	5008.00	0.00	0.00	0.00	0.00	
3	300.00	0.00	50.75	300.00	0.00	0.00	4908.00	0.00	0.00	0.00	0.00	
4	400.00	0.00	50.75	400.00	0.00	0.00	4808.00	0.00	0.00	0.00	0.00	
5	500.00	0.00	50.75	500.00	0.00	0.00	4708.00	0.00	0.00	0.00	0.00	
6	600.00	0.00	50.75	600.00	0.00	0.00	4608.00	0.00	0.00	0.00	0.00	
7	700.00	0.00	50.75	700.00	0.00	0.00	4508.00	0.00	0.00	0.00	0.00	
8	800.00	0.00	50.75	800.00	0.00	0.00	4408.00	0.00	0.00	0.00	0.00	
9	900.00	0.00	50.75	900.00	0.00	0.00	4308.00	0.00	0.00	0.00	0.00	
KOP. B.G.=2°/100'												
10	991.00	0.00	50.75	991.00	0.00	0.00	4217.00	0.00	0.00	0.00	0.00	
11	1000.00	0.18	50.75	1000.00	0.01	0.01	4208.00	0.01	2.00	2.00	0.00	
12	1100.00	2.18	50.75	1099.97	1.31	1.61	4108.03	2.07	2.00	2.00	0.00	
13	1200.00	4.18	50.75	1199.81	4.82	5.90	4008.19	7.62	2.00	2.00	0.00	
14	1300.00	6.18	50.75	1299.40	10.53	12.89	3908.60	16.65	2.00	2.00	0.00	
15	1400.00	8.18	50.75	1398.61	18.44	22.57	3809.39	29.15	2.00	2.00	0.00	



#	Depth	Inc	Azimuth	TVD	North	East	SubSea	Section	Dogleg	BldRate	Trnrate	Comment
16	1500.00	10.18	50.75	1497.33	28.54	34.92	3710.67	45.10	2.00	2.00	0.00	
17	1600.00	12.18	50.75	1595.42	40.80	49.94	3612.58	64.49	2.00	2.00	0.00	
18	1700.00	14.18	50.75	1692.78	55.23	67.59	3515.22	87.29	2.00	2.00	0.00	
19	1800.00	16.18	50.75	1789.29	71.80	87.87	3418.71	113.47	2.00	2.00	0.00	
EOD, HOLD 17°												
20	1841.00	17.00	50.75	1828.58	79.21	96.93	3379.42	125.18	2.00	2.00	0.00	
21	1900.00	17.00	50.75	1885.01	90.12	110.29	3322.99	142.43	0.00	0.00	0.00	
22	2000.00	17.00	50.75	1980.64	108.62	132.93	3227.36	171.66	0.00	0.00	0.00	
23	2100.00	17.00	50.75	2076.27	127.12	155.57	3131.73	200.90	0.00	0.00	0.00	
24	2200.00	17.00	50.75	2171.90	145.62	178.21	3036.10	230.14	0.00	0.00	0.00	
25	2300.00	17.00	50.75	2267.53	164.12	200.85	2940.47	259.38	0.00	0.00	0.00	
26	2400.00	17.00	50.75	2363.16	182.62	223.49	2844.84	288.61	0.00	0.00	0.00	
27	2500.00	17.00	50.75	2458.79	201.12	246.13	2749.21	317.85	0.00	0.00	0.00	
28	2600.00	17.00	50.75	2554.42	219.62	268.77	2653.58	347.09	0.00	0.00	0.00	
29	2700.00	17.00	50.75	2650.05	238.12	291.41	2557.95	376.32	0.00	0.00	0.00	
30	2800.00	17.00	50.75	2745.68	256.62	314.05	2462.32	405.56	0.00	0.00	0.00	
31	2900.00	17.00	50.75	2841.31	275.12	336.69	2366.69	434.80	0.00	0.00	0.00	
32	3000.00	17.00	50.75	2936.94	293.62	359.33	2271.06	464.04	0.00	0.00	0.00	
33	3100.00	17.00	50.75	3032.57	312.12	381.97	2175.43	493.27	0.00	0.00	0.00	
34	3200.00	17.00	50.75	3128.20	330.62	404.61	2079.80	522.51	0.00	0.00	0.00	
35	3300.00	17.00	50.75	3223.83	349.11	427.25	1984.17	551.75	0.00	0.00	0.00	
36	3400.00	17.00	50.75	3319.46	367.61	449.89	1888.54	580.99	0.00	0.00	0.00	
37	3500.00	17.00	50.75	3415.09	386.11	472.53	1792.91	610.22	0.00	0.00	0.00	
38	3600.00	17.00	50.75	3510.72	404.61	495.17	1697.28	639.46	0.00	0.00	0.00	
39	3700.00	17.00	50.75	3606.35	423.11	517.81	1601.65	668.70	0.00	0.00	0.00	
40	3800.00	17.00	50.75	3701.98	441.61	540.45	1506.02	697.93	0.00	0.00	0.00	
41	3900.00	17.00	50.75	3797.61	460.11	563.09	1410.39	727.17	0.00	0.00	0.00	
42	4000.00	17.00	50.75	3893.25	478.61	585.73	1314.75	756.41	0.00	0.00	0.00	
43	4100.00	17.00	50.75	3988.88	497.11	608.37	1219.12	785.65	0.00	0.00	0.00	
44	4200.00	17.00	50.75	4084.51	515.61	631.01	1123.49	814.88	0.00	0.00	0.00	
45	4300.00	17.00	50.75	4180.14	534.11	653.65	1027.86	844.12	0.00	0.00	0.00	
46	4400.00	17.00	50.75	4275.77	552.61	676.29	932.23	873.36	0.00	0.00	0.00	

