



Weatherford®

SURVEY REPORT

Report Date: **2/9/2013**
 Customer: **Anadarko**
 Job Name: **4028334**
 Well Name: **Sparboe 7N-3HZ**

Field: **Wattenburg**
 Rig: **Xtreme 23**
 Rig Loc: **Weld County Colo.**

Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
True North	179.83 deg	52730 nT	66.75 deg	8.62 deg	0.00 deg	8.62 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	1776.00 ft	0.15 deg	338.09 deg	1775.99 ft	2.93 ft	-0.59 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
1903.00	0.53	144.71	1902.99	2.60	-0.31	-2.61	0.53
1979.00	1.26	202.97	1978.98	1.55	-0.44	-1.55	1.42
2072.00	3.01	237.27	2071.91	-0.71	-2.89	0.70	2.25
2166.00	4.47	248.24	2165.71	-3.41	-8.37	3.38	1.72
2259.00	6.28	254.36	2258.30	-6.12	-16.63	6.07	2.04
2352.00	7.60	255.06	2350.62	-9.08	-27.47	9.00	1.42
2446.00	6.51	255.52	2443.90	-12.01	-38.64	11.90	1.16
2539.00	8.13	256.26	2536.14	-14.89	-50.13	14.74	1.74
2633.00	7.71	247.76	2629.25	-18.86	-62.43	18.67	1.32
2726.00	7.98	242.71	2721.38	-24.18	-73.94	23.96	0.80
2819.00	7.20	243.31	2813.57	-29.76	-84.88	29.51	0.84
2905.00	7.19	249.52	2898.89	-34.06	-94.74	33.78	0.90
2990.00	8.32	250.10	2983.11	-38.02	-105.50	37.70	1.33
3075.00	7.75	251.62	3067.28	-41.92	-116.73	41.57	0.72
3161.00	7.15	251.41	3152.55	-45.45	-127.30	45.07	0.70
3246.00	6.26	249.37	3236.97	-48.77	-136.65	48.36	1.08
3332.00	7.02	245.84	3322.39	-52.57	-145.84	52.14	1.00
3417.00	7.48	247.79	3406.71	-56.79	-155.70	56.33	0.61
3502.00	6.24	248.60	3491.10	-60.57	-165.12	60.08	1.46
3588.00	6.10	241.00	3576.60	-64.49	-173.47	63.97	0.96
3673.00	6.12	240.21	3661.12	-68.93	-181.35	68.39	0.10
3759.00	6.65	245.01	3746.59	-73.31	-189.84	72.75	0.87
3844.00	7.06	248.48	3830.98	-77.31	-199.16	76.71	0.69
3930.00	8.28	239.56	3916.21	-82.38	-209.42	81.76	1.98
4015.00	8.02	237.14	4000.35	-88.70	-219.68	88.05	0.51
4100.00	7.24	240.07	4084.60	-94.59	-229.30	93.91	1.03
4186.00	6.87	241.70	4169.95	-99.73	-238.53	99.02	0.49
4271.00	7.02	232.79	4254.33	-105.28	-247.14	104.55	1.28
4356.00	6.96	241.42	4338.70	-110.89	-255.80	110.13	1.24
4442.00	7.02	245.58	4424.06	-115.55	-265.16	114.77	0.59
4527.00	9.26	255.12	4508.20	-119.46	-276.50	118.64	3.07
4612.00	9.94	259.65	4592.01	-122.53	-290.33	121.67	1.20
4698.00	9.80	256.52	4676.74	-125.57	-304.75	124.67	0.64
4783.00	9.61	247.95	4760.53	-129.92	-318.36	128.98	1.71
4868.00	9.20	243.77	4844.39	-135.59	-331.03	134.61	0.94

