



Job Number: 115462  
 Company: Anadarko  
 Lease/Well: Dechant 27-12  
 Location: Dechant  
 Rig Name: Xtreme 14  
 RKB: 4907  
 G.L. or M.S.L.: 4929

State/Country: Colorado, USA  
 Declination: 8.71  
 Grid: True  
 File name: C:\WINSERVE\115462.SVY  
 Date/Time: 23-Oct-11 / 07:58  
 Curve Name: Dechant 27-12

**Cathedral Energy**

WINSERVE SURVEY CALCULATIONS  
 Minimum Curvature Method  
 Vertical Section Plane 331.76  
 Vertical Section Referenced to Wellhead  
 Rectangular Coordinates Referenced to Wellhead

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>Vertical Section FT</i>	<i>C L O S U R E</i>		<i>Dogleg Severity Deg/100</i>
							<i>Distance FT</i>	<i>Direction Deg</i>	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
168.00	.40	33.10	168.00	.49	.32	.28	.59	33.10	.24
262.00	.50	318.70	262.00	1.07	.23	.84	1.10	12.02	.59
356.00	1.20	9.70	355.99	2.35	.12	2.01	2.36	3.01	1.03
447.00	2.50	340.50	446.94	5.16	-.38	4.73	5.18	355.81	1.72
535.00	3.60	333.30	534.81	9.44	-2.26	9.39	9.71	346.54	1.32
623.00	4.60	323.90	622.59	14.76	-5.58	15.64	15.78	339.29	1.37
711.00	5.80	324.20	710.22	21.22	-10.26	23.55	23.57	334.19	1.36
793.00	7.30	319.80	791.69	28.56	-16.05	32.75	32.76	330.67	1.93
853.00	7.30	322.10	851.20	34.48	-20.85	40.24	40.29	328.84	.49
936.00	8.90	325.10	933.37	43.90	-27.76	51.82	51.95	327.69	1.99
1025.00	11.20	334.90	1021.01	57.38	-35.37	67.29	67.41	328.35	3.21
1114.00	13.00	335.80	1108.02	74.34	-43.14	85.90	85.95	329.87	2.03
1201.00	14.40	336.30	1192.55	93.17	-51.50	106.45	106.46	331.07	1.61
1288.00	16.10	337.60	1276.48	114.23	-60.45	129.24	129.24	332.11	1.99
1377.00	18.10	335.70	1361.54	138.24	-70.84	155.31	155.34	332.87	2.33
1465.00	20.00	332.00	1444.72	163.99	-83.53	184.00	184.04	333.01	2.56
1555.00	21.50	329.20	1528.88	191.75	-99.20	215.87	215.89	332.65	2.00
1641.00	21.90	331.40	1608.79	219.37	-114.95	247.65	247.66	332.35	1.05
1731.00	23.40	331.70	1691.85	249.85	-131.46	282.31	282.32	332.25	1.67
1818.00	24.70	332.90	1771.29	281.24	-147.93	317.76	317.77	332.26	1.60
1908.00	24.80	330.90	1853.03	314.47	-165.68	355.43	355.45	332.22	.94
1998.00	26.90	331.40	1934.02	348.84	-184.60	394.67	394.68	332.11	2.35
2087.00	26.60	330.90	2013.49	383.93	-203.93	434.73	434.73	332.02	.42
2175.00	26.00	329.10	2092.39	417.70	-223.42	473.69	473.70	331.86	1.13