Peterson Energy Management, Inc.
 2154 W. Eisenhower Blvd.
 Loveland CO, 80537
 P: 970-669-7411 F: 970-669-4077
 C.L.D.



Aug 15, 2012 05:41 PM

#	Depth	Inc	Azimuth	TVD	North	East	SubSea	Section	Dogleg	BldRate	Trnrate	Comment
47	4500.00	17.00	50.75	4371.40	571.11	698.93	836.60	902.59	0.00	0.00	0.00	
48	4600.00	17.00	50.75	4467.03	589.61	721.57	740.97	931.83	0.00	0.00	0.00	
49	4700.00	17.00	50.75	4562.66	608.11	744.21	645.34	961.07	0.00	0.00	0.00	
50	4800.00	17.00	50.75	4658.29	626.61	766.85	549.71	990.31	0.00	0.00	0.00	
51	4900.00	17.00	50.75	4753.92	645.11	789.49	454.08	1019.54	0.00	0.00	0.00	
52	5000.00	17.00	50.75	4849.55	663.61	812.13	358.45	1048.78	0.00	0.00	0.00	
53	5100.00	17.00	50.75	4945.18	682.11	834.78	262.82	1078.02	0.00	0.00	0.00	
54	5200.00	17.00	50.75	5040.81	700.61	857.42	167.19	1107.25	0.00	0.00	0.00	
55	5300.00	17.00	50.75	5136.44	719.11	880.06	71.56	1136.49	0.00	0.00	0.00	
56	5400.00	17.00	50.75	5232.07	737.61	902.70	-24.07	1165.73	0.00	0.00	0.00	
57	5500.00	17.00	50.75	5327.70	756.11	925.34	-119.70	1194.97	0.00	0.00	0.00	
58	5600.00	17.00	50.75	5423.33	774.61	947.98	-215.33	1224.20	0.00	0.00	0.00	
59	5700.00	17.00	50.75	5518.96	793.11	970.62	-310.96	1253.44	0.00	0.00	0.00	
60	5800.00	17.00	50.75	5614.59	811.61	993.26	-406.59	1282.68	0.00	0.00	0.00	
61	5900.00	17.00	50.75	5710.22	830.10	1015.90	-502.22	1311.91	0.00	0.00	0.00	
62	6000.00	17.00	50.75	5805.85	848.60	1038.54	-597.85	1341.15	0.00	0.00	0.00	
63	6100.00	17.00	50.75	5901.49	867.10	1061.18	-693.49	1370.39	0.00	0.00	0.00	
64	6200.00	17.00	50.75	5997.12	885.60	1083.82	-789.12	1399.63	0.00	0.00	0.00	
65	6300.00	17.00	50.75	6092.75	904.10	1106.46	-884.75	1428.86	0.00	0.00	0.00	
66	6400.00	17.00	50.75	6188.38	922.60	1129.10	-980.38	1458.10	0.00	0.00	0.00	
67	6500.00	17.00	50.75	6284.01	941.10	1151.74	-1076.01	1487.34	0.00	0.00	0.00	
68	6600.00	17.00	50.75	6379.64	959.60	1174.38	-1171.64	1516.57	0.00	0.00	0.00	
69	6700.00	17.00	50.75	6475.27	978.10	1197.02	-1267.27	1545.81	0.00	0.00	0.00	
70	6800.00	17.00	50.75	6570.90	996.60	1219.66	-1362.90	1575.05	0.00	0.00	0.00	
TOD, D.G.=2°/100'												
71	6834.00	17.00	50.75	6603.41	1002.89	1227.36	-1395.41	1584.99	0.00	0.00	0.00	
72	6900.00	15.68	50.75	6666.75	1014.64	1241.73	-1458.75	1603.56	2.00	2.00	0.00	
73	7000.00	13.68	50.75	6763.48	1030.67	1261.36	-1555.48	1628.90	2.00	2.00	0.00	
74	7100.00	11.68	50.75	6861.03	1044.56	1278.35	-1653.03	1650.85	2.00	2.00	0.00	
75	7200.00	9.68	50.75	6959.30	1056.29	1292.70	-1751.30	1669.38	2.00	2.00	0.00	
76	7300.00	7.68	50.75	7058.14	1065.84	1304.39	-1850.14	1684.47	2.00	2.00	0.00	
77	7400.00	5.68	50.75	7157.46	1073.20	1313.40	-1949.46	1696.10	2.00	2.00	0.00	