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
4954.00	7.70	239.58	4929.45	-141.54	-342.16	140.53	1.88
5039.00	6.96	235.95	5013.76	-147.31	-351.34	146.27	1.03
5125.00	7.18	236.79	5099.10	-153.17	-360.16	152.10	0.28
5210.00	7.69	239.19	5183.39	-159.00	-369.48	157.90	0.70
5295.00	6.81	249.51	5267.71	-163.67	-379.09	162.55	1.85
5381.00	7.79	246.55	5353.01	-167.78	-389.21	166.62	1.22
5466.00	5.74	243.97	5437.42	-171.94	-398.32	170.75	2.44
5552.00	6.69	246.86	5522.91	-175.79	-406.79	174.58	1.16
5637.00	6.73	245.19	5607.33	-179.83	-415.86	178.59	0.23
5723.00	5.28	245.03	5692.86	-183.61	-424.03	182.35	1.69
5808.00	4.20	247.84	5777.56	-186.44	-430.45	185.16	1.30
5893.00	3.51	248.17	5862.37	-188.58	-435.75	187.28	0.81
5979.00	3.47	257.38	5948.21	-190.13	-440.74	188.82	0.65
6064.00	3.30	258.65	6033.06	-191.17	-445.64	189.85	0.22
6150.00	1.88	242.70	6118.97	-192.30	-449.33	190.97	1.84
6235.00	1.35	239.03	6203.94	-193.46	-451.42	192.12	0.63
6320.00	1.24	238.25	6288.92	-194.46	-453.06	193.11	0.13
6406.00	0.85	239.53	6374.90	-195.27	-454.40	193.92	0.45
6487.00	0.70	279.26	6455.90	-195.50	-455.41	194.14	0.67
6535.00	0.49	254.72	6503.89	-195.50	-455.90	194.15	0.68
6578.00	5.67	199.65	6546.82	-197.55	-456.79	196.20	12.57
6620.00	10.71	199.82	6588.38	-203.18	-458.81	201.82	12.00
6663.00	12.64	200.24	6630.49	-211.36	-461.80	209.99	4.49
6706.00	15.51	202.66	6672.19	-221.08	-465.64	219.70	6.81
6748.00	19.81	202.78	6712.20	-232.83	-470.56	231.43	10.24
6791.00	23.94	205.48	6752.10	-247.43	-477.14	246.01	9.88
6834.00	25.80	205.13	6791.11	-263.78	-484.87	262.34	4.34
6876.00	28.17	198.68	6828.54	-281.45	-491.92	279.99	8.96
6919.00	31.57	190.48	6865.84	-302.15	-497.23	300.67	12.34
6962.00	36.14	188.64	6901.54	-325.77	-501.18	324.28	10.89
7004.00	38.35	187.30	6934.97	-350.94	-504.70	349.44	5.60
7047.00	42.79	185.96	6967.63	-378.71	-507.91	377.20	10.52
7090.00	47.91	183.75	6997.84	-409.18	-510.47	407.66	12.45
7132.00	51.83	182.42	7024.91	-441.24	-512.19	439.72	9.64
7175.00	56.54	180.63	7050.06	-476.08	-513.10	474.56	11.46
7218.00	61.46	179.28	7072.20	-512.93	-513.06	511.40	11.75
7260.00	67.49	179.97	7090.29	-550.81	-512.82	549.29	14.43
7303.00	71.94	181.98	7105.20	-591.13	-513.52	589.60	11.24
7346.00	78.17	182.22	7116.28	-632.62	-515.04	631.09	14.50
7389.00	82.13	180.39	7123.64	-674.97	-516.00	673.43	10.12
7454.00	84.96	177.23	7130.95	-739.53	-514.65	738.00	6.50
7614.00	89.20	171.72	7139.10	-898.48	-499.26	896.99	4.34
7739.00	92.96	170.77	7136.75	-1021.97	-480.24	1020.55	3.10
7832.00	93.21	171.19	7131.74	-1113.69	-465.68	1112.30	0.53
7926.00	92.22	173.71	7127.29	-1206.76	-453.35	1205.41	2.88
8019.00	91.23	175.08	7124.49	-1299.27	-444.27	1297.95	1.82
8112.00	91.42	175.89	7122.34	-1391.96	-436.95	1390.66	0.89
8206.00	90.56	178.08	7120.71	-1485.81	-432.01	1484.52	2.50
8299.00	89.69	180.07	7120.51	-1578.79	-430.51	1577.51	2.34
8392.00	90.25	181.24	7120.56	-1671.78	-431.57	1670.49	1.39

