



Job Number: 115563
 Company: Anadarko
 Lease/Well: Warner 35-18
 Location: SESW Sec18-T2N-R65W
 Rig Name: Xtreme 14
 RKB: 5008
 G.L. or M.S.L.: 4993

State/Country: Colorado / USA
 Declination: 8.74
 Grid: True North
 File name: C:\WINSERVE\115563.SVY
 Date/Time: 18-Dec-11 / 18:46
 Curve Name: Warner 35-18

Cathedral Energy

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 262.68
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
119.00	.40	127.70	119.00	-.25	.33	-.29	.42	127.70	.34
212.00	1.30	187.50	211.99	-1.50	.45	-.25	1.56	163.36	1.24
306.00	2.10	182.20	305.95	-4.28	.24	.30	4.28	176.75	.87
413.00	3.50	199.10	412.82	-9.32	-.90	2.08	9.37	185.52	1.51
503.00	6.00	201.80	502.50	-16.29	-3.55	5.59	16.67	192.29	2.79
591.00	7.60	192.10	589.88	-26.25	-6.48	9.77	27.04	193.86	2.23
680.00	7.80	196.00	678.08	-37.81	-9.37	14.12	38.95	193.93	.63
770.00	9.00	199.70	767.11	-50.31	-13.43	19.73	52.07	194.95	1.46
859.00	10.00	209.20	854.90	-63.61	-19.55	27.49	66.54	197.08	2.09
903.00	10.00	208.60	898.23	-70.30	-23.24	32.01	74.04	198.29	.24
960.00	9.60	210.50	954.40	-78.74	-28.02	37.83	83.57	199.59	.90
1048.00	10.50	219.80	1041.05	-91.22	-36.88	48.20	98.39	202.01	2.11
1138.00	10.60	229.60	1129.54	-102.89	-48.43	61.15	113.72	205.21	1.99
1227.00	10.90	240.70	1216.99	-112.31	-62.01	75.81	128.29	208.90	2.35
1316.00	9.90	256.50	1304.54	-118.22	-76.79	91.22	140.97	213.01	3.38
1405.00	9.90	262.80	1392.22	-120.96	-91.82	106.48	151.86	217.20	1.22
1494.00	11.10	272.20	1479.73	-121.59	-107.97	122.58	162.61	221.60	2.35
1583.00	13.40	273.90	1566.70	-120.56	-126.82	141.15	174.98	226.45	2.62
1672.00	13.10	272.50	1653.33	-119.42	-147.19	161.21	189.54	230.95	.49
1760.00	12.50	273.90	1739.14	-118.34	-166.65	180.37	204.40	234.62	.77
1848.00	11.50	272.60	1825.22	-117.29	-184.92	198.36	218.98	237.61	1.18
1937.00	12.20	274.40	1912.32	-116.17	-203.16	216.30	234.03	240.24	.89
2027.00	10.40	274.40	2000.58	-114.81	-220.74	233.57	248.82	242.52	2.00
2117.00	11.00	273.70	2089.01	-113.64	-237.41	249.95	263.20	244.42	.68