#	Depth	Inc	Azimuth	TVD	North	East	SubSea	Section	Dogleg	BldRate	Trnrate	Comment
78	7500.00	3.68	50.75	7257.12	1078.36	1319.71	-2049.12	1704.26	2.00	2.00	0.00	
79	7600.00	1.68	50.75	7357.01	1081.32	1323.33	-2149.01	1708.94	2.00	2.00	0.00	
EOD, HOLD 0°												
80	7684.00	0.00	50.75	7441.00	1082.10	1324.29	-2233.00	1710.17	2.00	2.00	0.00	
81	7700.00	0.00	50.75	7457.00	1082.10	1324.29	-2249.00	1710.17	0.00	0.00	0.00	
82	7800.00	0.00	50.75	7557.00	1082.10	1324.29	-2349.00	1710.17	0.00	0.00	0.00	
NBRR												
Int	7833.00	0.00	50.75	7590.00	1082.10	1324.29	-2382.00	1710.17	---	---	---	
84	7900.00	0.00	50.75	7657.00	1082.10	1324.29	-2449.00	1710.17	0.00	0.00	0.00	
85	8000.00	0.00	50.75	7757.00	1082.10	1324.29	-2549.00	1710.17	0.00	0.00	0.00	
86	8100.00	0.00	50.75	7857.00	1082.10	1324.29	-2649.00	1710.17	0.00	0.00	0.00	
87	8200.00	0.00	50.75	7957.00	1082.10	1324.29	-2749.00	1710.17	0.00	0.00	0.00	
CODL												
Int	8287.00	0.00	50.75	8044.00	1082.10	1324.29	-2836.00	1710.17	---	---	---	
89	8300.00	0.00	50.75	8057.00	1082.10	1324.29	-2849.00	1710.17	0.00	0.00	0.00	
90	8400.00	0.00	50.75	8157.00	1082.10	1324.29	-2949.00	1710.17	0.00	0.00	0.00	
91	8500.00	0.00	50.75	8257.00	1082.10	1324.29	-3049.00	1710.17	0.00	0.00	0.00	
92	8600.00	0.00	50.75	8357.00	1082.10	1324.29	-3149.00	1710.17	0.00	0.00	0.00	
93	8700.00	0.00	50.75	8457.00	1082.10	1324.29	-3249.00	1710.17	0.00	0.00	0.00	
JSND												
Int	8718.00	0.00	50.75	8475.00	1082.10	1324.29	-3267.00	1710.17	---	---	---	
95	8800.00	0.00	50.75	8557.00	1082.10	1324.29	-3349.00	1710.17	0.00	0.00	0.00	
96	8868.00	0.00	50.75	8625.00	1082.10	1324.29	-3417.00	1710.17	0.00	0.00	0.00	

Closure is 1710.1672 feet on an Azimuth of 50.7472