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
8485.00	87.16	180.61	7122.66	-1764.73	-433.07	1763.44	3.39
8579.00	88.15	180.33	7126.51	-1858.65	-433.84	1857.36	1.09
8672.00	88.77	177.59	7129.01	-1951.59	-432.16	1950.30	3.02
8766.00	91.17	178.32	7129.06	-2045.53	-428.80	2044.24	2.67
8859.00	92.71	179.71	7125.91	-2138.45	-427.20	2137.18	2.23
8953.00	93.09	182.77	7121.15	-2232.30	-429.23	2231.02	3.28
9038.00	91.17	184.37	7117.99	-2317.07	-434.52	2315.77	2.94
9124.00	92.47	184.37	7115.26	-2402.77	-441.07	2401.46	1.51
9209.00	93.02	184.23	7111.19	-2487.44	-447.44	2486.10	0.67
9294.00	93.08	184.71	7106.67	-2572.06	-454.05	2570.70	0.57
9380.00	91.23	183.51	7103.43	-2657.77	-460.21	2656.39	2.56
9465.00	90.06	183.38	7102.48	-2742.61	-465.32	2741.22	1.38
9551.00	90.06	183.42	7102.39	-2828.46	-470.42	2827.05	0.05
9637.00	90.12	181.93	7102.25	-2914.36	-474.43	2912.94	1.73
9721.00	90.12	181.98	7102.08	-2998.31	-477.30	2996.89	0.06
9807.00	89.63	179.66	7102.26	-3084.30	-478.53	3082.87	2.76
9892.00	90.12	177.11	7102.45	-3169.26	-476.13	3167.83	3.05
9978.00	90.37	176.37	7102.08	-3255.12	-471.24	3253.71	0.91
10063.00	89.94	174.46	7101.85	-3339.84	-464.45	3338.45	2.30
10148.00	90.06	175.82	7101.85	-3424.53	-457.25	3423.16	1.61
10234.00	92.22	176.48	7100.14	-3510.32	-451.48	3508.96	2.63
10319.00	90.49	175.89	7098.13	-3595.10	-445.82	3593.76	2.15
10405.00	89.57	176.88	7098.08	-3680.93	-440.40	3679.61	1.57
10490.00	90.68	178.04	7097.90	-3765.84	-436.63	3764.53	1.89
10575.00	90.99	178.40	7096.66	-3850.79	-433.99	3849.49	0.56
10661.00	90.06	179.12	7095.87	-3936.77	-432.13	3935.47	1.37
10746.00	89.69	182.02	7096.06	-4021.75	-432.98	4020.45	3.44
10832.00	88.71	180.87	7097.26	-4107.71	-435.15	4106.41	1.76
10917.00	89.57	180.28	7098.53	-4192.70	-436.00	4191.39	1.23
11002.00	87.84	176.64	7100.46	-4277.63	-433.72	4276.32	4.74
11087.00	87.47	173.84	7103.93	-4362.26	-426.67	4360.97	3.32
11173.00	88.46	175.95	7106.99	-4447.86	-419.02	4446.59	2.71
11258.00	87.72	173.72	7109.82	-4532.46	-411.38	4531.22	2.76
11344.00	92.10	173.83	7109.96	-4617.93	-402.05	4616.72	5.09
11429.00	92.84	173.59	7106.29	-4702.34	-392.75	4701.15	0.92
11515.00	92.59	179.00	7102.22	-4788.03	-387.20	4786.86	6.29
11600.00	92.04	180.08	7098.78	-4872.96	-386.52	4871.79	1.42
11685.00	92.78	182.14	7095.21	-4957.86	-388.16	4956.69	2.57
11771.00	90.12	183.75	7093.03	-5043.71	-392.58	5042.52	3.62
11856.00	88.59	182.80	7093.99	-5128.56	-397.44	5127.36	2.12
11942.00	88.64	182.60	7096.07	-5214.44	-401.49	5213.23	0.24
12027.00	88.34	182.00	7098.31	-5299.34	-404.90	5298.12	0.79
12112.00	89.14	181.14	7100.18	-5384.29	-407.22	5383.06	1.38
12198.00	89.57	181.57	7101.15	-5470.26	-409.26	5469.02	0.71
12283.00	90.12	180.66	7101.38	-5555.24	-410.91	5554.00	1.25
12368.00	90.56	180.94	7100.87	-5640.23	-412.10	5638.98	0.61
12454.00	92.16	184.28	7098.83	-5726.10	-416.01	5724.84	4.31
12539.00	89.81	183.56	7097.37	-5810.88	-421.82	5809.61	2.89
12625.00	90.86	184.35	7096.87	-5896.68	-427.75	5895.38	1.53
12710.00	89.94	182.75	7096.27	-5981.51	-433.02	5980.20	2.17

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
12796.00	89.38	181.72	7096.78	-6067.44	-436.37	6066.12	1.36
12881.00	89.26	181.57	7097.79	-6152.40	-438.81	6151.07	0.23
12966.00	88.77	181.62	7099.25	-6237.35	-441.18	6236.02	0.58
13052.00	89.69	180.83	7100.41	-6323.32	-443.01	6321.98	1.41
13137.00	89.82	181.07	7100.77	-6408.31	-444.42	6406.96	0.32
13223.00	89.94	181.20	7100.95	-6494.29	-446.13	6492.94	0.21
13308.00	89.63	180.07	7101.27	-6579.29	-447.07	6577.93	1.38
13394.00	89.81	179.83	7101.69	-6665.29	-446.99	6663.93	0.35
13479.00	89.88	180.60	7101.92	-6750.28	-447.31	6748.93	0.91
13564.00	89.07	180.59	7102.70	-6835.27	-448.19	6833.91	0.95
13650.00	88.15	180.51	7104.79	-6921.24	-449.02	6919.88	1.07
13735.00	86.67	180.05	7108.63	-7006.15	-449.44	7004.79	1.82
13820.00	84.63	178.15	7115.07	-7090.89	-448.11	7089.53	3.28
13843.00	84.13	178.19	7117.33	-7113.77	-447.37	7112.41	2.18
Projected to Total Depth:							
13900.00	84.13	178.19	7123.15	-7170.40	-445.59	7169.05	0.00

Weatherford surveys from 1903 ft MD to 13843 ft MD.

TD well at 13900 ft MD.

The total correction is 8.62 deg relative to True North.