



Job Number: 125486
 Company: Anadarko
 Lease/Well: Saddleback 4-29
 Location: Saddleback
 Rig Name: Xtreme 11
 RKB: 5015
 G.L. or M.S.L.: GL

State/Country: CO/USA
 Declination: 8.77
 Grid: True
 File name: C:\WINSERVE\125486.SVY
 Date/Time: 17-Aug-12 / 22:55
 Curve Name: Saddleback 4-29

Cathedral Energy Services

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 318.28
 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
77.00	.20	201.20	77.00	-.13	-.05	-.06	.13	201.20	.26
164.00	.70	352.70	164.00	.26	-.17	.31	.31	326.69	1.01
253.00	2.20	359.50	252.97	2.51	-.26	2.04	2.52	354.19	1.69
340.00	2.30	348.90	339.90	5.89	-.61	4.80	5.92	354.13	.49
417.00	3.90	343.50	416.79	9.92	-1.65	8.50	10.05	350.57	2.11
508.00	4.60	324.60	507.54	15.86	-4.64	14.93	16.52	343.69	1.71
599.00	5.20	312.20	598.21	21.60	-9.81	22.65	23.73	335.58	1.33
689.00	6.30	312.00	687.75	27.65	-16.50	31.62	32.20	329.17	1.22
780.00	8.40	318.60	778.00	35.98	-24.61	43.23	43.59	325.63	2.48
845.00	8.90	317.40	842.26	43.24	-31.15	53.00	53.29	324.23	.82
910.00	9.20	319.90	906.45	50.91	-37.90	63.23	63.47	323.34	.76
1021.00	11.10	320.20	1015.71	65.91	-50.46	82.78	83.01	322.57	1.71
1112.00	12.90	321.60	1104.72	80.60	-62.37	101.67	101.92	322.27	2.00
1199.00	12.20	319.40	1189.64	95.20	-74.39	120.56	120.81	321.99	.97
1290.00	12.10	319.30	1278.60	109.73	-86.87	139.71	139.95	321.63	.11
1381.00	12.20	319.80	1367.56	124.30	-99.29	158.86	159.09	321.38	.16
1471.00	11.20	315.90	1455.70	137.84	-111.51	177.10	177.30	321.03	1.42
1562.00	10.10	312.70	1545.13	149.60	-123.53	193.87	194.01	320.45	1.37
1653.00	10.70	322.00	1634.64	161.67	-134.59	210.24	210.36	320.22	1.96
1743.00	9.90	321.00	1723.19	174.27	-144.61	226.31	226.45	320.31	.91
1834.00	9.00	319.60	1812.95	185.77	-154.14	241.24	241.39	320.32	1.02
1925.00	8.10	317.70	1902.94	195.93	-163.07	254.77	254.91	320.23	1.04
2016.00	7.90	317.20	1993.05	205.26	-171.64	267.43	267.56	320.10	.23
2106.00	7.00	317.90	2082.29	213.87	-179.51	279.10	279.22	319.99	1.01

