



Directional Survey Report

Calpine

Well ID: NEGU # 8

Well Name: Negu # 8 Fork

Field: Geysers

Sect: 5 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: 0					
** Tieln	0.0	0.00	0	0.0	0.0	0.0		0.0	
MSS	303.0	1.25	357	303.0	3.3	-0.2	3.3	3.3	0.413
MSS	499.0	1.50	306	498.9	6.9	-2.4	7.3	6.9	0.615
MSS	1,004.0	2.00	321	1,003.7	17.7	-13.3	22.1	17.7	0.133
MSS	1,499.0	1.50	273	1,498.5	24.7	-25.2	35.3	24.7	0.302
MSS	1,723.0	1.25	225	1,722.4	23.2	-29.8	37.8	23.2	0.510
MSS	1,913.0	1.75	235	1,912.4	20.0	-33.7	39.2	20.0	0.296
MSS	2,164.0	2.00	222	2,163.2	14.6	-39.7	42.3	14.6	0.196
MSS	2,450.0	1.75	236	2,449.1	8.4	-46.7	47.4	8.4	0.182
MSS	2,703.0	1.75	228	2,702.0	3.7	-52.8	52.9	3.7	0.096
MSS	2,946.0	2.50	250	2,944.8	-0.6	-60.5	60.5	-0.6	0.451
MSS	2,964.0	2.75	255	2,962.8	-0.9	-61.3	61.3	-0.9	1.882
MSS	2,995.0	2.00	276	2,993.7	-1.0	-62.5	62.5	-1.0	3.668
MSS	3,027.0	1.75	328	3,025.7	-0.5	-63.4	63.4	-0.5	5.184
MSS	3,053.0	2.75	270	3,051.7	-0.2	-64.2	64.2	-0.2	9.039
MSS	3,120.0	4.00	18	3,118.6	2.0	-65.1	65.1	2.0	8.222
MSS	3,216.0	5.25	18	3,214.3	9.4	-62.7	63.4	9.4	1.302
MSS	3,311.0	6.50	13	3,308.8	18.8	-60.1	63.0	18.8	1.421
MSS	3,405.0	8.25	7	3,402.1	30.6	-58.1	65.7	30.6	2.032
MSS	3,500.0	9.75	4	3,495.9	45.4	-56.7	72.7	45.4	1.654
MSS	3,595.0	10.50	2	3,589.4	62.1	-55.9	83.5	62.1	0.872
MSS	3,688.0	12.50	1	3,680.5	80.6	-55.4	97.8	80.6	2.161
MSS	3,793.0	12.75	356	3,783.0	103.6	-56.0	117.7	103.6	1.067
MSS	3,888.0	13.25	358	3,875.6	124.9	-57.1	137.3	124.9	0.708
MSS	3,983.0	12.25	358	3,968.2	145.9	-57.8	156.9	145.9	1.053
MSS	4,110.0	11.00	353	4,092.6	171.4	-59.8	181.5	171.4	1.263
MSS	4,195.0	11.00	354	4,176.0	187.5	-61.6	197.3	187.5	0.224
MSS	4,290.0	10.75	354	4,269.3	205.3	-63.5	214.9	205.3	0.263
MSS	4,380.0	11.75	354	4,357.6	222.8	-65.3	232.1	222.8	1.111
MSS	4,475.0	13.00	353	4,450.4	243.0	-67.6	252.2	243.0	1.335
MSS	4,588.0	12.75	351	4,560.6	267.9	-71.1	277.2	267.9	0.452
MSS	4,682.0	12.75	347	4,652.2	288.3	-75.1	297.9	288.3	0.939
MSS	4,776.0	12.75	344	4,743.9	308.3	-80.3	318.6	308.3	0.704
MSS	4,894.0	12.75	341	4,859.0	333.2	-88.1	344.6	333.2	0.561
MSS	4,989.0	12.75	338	4,951.7	352.8	-95.5	365.5	352.8	0.697
MSS	5,041.0	11.25	21	5,002.6	362.9	-95.8	375.3	362.9	17.022
MSS	5,051.0	13.50	333	5,012.4	364.8	-96.0	377.2	364.8	102.114
MSS	5,085.0	13.00	337	5,045.5	371.9	-99.3	384.9	371.9	3.071
MSS	5,117.0	13.50	345	5,076.7	378.8	-101.6	392.2	378.8	5.934
MSS	5,148.0	12.75	354	5,106.9	385.7	-102.9	399.2	385.7	7.014
MSS	5,179.0	12.00	4	5,137.2	392.3	-103.1	405.6	392.3	7.313
MSS	5,210.0	11.50	13	5,167.5	398.6	-102.1	411.4	398.6	6.121
MSS	5,241.0	11.25	21	5,197.9	404.4	-100.4	416.7	404.4	5.149
MSS	5,273.0	11.25	23	5,229.3	410.2	-98.0	421.7	410.2	1.219