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth			Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
				N-S FT	E-W FT		Distance FT	Direction Deg	
2263.00	25.50	330.40	2171.65	450.72	-242.68	511.90	511.90	331.70	.86
2351.00	24.00	330.10	2251.56	482.71	-260.96	548.73	548.73	331.60	1.71
2440.00	25.40	332.10	2332.42	515.27	-278.92	585.91	585.91	331.57	1.83
2526.00	28.20	331.70	2409.17	549.47	-297.18	624.68	624.68	331.59	3.26
2614.00	27.60	331.70	2486.94	585.72	-316.71	665.86	665.86	331.60	.68
2704.00	27.20	331.30	2566.85	622.12	-336.47	707.28	707.28	331.59	.49
2792.00	26.80	330.70	2645.26	657.06	-355.83	747.22	747.23	331.56	.55
2880.00	27.00	329.10	2723.73	691.50	-375.80	787.01	787.02	331.48	.85
2969.00	27.90	331.90	2802.72	727.21	-395.99	828.02	828.03	331.43	1.77
3058.00	29.10	332.90	2880.93	764.85	-415.65	870.48	870.49	331.48	1.45
3146.00	27.10	331.60	2958.55	801.53	-434.94	911.92	911.93	331.51	2.38
3234.00	28.70	335.40	3036.33	838.38	-453.27	953.06	953.07	331.60	2.72
3324.00	26.10	333.90	3116.23	875.81	-470.98	994.42	994.42	331.73	2.99
3413.00	23.90	333.20	3196.88	909.49	-487.72	1032.01	1032.01	331.80	2.49
3499.00	23.80	330.30	3275.54	940.12	-504.17	1066.77	1066.77	331.80	1.37
3589.00	21.90	328.30	3358.48	970.17	-521.99	1101.69	1101.69	331.72	2.28
3676.00	20.10	330.90	3439.70	997.04	-537.79	1132.83	1132.83	331.66	2.33
3762.00	19.90	328.30	3520.51	1022.41	-552.67	1162.22	1162.22	331.61	1.06
3853.00	20.30	329.70	3605.97	1049.21	-568.77	1193.45	1193.46	331.54	.69
3942.00	21.30	335.00	3689.18	1077.20	-583.39	1225.02	1225.03	331.56	2.39
4032.00	21.40	337.70	3773.00	1107.20	-596.53	1257.68	1257.68	331.69	1.10
4120.00	24.70	336.40	3853.97	1138.91	-609.99	1291.98	1291.98	331.83	3.79
4207.00	28.60	336.50	3931.71	1174.68	-625.58	1330.86	1330.87	331.96	4.48
4297.00	31.30	336.50	4009.68	1215.88	-643.49	1375.64	1375.66	332.11	3.00
4387.00	32.20	334.90	4086.22	1259.04	-662.99	1422.88	1422.93	332.23	1.37
4476.00	29.00	333.20	4162.81	1299.78	-682.78	1468.14	1468.20	332.29	3.72
4565.00	29.60	332.90	4240.43	1338.61	-702.52	1511.68	1511.75	332.31	.69
4653.00	29.30	331.80	4317.06	1376.93	-722.59	1554.95	1555.02	332.31	.70
4741.00	27.20	327.70	4394.58	1412.91	-743.52	1596.55	1596.61	332.25	3.25
4831.00	27.30	326.40	4474.59	1447.49	-765.93	1637.62	1637.65	332.11	.67
4919.00	27.30	322.60	4552.79	1480.34	-789.36	1677.63	1677.64	331.93	1.98
5009.00	28.40	324.30	4632.37	1514.11	-814.39	1719.23	1719.23	331.73	1.51
5098.00	25.30	325.50	4711.77	1546.98	-837.52	1759.13	1759.14	331.57	3.54
5186.00	22.80	322.90	4792.12	1576.08	-858.46	1794.68	1794.71	331.42	3.08
5276.00	22.60	327.60	4875.16	1604.60	-878.24	1829.16	1829.22	331.31	2.03
5364.00	23.70	334.20	4956.08	1634.80	-895.00	1863.70	1863.76	331.30	3.20
5451.00	22.70	333.40	5036.05	1665.56	-910.13	1897.95	1898.00	331.35	1.21
5537.00	20.30	332.40	5116.06	1693.62	-924.47	1929.46	1929.51	331.37	2.82
5627.00	18.30	332.10	5201.00	1719.94	-938.32	1959.20	1959.25	331.39	2.22
5716.00	15.20	334.50	5286.21	1742.83	-949.88	1984.84	1984.88	331.41	3.57
5805.00	15.20	339.10	5372.10	1764.26	-959.07	2008.06	2008.09	331.47	1.35
5893.00	13.40	338.40	5457.37	1784.52	-966.94	2029.64	2029.65	331.55	2.05
5983.00	10.40	339.30	5545.43	1801.82	-973.65	2048.05	2048.06	331.61	3.34
6072.00	9.40	343.70	5633.10	1816.31	-978.53	2063.13	2063.13	331.69	1.41
6162.00	7.00	350.30	5722.18	1828.77	-981.52	2075.52	2075.52	331.78	2.86

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	
6250.00	6.60	344.00	5809.56	1838.92	-983.82	2085.55	2085.55	331.85	.96
6339.00	4.60	347.10	5898.13	1847.32	-986.02	2093.99	2093.99	331.91	2.27
6427.00	3.60	346.50	5985.90	1853.44	-987.46	2100.06	2100.07	331.95	1.14
6518.00	3.50	351.70	6076.73	1858.97	-988.52	2105.44	2105.45	332.00	.37
6606.00	2.10	11.90	6164.62	1863.20	-988.58	2109.19	2109.22	332.05	1.92
6696.00	1.60	49.10	6254.58	1865.64	-987.29	2110.73	2110.77	332.11	1.41
6783.00	1.30	58.60	6341.55	1866.95	-985.53	2111.05	2111.11	332.17	.44
6871.00	1.50	77.20	6429.53	1867.72	-983.55	2110.80	2110.87	332.23	.56
6961.00	2.00	72.40	6519.48	1868.46	-980.91	2110.20	2110.29	332.30	.58
7049.00	3.10	67.20	6607.40	1869.85	-977.25	2109.69	2109.82	332.41	1.28
7136.00	3.40	76.30	6694.26	1871.37	-972.57	2108.82	2109.01	332.54	.68
7226.00	4.20	75.90	6784.06	1872.80	-966.79	2107.34	2107.62	332.70	.89
7315.00	5.70	73.40	6872.72	1874.86	-959.39	2105.65	2106.07	332.90	1.70
7402.00	4.80	75.90	6959.36	1876.98	-951.72	2103.89	2104.48	333.11	1.07
7492.00	4.00	69.70	7049.09	1878.99	-945.12	2102.54	2103.30	333.30	1.03
7580.00	3.70	63.30	7136.89	1881.33	-939.71	2102.04	2102.96	333.46	.60
7668.00	3.60	59.20	7224.71	1884.02	-934.80	2102.09	2103.18	333.61	.32
7756.00	3.40	69.50	7312.55	1886.35	-929.98	2101.86	2103.13	333.76	.75
7846.00	2.40	76.50	7402.44	1887.72	-925.65	2101.02	2102.46	333.88	1.18
7935.00	2.80	76.30	7491.34	1888.67	-921.72	2100.00	2101.58	333.99	.45
8025.00	2.20	78.40	7581.26	1889.54	-917.89	2098.95	2100.69	334.09	.67
8113.00	2.10	70.60	7669.20	1890.42	-914.72	2098.22	2100.09	334.18	.35
8134.00	1.90	80.50	7690.18	1890.60	-914.01	2098.05	2099.95	334.20	1.90