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	
2197.00	8.00	317.50	2172.51	222.65	-187.51	290.97	291.09	319.90	1.10
2288.00	7.00	315.90	2262.73	231.30	-195.65	302.85	302.95	319.77	1.12
2379.00	6.40	314.20	2353.11	238.82	-203.14	313.45	313.53	319.62	.69
2470.00	6.30	310.20	2443.55	245.58	-210.59	323.45	323.51	319.39	.50
2561.00	6.70	322.90	2533.97	253.03	-217.61	333.68	333.74	319.30	1.64
2651.00	6.00	318.90	2623.42	260.77	-223.87	343.62	343.68	319.35	.92
2742.00	7.70	319.50	2713.77	268.99	-230.95	354.47	354.53	319.35	1.87
2833.00	6.90	317.40	2804.03	277.65	-238.61	366.03	366.09	319.32	.93
2924.00	9.20	317.40	2894.13	287.03	-247.24	378.77	378.83	319.26	2.53
3015.00	7.80	319.70	2984.13	297.09	-256.16	392.22	392.27	319.23	1.58
3105.00	9.10	321.00	3073.15	307.28	-264.59	405.44	405.50	319.27	1.46
3196.00	7.70	323.10	3163.17	317.75	-272.78	418.70	418.77	319.36	1.57
3287.00	8.50	317.60	3253.26	327.59	-280.97	431.50	431.58	319.38	1.22
3378.00	7.00	319.90	3343.43	336.80	-289.08	443.77	443.85	319.36	1.68
3468.00	7.70	304.50	3432.70	344.41	-297.58	455.11	455.16	319.17	2.31
3559.00	10.40	304.10	3522.56	352.47	-309.41	468.99	469.01	318.72	2.97
3650.00	8.70	297.50	3612.29	360.25	-322.32	483.39	483.39	318.18	2.22
3741.00	9.30	303.40	3702.18	367.48	-334.56	496.93	496.96	317.68	1.21
3831.00	7.80	303.20	3791.17	374.83	-345.74	509.86	509.93	317.31	1.67
3922.00	8.40	311.60	3881.27	382.62	-355.88	522.43	522.54	317.07	1.46
4013.00	8.00	324.60	3971.34	392.20	-364.52	535.32	535.44	317.09	2.08
4104.00	6.80	326.70	4061.59	401.86	-371.15	546.95	547.03	317.28	1.35
4194.00	10.00	321.80	4150.61	412.46	-378.90	560.02	560.08	317.43	3.64
4285.00	8.30	319.90	4240.45	423.69	-388.02	574.47	574.52	317.52	1.90
4376.00	7.90	325.00	4330.54	433.84	-395.84	587.25	587.29	317.62	.90
4467.00	8.00	314.20	4420.67	443.38	-403.97	599.78	599.81	317.66	1.64
4558.00	8.00	320.80	4510.79	452.70	-412.51	612.42	612.46	317.66	1.01
4648.00	11.20	317.20	4599.52	463.97	-422.41	627.42	627.45	317.68	3.62
4739.00	10.70	316.30	4688.86	476.56	-434.25	644.70	644.74	317.66	.58
4830.00	10.30	324.90	4778.34	489.33	-444.77	661.22	661.25	317.73	1.78
4921.00	8.40	325.80	4868.13	501.48	-453.18	675.90	675.91	317.90	2.09
5011.00	8.20	319.40	4957.19	511.79	-461.05	688.83	688.84	317.99	1.05
5102.00	9.70	309.50	5047.08	521.60	-471.19	702.90	702.91	317.91	2.36
5193.00	9.10	309.50	5136.86	531.05	-482.66	717.58	717.62	317.73	.66
5283.00	8.30	306.00	5225.82	539.40	-493.41	730.97	731.03	317.55	1.07
5374.00	7.60	323.90	5315.96	548.12	-502.27	743.37	743.44	317.50	2.81
5465.00	8.30	320.10	5406.09	558.02	-510.03	755.93	755.99	317.57	.96
5556.00	8.60	315.30	5496.10	567.90	-519.03	769.29	769.35	317.57	.84
5646.00	7.50	312.70	5585.21	576.66	-528.08	781.85	781.92	317.52	1.29
5737.00	5.80	313.20	5675.60	583.84	-535.79	792.35	792.43	317.46	1.87
5828.00	5.50	308.60	5766.16	589.71	-542.55	801.23	801.32	317.38	.60
5918.00	4.90	305.30	5855.79	594.62	-549.06	809.22	809.35	317.28	.74
6009.00	4.00	300.80	5946.51	598.49	-554.96	816.04	816.19	317.16	1.06
6100.00	2.90	289.30	6037.35	600.88	-559.86	821.08	821.28	317.02	1.42
6191.00	2.60	278.80	6128.24	601.95	-564.07	824.69	824.94	316.86	.64

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	
6281.00	3.00	274.70	6218.13	602.46	-568.44	827.97	828.30	316.66	.50
6372.00	2.00	282.20	6309.05	602.99	-572.36	830.98	831.38	316.49	1.15
6463.00	.60	262.90	6400.02	603.27	-574.39	832.53	832.98	316.40	1.59
6554.00	.10	81.50	6491.02	603.22	-574.78	832.76	833.21	316.38	.77
6645.00	.60	13.10	6582.02	603.69	-574.59	832.99	833.43	316.41	.63
6736.00	1.00	18.20	6673.01	604.91	-574.24	833.66	834.07	316.49	.45
6827.00	1.10	29.70	6763.99	606.43	-573.56	834.34	834.70	316.60	.26
6916.00	1.70	42.50	6852.97	608.14	-572.24	834.74	835.04	316.74	.76
7008.00	.00	111.10	6944.95	609.15	-571.32	834.88	835.14	316.84	1.85
7099.00	.70	7.80	7035.95	609.70	-571.25	835.24	835.50	316.86	.77
7189.00	.30	32.30	7125.95	610.44	-571.04	835.66	835.90	316.91	.49
7280.00	.80	358.50	7216.94	611.28	-570.93	836.21	836.44	316.95	.63
7371.00	.50	294.90	7307.94	612.08	-571.31	837.06	837.28	316.97	.80
7461.00	.20	332.70	7397.94	612.39	-571.74	837.57	837.80	316.97	.40
7552.00	.50	18.00	7488.94	612.90	-571.69	837.93	838.14	316.99	.42
7643.00	1.20	6.00	7579.92	614.23	-571.47	838.77	838.96	317.07	.79
7734.00	.70	23.20	7670.91	615.69	-571.15	839.65	839.81	317.15	.63
7824.00	.70	19.80	7760.91	616.71	-570.75	840.14	840.29	317.22	.05
7915.00	.80	331.20	7851.90	617.79	-570.86	841.03	841.16	317.26	.69
8006.00	.80	352.10	7942.89	618.98	-571.26	842.17	842.30	317.30	.32
8097.00	1.10	344.00	8033.88	620.44	-571.58	843.49	843.60	317.35	.36
8187.00	1.00	330.40	8123.86	621.96	-572.21	845.03	845.14	317.39	.30
8202.00	1.00	328.00	8138.86	622.18	-572.34	845.29	845.39	317.39	.28
--Projection to Bit--									
8257.00	1.00	328.00	8193.85	623.00	-572.85	846.24	846.34	317.40	.00