

Job Number: 125481
Company: Anadarko
Lease/Well: Saddleback 30-29
Location: Saddleback
Rig Name: Xtreme 11
RKB: 5015
G.L. or M.S.L.: GL

State/Country: CO/USA
Declination: 8.79
Grid: True
File name: C:\WINSERVE\125481.SVY
Date/Time: 13-Aug-12 / 10:29
Curve Name: □

Cathedral Energy Services

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 317.19
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 Distance FT</i>	<i>Direction Deg</i>	<i>Dogleg Severity Deg/100</i>
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
76.00	.10	168.00	76.00	-.06	.01	-.06	.07	167.99	.13
164.00	.50	255.00	164.00	-.24	-.34	.06	.42	234.94	.57
253.00	2.00	320.00	252.98	.85	-1.71	1.79	1.91	296.37	2.07
369.00	2.60	318.50	368.88	4.37	-4.76	6.44	6.46	312.57	.52
462.00	3.80	314.10	461.74	8.10	-8.37	11.63	11.64	314.05	1.32
553.00	5.00	308.20	552.47	12.65	-13.65	18.56	18.61	312.81	1.41
644.00	5.00	297.70	643.12	16.94	-20.28	26.21	26.43	309.88	1.00
734.00	5.60	282.60	732.74	19.72	-28.04	33.52	34.28	305.12	1.68
825.00	6.30	288.40	823.25	22.27	-37.11	41.55	43.28	300.97	1.01
845.00	6.40	287.40	843.13	22.95	-39.21	43.48	45.44	300.34	.75
911.00	6.90	288.30	908.69	25.29	-46.49	50.15	52.92	298.55	.77
1018.00	8.20	295.90	1014.76	30.64	-59.46	62.89	66.89	297.27	1.53
1109.00	10.00	298.40	1104.61	37.24	-72.24	76.41	81.28	297.27	2.02
1200.00	12.20	300.00	1193.90	45.80	-87.52	93.08	98.78	297.62	2.44
1291.00	14.70	305.00	1282.40	57.24	-105.31	113.56	119.86	298.52	3.03
1382.00	16.40	303.20	1370.07	70.89	-125.52	137.31	144.16	299.46	1.94
1472.00	17.10	308.60	1456.25	86.11	-146.50	162.72	169.93	300.45	1.90
1563.00	16.30	313.80	1543.42	103.29	-166.17	188.70	195.66	301.87	1.86
1654.00	16.40	316.90	1630.74	121.51	-184.16	214.30	220.64	303.42	.97
1745.00	16.70	322.40	1717.98	141.25	-200.92	240.17	245.61	305.11	1.75
1836.00	18.10	324.90	1804.81	163.18	-217.03	267.20	271.53	306.94	1.74
1926.00	19.80	326.70	1889.93	187.36	-233.44	296.09	299.33	308.75	2.00
2017.00	19.30	321.00	1975.69	211.93	-251.36	326.30	328.78	310.14	2.17
2107.00	17.90	320.70	2060.99	234.19	-269.49	354.94	357.03	310.99	1.56

