



Directional Survey Report

Calpine

Well ID: MLM # 5 Fork

Well Name: MLM # 5 Fork

Field: Geysers

Sect: 26 Town: 11 N Rng: 8 W County: Lake State: CA

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
Well Bore: Original Well Bore				Plane of Vertical Section: 130					
** Tieln	0.0	0.00	0	0.0	0.0	0.0		0.0	
MSS	171.0	0.38	8	171.0	0.6	0.1	0.6	0.6	0.219
MSS	290.0	1.00	20.5	290.0	1.9	0.5	2.0	1.9	0.537
MSS	409.0	1.38	1,375	409.0	4.3	0.9	4.4	4.3	0.454
MSS	532.0	1.75	30.5	531.9	7.4	1.9	7.6	7.4	0.704
MSS	656.0	1.75	31	655.9	10.7	3.8	11.3	10.7	0.012
MSS	781.0	1.25	3.5	780.8	13.7	4.9	14.5	13.7	0.690
MSS	907.0	0.75	15	906.8	15.8	5.2	16.7	15.8	0.426
MSS	1,028.0	0.63	30	1,027.8	17.2	5.7	18.1	17.2	0.180
MSS	1,151.0	0.75	355.5	1,150.8	18.5	6.0	19.5	18.5	0.345
MSS	1,243.0	0.88	357	1,242.8	19.8	5.9	20.7	19.8	0.138
MSS	1,368.0	1.00	292	1,367.8	21.2	4.8	21.8	21.2	0.810
MSS	1,461.0	0.88	247	1,460.8	21.2	3.4	21.5	21.2	0.781
MSS	1,518.0	0.87	251	1,517.7	20.9	2.6	21.1	20.9	0.107
MSS	1,644.0	1.00	146.5	1,643.7	19.7	2.3	19.8	19.7	1.175
MSS	1,706.0	1.25	116.5	1,705.7	18.9	3.2	19.2	18.9	1.017
MSS	1,768.0	2.00	112	1,767.7	18.2	4.8	18.9	18.2	1.226
MSS	1,831.0	2.75	106	1,830.6	17.4	7.3	18.9	17.4	1.253
MSS	1,925.0	3.25	95	1,924.5	16.6	12.1	20.5	16.6	0.809
MSS	1,986.0	4.13	78	1,985.4	16.9	16.0	23.2	16.9	2.281
MSS	2,050.0	4.75	77	2,049.2	17.9	20.8	27.5	17.9	0.984
MSS	2,153.0	5.00	111	2,151.8	17.3	29.2	33.9	17.3	2.774
MSS	2,330.0	9.25	136.5	2,327.5	4.2	46.2	46.4	4.2	2.937
MSS	2,608.0	10.75	134.5	2,601.2	-30.2	80.1	85.6	-30.2	0.554
MSS	2,873.0	11.75	147	2,861.2	-70.1	112.4	132.5	-70.1	0.992
MSS	3,015.0	8.50	135.5	3,001.0	-89.8	127.6	156.0	-89.8	2.685
MSS	3,254.0	8.63	146.5	3,237.3	-117.3	149.9	190.3	-117.3	0.686
MSS	3,451.0	10.75	127	3,431.6	-140.7	172.7	222.8	-140.7	1.970
MSS	3,654.0	10.75	125.5	3,631.0	-163.1	203.3	260.6	-163.1	0.138
MSS	3,842.0	10.88	124.5	3,815.7	-183.3	232.2	295.8	-183.3	0.120
MSS	4,123.0	11.50	123	4,091.3	-213.6	277.5	350.2	-213.6	0.245
MSS	4,339.0	12.75	123	4,302.5	-238.3	315.5	395.4	-238.3	0.579
MSS	4,621.0	14.63	123	4,576.5	-274.6	371.5	462.0	-274.6	0.665
MSS	4,900.0	16.25	121	4,845.4	-313.9	434.5	536.1	-313.9	0.613
MSS	5,185.0	18.88	118	5,117.1	-356.1	509.4	621.5	-356.1	0.974
MSS	5,341.0	21.63	115	5,263.4	-380.1	557.8	675.0	-380.1	1.884
MSS	5,614.0	27.25	110	5,511.9	-422.8	662.2	785.6	-422.8	2.194
MSS	5,802.0	31.63	108	5,675.6	-452.8	749.5	875.7	-452.8	2.385
MSS	6,181.0	39.37	111.5	5,984.0	-527.6	956.2	1,092.1	-527.6	2.112
MSS	6,462.0	43.88	109	6,194.0	-592.0	1,131.3	1,276.9	-592.0	1.708
MSS	6,647.0	46.25	105.5	6,324.7	-630.8	1,256.4	1,405.8	-630.8	1.855
MSS	6,928.0	46.38	104.5	6,518.8	-683.4	1,452.6	1,605.3	-683.4	0.261
MSS	7,302.0	47.50	100	6,774.2	-741.2	1,719.5	1,872.5	-741.2	0.929
MSS	7,650.0	47.88	97.5	7,008.5	-780.3	1,973.8	2,122.5	-780.3	0.542