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
2206.00	9.30	274.00	2176.61	-112.59	-253.06	265.34	276.97	246.02	1.91
2294.00	9.60	267.50	2263.42	-112.41	-267.48	279.62	290.14	247.20	1.26
2380.00	10.40	265.50	2348.12	-113.33	-282.38	294.52	304.28	248.13	1.01
2470.00	11.10	270.80	2436.54	-113.85	-299.15	311.21	320.08	249.16	1.35
2558.00	12.60	262.20	2522.67	-115.03	-317.13	329.20	337.35	250.06	2.63
2647.00	10.50	263.00	2609.86	-117.34	-334.80	347.02	354.76	250.69	2.37
2737.00	10.30	266.40	2698.38	-118.85	-350.97	363.25	370.54	251.29	.72
2824.00	8.70	266.50	2784.19	-119.74	-365.30	377.58	384.42	251.85	1.84
2914.00	9.50	267.60	2873.05	-120.46	-379.51	391.77	398.17	252.39	.91
3002.00	13.10	270.70	2959.33	-120.64	-396.75	408.88	414.68	253.09	4.15
3092.00	12.80	272.20	3047.04	-120.14	-416.91	428.82	433.87	253.92	.50
3181.00	12.90	267.90	3133.82	-120.12	-436.69	448.43	452.91	254.62	1.08
3271.00	12.20	268.20	3221.67	-120.79	-456.23	467.90	471.95	255.17	.78
3359.00	10.70	267.80	3307.91	-121.40	-473.69	485.30	489.00	255.63	1.71
3447.00	10.00	270.40	3394.48	-121.66	-489.49	501.00	504.39	256.04	.96
3535.00	8.90	270.30	3481.28	-121.57	-503.94	515.32	518.40	256.44	1.25
3624.00	8.20	263.00	3569.30	-122.30	-517.13	528.49	531.39	256.69	1.45
3714.00	7.30	258.40	3658.48	-124.24	-529.10	540.62	543.49	256.79	1.21
3802.00	6.60	252.10	3745.83	-126.91	-539.39	551.16	554.12	256.76	1.17
3890.00	6.90	252.50	3833.22	-130.06	-549.24	561.34	564.43	256.68	.35
3979.00	7.00	265.00	3921.57	-132.14	-559.74	572.02	575.13	256.72	1.70
4068.00	10.00	270.00	4009.58	-132.61	-572.88	585.10	588.03	256.97	3.47
4157.00	12.10	268.80	4096.93	-132.81	-589.93	602.04	604.70	257.31	2.37
4246.00	13.50	273.50	4183.72	-132.37	-609.63	621.52	623.83	257.75	1.96
4335.00	12.70	273.40	4270.40	-131.15	-629.76	641.34	643.28	258.24	.90
4424.00	10.70	271.00	4357.55	-130.43	-647.79	659.13	660.79	258.62	2.31
4513.00	10.50	268.00	4445.03	-130.57	-664.16	675.38	676.87	258.88	.66
4601.00	9.80	266.40	4531.65	-131.32	-679.65	690.84	692.22	259.06	.86
4689.00	10.50	257.10	4618.28	-133.58	-694.94	706.29	707.66	259.12	2.02
4777.00	8.30	264.50	4705.10	-135.98	-709.08	720.62	722.00	259.14	2.85
4867.00	8.00	269.50	4794.19	-136.66	-721.81	733.34	734.63	259.28	.85
4955.00	8.80	262.80	4881.25	-137.55	-734.61	746.15	747.38	259.39	1.44
5045.00	8.60	266.20	4970.21	-138.86	-748.15	759.75	760.93	259.49	.61
5134.00	8.00	270.10	5058.28	-139.29	-760.99	772.53	773.63	259.63	.92
5221.00	7.40	273.00	5144.49	-138.99	-772.64	784.05	785.04	259.80	.82
5309.00	7.60	273.70	5231.74	-138.32	-784.10	795.33	796.21	260.00	.25
5397.00	8.50	277.70	5318.87	-137.07	-796.35	807.33	808.06	260.23	1.20
5487.00	8.90	271.40	5407.84	-136.01	-809.91	820.63	821.25	260.47	1.15
5575.00	9.30	263.70	5494.74	-136.62	-823.78	834.47	835.03	260.58	1.46
5663.00	8.10	259.20	5581.72	-138.56	-836.94	847.77	848.33	260.60	1.57
5752.00	7.70	262.10	5669.88	-140.56	-849.00	859.99	860.56	260.60	.63
5842.00	6.90	262.70	5759.15	-142.07	-860.34	871.43	871.99	260.62	.89
5931.00	5.80	263.90	5847.60	-143.23	-870.11	881.27	881.82	260.65	1.24
6021.00	4.50	267.70	5937.24	-143.86	-878.16	889.33	889.87	260.70	1.49
6107.00	4.60	270.10	6022.97	-143.98	-884.98	896.11	896.62	260.76	.25

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
				FT	FT	FT	Distance FT	Direction Deg	
6196.00	4.50	275.10	6111.69	-143.67	-892.03	903.06	903.52	260.85	.46
6283.00	3.40	263.60	6198.48	-143.65	-897.99	908.98	909.41	260.91	1.55
6373.00	2.90	265.20	6288.34	-144.14	-902.91	913.92	914.35	260.93	.56
6460.00	2.20	254.80	6375.26	-144.76	-906.72	917.77	918.20	260.93	.96
6548.00	1.70	254.80	6463.20	-145.55	-909.61	920.74	921.18	260.91	.57
6638.00	1.00	249.60	6553.18	-146.17	-911.63	922.83	923.28	260.89	.79
6728.00	.50	259.20	6643.17	-146.52	-912.75	923.98	924.44	260.88	.57
6818.00	.40	310.70	6733.17	-146.39	-913.38	924.58	925.03	260.89	.45
6906.00	.50	315.40	6821.17	-145.91	-913.88	925.02	925.45	260.93	.12
6995.00	1.10	340.40	6910.16	-144.83	-914.44	925.44	925.84	261.00	.76
7083.00	1.20	328.10	6998.14	-143.25	-915.21	926.00	926.35	261.10	.30
7172.00	1.30	301.00	7087.12	-141.94	-916.57	927.18	927.49	261.20	.67
7262.00	1.00	337.50	7177.10	-140.69	-917.74	928.19	928.46	261.28	.86
7350.00	.80	329.80	7265.09	-139.45	-918.35	928.63	928.87	261.37	.27
7439.00	.70	349.20	7354.08	-138.38	-918.76	928.90	929.12	261.43	.30
7537.00	.70	340.00	7452.08	-137.23	-919.08	929.07	929.27	261.51	.11
7600.00	.70	336.30	7515.07	-136.52	-919.36	929.26	929.44	261.55	.07
Projection to Bit									
7650.00	.70	336.30	7565.07	-135.96	-919.61	929.44	929.60	261.59	.00