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 Distance FT	Direction Deg	Dogleg Severity Deg/100
2198.00	18.80	320.30	2147.36	256.30	-287.71	383.54	385.31	311.70	1.00
2289.00	17.10	318.20	2233.93	277.56	-306.00	411.56	413.12	312.21	2.00
2380.00	17.20	314.90	2320.89	297.03	-324.44	438.38	439.87	312.47	1.07
2471.00	16.70	312.40	2407.94	315.34	-343.63	464.86	466.39	312.54	.97
2561.00	16.30	314.30	2494.23	332.88	-362.22	490.36	491.95	312.58	.75
2652.00	16.80	320.00	2581.46	351.88	-379.81	516.25	517.76	312.81	1.87
2743.00	16.90	325.80	2668.56	372.89	-395.70	542.46	543.72	313.30	1.85
2834.00	17.40	327.30	2755.52	395.28	-410.49	568.94	569.87	313.92	.73
2925.00	18.80	322.60	2842.02	418.38	-426.75	596.93	597.63	314.43	2.22
3015.00	18.70	321.50	2927.24	441.19	-444.54	625.76	626.31	314.78	.41
3106.00	17.50	315.70	3013.74	462.41	-463.17	653.99	654.48	314.95	2.38
3197.00	16.10	315.20	3100.86	481.15	-481.62	680.27	680.78	314.97	1.55
3287.00	14.20	318.10	3187.73	498.23	-497.79	703.79	704.29	315.03	2.27
3378.00	15.30	319.90	3275.73	515.72	-512.98	726.94	727.40	315.15	1.31
3469.00	13.70	323.90	3363.83	533.61	-527.06	749.64	750.02	315.35	2.07
3560.00	13.40	321.80	3452.30	550.60	-539.93	770.85	771.16	315.56	.63
3650.00	12.30	330.60	3540.05	567.15	-551.09	790.57	790.80	315.82	2.49
3741.00	16.90	329.40	3628.09	586.99	-562.59	812.94	813.06	316.22	5.07
3832.00	16.80	325.70	3715.18	609.24	-576.73	838.88	838.92	316.57	1.18
3923.00	16.50	321.70	3802.37	630.25	-592.15	864.77	864.79	316.79	1.30
4013.00	18.50	315.80	3888.21	650.52	-610.03	891.79	891.80	316.84	2.97
4104.00	19.10	309.80	3974.36	670.40	-631.54	920.99	921.02	316.71	2.22
4195.00	17.70	307.30	4060.71	688.32	-653.98	949.38	949.46	316.47	1.77
4286.00	17.90	305.20	4147.35	704.76	-676.41	976.69	976.84	316.18	.74
4376.00	18.10	307.90	4232.95	721.32	-698.75	1004.02	1004.27	315.91	.95
4467.00	18.00	314.60	4319.48	739.88	-719.91	1032.02	1032.33	315.78	2.28
4557.00	16.70	318.50	4405.39	759.33	-738.38	1058.84	1059.15	315.80	1.94
4648.00	16.60	330.50	4492.60	780.44	-753.45	1084.57	1084.80	316.01	3.77
4739.00	19.50	333.90	4579.11	805.40	-766.54	1111.77	1111.87	316.42	3.39
4830.00	19.00	332.90	4665.02	832.23	-779.97	1140.58	1140.59	316.86	.66
4920.00	19.00	325.80	4750.13	857.39	-794.88	1169.17	1169.17	317.17	2.57
5011.00	18.80	323.90	4836.23	881.49	-811.85	1198.38	1198.38	317.36	.71
5102.00	18.30	307.00	4922.56	901.95	-831.91	1227.02	1227.03	317.31	5.91
5193.00	18.20	310.80	5008.99	919.84	-854.08	1255.21	1255.21	317.12	1.31
5283.00	18.10	317.50	5094.52	939.33	-874.17	1283.16	1283.16	317.06	2.32
5374.00	19.20	318.30	5180.74	960.92	-893.67	1312.26	1312.26	317.08	1.24
5465.00	18.20	321.60	5266.94	983.23	-912.45	1341.39	1341.39	317.14	1.60
5556.00	15.50	318.40	5354.02	1003.47	-929.36	1367.72	1367.72	317.20	3.14
5647.00	13.60	318.30	5442.10	1020.55	-944.55	1390.57	1390.57	317.21	2.09
5737.00	14.50	317.50	5529.41	1036.76	-959.20	1412.42	1412.42	317.23	1.02
5828.00	12.30	317.70	5617.92	1052.33	-973.42	1433.51	1433.51	317.23	2.42
5919.00	12.60	320.20	5706.78	1067.12	-986.30	1453.11	1453.11	317.25	.68
6010.00	11.50	323.60	5795.78	1082.05	-998.04	1472.04	1472.04	317.31	1.44
6101.00	13.10	324.00	5884.69	1097.70	-1009.48	1491.30	1491.31	317.40	1.76
6191.00	13.60	325.50	5972.26	1114.67	-1021.47	1511.89	1511.92	317.50	.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	
6282.00	11.90	319.70	6061.01	1130.64	-1033.60	1531.86	1531.89	317.57	2.34
6373.00	10.40	312.90	6150.30	1143.39	-1045.69	1549.42	1549.45	317.56	2.19
6464.00	9.10	309.40	6239.98	1153.55	-1057.26	1564.74	1564.76	317.49	1.57
6555.00	7.20	306.40	6330.06	1161.50	-1067.42	1577.48	1577.49	317.42	2.14
6645.00	5.70	305.00	6419.49	1167.41	-1075.62	1587.38	1587.39	317.34	1.68
6736.00	4.60	297.50	6510.12	1171.69	-1082.56	1595.24	1595.24	317.26	1.41
6827.00	3.30	292.70	6600.90	1174.39	-1088.21	1601.06	1601.06	317.18	1.47
6918.00	2.60	292.80	6691.78	1176.20	-1092.53	1605.32	1605.32	317.11	.77
7009.00	2.50	289.00	6782.69	1177.64	-1096.31	1608.95	1608.96	317.05	.22
7100.00	2.00	294.20	6873.62	1178.94	-1099.63	1612.16	1612.17	316.99	.59
7190.00	1.30	309.00	6963.58	1180.23	-1101.86	1614.62	1614.63	316.97	.90
7281.00	.70	313.80	7054.57	1181.26	-1103.06	1616.19	1616.21	316.96	.67
7372.00	.30	338.60	7145.56	1181.87	-1103.55	1616.97	1616.98	316.96	.49
7644.00	1.20	104.00	7417.54	1181.84	-1101.05	1615.25	1615.26	317.03	.51
7735.00	1.20	81.30	7508.53	1181.76	-1099.18	1613.92	1613.92	317.07	.52
7826.00	1.20	76.70	7599.51	1182.12	-1097.31	1612.91	1612.92	317.13	.11
7917.00	1.10	61.90	7690.49	1182.75	-1095.61	1612.22	1612.22	317.19	.34
7977.00	1.50	42.90	7750.47	1183.60	-1094.57	1612.14	1612.14	317.24	.97
Projection To Bit									
8035.00	1.90	24.50	7808.45	1185.03	-1093.65	1612.56	1612.57	317.30	1.16