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Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
MSS	7,961.0	48.50	97	7,215.8	-809.6	2,203.8	2,347.8	-809.6	0.234
MSS	8,215.0	51.25	91	7,379.6	-822.9	2,397.4	2,534.7	-822.9	2.105
Well Bore: St # 1				Plane of Vertical Section: 141					
** Tieln	3,451.0	10.75	127	3,431.6	-140.7	172.7	331.0	218.0	
MSS	3,653.0	12.00	146	3,629.7	-169.5	199.5	261.8	257.2	1.945
MSS	3,750.0	10.50	143	3,724.8	-184.9	210.5	280.1	276.1	1.659
MSS	3,848.0	12.00	143	3,820.9	-200.1	222.0	298.9	295.2	1.531
MSS	3,985.0	12.50	141	3,954.8	-223.0	239.9	327.5	324.3	0.479
MSS	4,172.0	11.00	141	4,137.9	-252.6	263.8	365.3	362.4	0.802
MSS	4,357.0	11.00	141	4,319.5	-280.1	286.0	400.3	397.7	0.000
MSS	4,512.0	11.00	141	4,471.7	-303.1	304.7	429.7	427.2	0.000
MSS	4,667.0	8.50	138	4,624.4	-323.1	321.6	455.9	453.5	1.645
MSS	4,757.0	9.00	134	4,713.4	-332.9	331.1	469.5	467.1	0.875
MSS	4,884.0	8.75	130	4,838.8	-346.0	345.7	489.1	486.4	0.524
MSS	5,039.0	7.00	126	4,992.4	-359.1	362.4	510.2	507.1	1.182
MSS	5,197.0	6.00	124	5,149.4	-369.4	377.0	527.8	524.3	0.649
MSS	5,285.0	6.00	111	5,236.9	-373.6	385.1	536.6	532.7	1.541
MSS	5,379.0	5.75	116	5,330.4	-377.5	393.9	545.6	541.2	0.606
MSS	5,522.0	6.25	102	5,472.6	-382.2	408.0	559.0	553.8	1.078
MSS	5,719.0	7.50	102	5,668.2	-387.1	431.0	579.4	572.1	0.635
MSS	5,869.0	9.00	92	5,816.6	-389.6	452.3	597.0	587.4	1.380
MSS	6,026.0	10.25	91	5,971.4	-390.2	478.6	617.5	604.5	0.803
MSS	6,314.0	13.50	86	6,253.2	-388.3	537.8	663.3	640.2	1.183
MSS	6,406.0	15.00	82	6,342.4	-385.9	560.3	680.3	652.5	1.949
MSS	6,502.0	17.00	77	6,434.7	-381.0	586.2	699.2	665.1	2.528
MSS	6,583.0	18.00	74	6,511.9	-374.9	609.8	715.9	675.1	1.662
MSS	6,676.0	19.00	75	6,600.1	-367.1	638.2	736.3	686.9	1.128
MSS	6,770.0	19.50	76	6,688.9	-359.3	668.3	758.7	699.8	0.637
MSS	6,937.0	22.00	76	6,845.0	-345.0	725.7	803.5	724.8	1.497
MSS	7,030.0	24.00	75	6,930.6	-335.9	760.8	831.7	739.8	2.191
MSS	7,178.0	25.00	71	7,065.3	-317.9	819.5	879.0	762.8	1.308
MSS	7,339.0	27.00	72	7,210.0	-295.5	886.4	934.4	787.5	1.272
MSS	7,491.0	26.50	72	7,345.7	-274.4	951.5	990.3	812.0	0.329
MSS	7,645.0	27.00	70	7,483.3	-251.8	1,017.0	1,047.7	835.7	0.669
MSS	7,801.0	28.00	66	7,621.6	-224.8	1,083.7	1,106.8	856.7	1.346
MSS	7,959.0	28.00	61	7,761.2	-191.7	1,150.1	1,165.9	872.8	1.485
MSS	8,089.0	28.00	60	7,876.0	-161.7	1,203.2	1,214.0	882.8	0.361
MSS	8,245.0	28.00	62	8,013.7	-126.2	1,267.2	1,273.5	895.6	0.602
MSS	8,434.0	28.00	60	8,180.6	-83.2	1,344.8	1,347.4	911.0	0.497
MSS	8,856.0	30.00	56	8,549.7	25.4	1,518.1	1,518.3	935.7	0.660
MSS	9,042.0	33.50	54	8,707.8	81.6	1,598.2	1,600.3	942.4	1.965

Calculations using Minimum Curvature Method