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Sect: 5 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			
MSS	5,303.0	11.25	19	5,258.7	415.6	-95.9	426.6	415.6	2.601
MSS	5,332.0	12.25	20	5,287.1	421.2	-94.0	431.6	421.2	3.519
MSS	5,406.0	12.00	29	5,359.5	435.3	-87.5	444.0	435.3	2.574
MSS	5,427.0	12.00	36	5,380.0	439.0	-85.2	447.2	439.0	6.926
MSS	5,499.0	13.25	48	5,450.3	450.6	-74.7	456.7	450.6	4.026
MSS	5,594.0	15.00	46	5,542.4	466.4	-57.7	469.9	466.4	1.912
MSS	5,687.0	16.00	46	5,632.0	483.7	-39.9	485.3	483.7	1.075
MSS	5,813.0	15.00	44	5,753.4	507.4	-16.0	507.7	507.4	0.900
MSS	5,939.0	14.00	43	5,875.4	530.3	5.7	530.4	530.3	0.818
MSS	6,065.0	13.75	39	5,997.7	553.1	25.5	553.7	553.1	0.787
MSS	6,189.0	12.00	37	6,118.6	574.9	42.5	576.4	574.9	1.456
MSS	6,252.0	10.75	38	6,180.4	584.7	50.1	586.9	584.7	2.009
MSS	6,359.0	10.50	34	6,285.5	600.7	61.7	603.8	600.7	0.728
MSS	6,454.0	10.50	32	6,379.0	615.2	71.1	619.3	615.2	0.384
MSS	6,610.0	10.50	30	6,532.3	639.5	85.8	645.3	639.5	0.234
MSS	6,737.0	11.50	25	6,657.0	661.0	96.9	668.1	661.0	1.088
MSS	6,888.0	12.00	26	6,804.8	688.8	110.1	697.5	688.8	0.358
MSS	7,013.0	12.50	23	6,927.0	712.9	121.1	723.1	712.9	0.647
MSS	7,140.0	12.00	21	7,051.1	737.9	131.2	749.5	737.9	0.516
MSS	7,265.0	12.00	21	7,173.4	762.2	140.5	775.0	762.2	0.000
MSS	7,359.0	10.75	16	7,265.5	779.7	146.5	793.3	779.7	1.693
MSS	7,454.0	11.50	11	7,358.7	797.5	150.7	811.6	797.5	1.286
MSS	7,610.0	11.50	6	7,511.6	828.3	155.3	842.7	828.3	0.639
MSS	7,737.0	11.25	13	7,636.1	852.9	159.4	867.7	852.9	1.104
MSS	7,864.0	12.50	12	7,760.4	878.4	165.0	893.8	878.4	0.997
MSS	7,986.0	13.75	11	7,879.2	905.6	170.6	921.5	905.6	1.041
MSS	8,236.0	13.75	6	8,122.1	964.3	179.3	980.8	964.3	0.475
MSS	8,490.0	13.75	356	8,368.8	1,024.4	180.4	1,040.2	1,024.4	0.935
MSS	8,812.0	16.00	352	8,680.0	1,106.6	171.5	1,119.8	1,106.6	0.768
MSS	9,231.0	16.00	352	9,082.8	1,220.9	155.5	1,230.8	1,220.9	0.000
MSS	9,771.0	16.00	352	9,601.9	1,368.3	134.7	1,375.0	1,368.3	0.000

Well Bore: Fork

Plane of Vertical Section: 80.98

** Tieln	3,216.0	5.25	18	3,214.3	9.4	-62.7		-60.5	
MWD	3,218.0	5.28	17.82	3,216.3	9.6	-62.6	63.4	-60.4	1.712
MWD	3,256.0	8.00	25	3,254.0	13.6	-61.0	62.5	-58.1	7.470
MWD	3,286.0	8.80	27	3,283.7	17.6	-59.1	61.6	-55.6	2.839
MWD	3,348.0	10.38	33.89	3,344.8	26.4	-53.8	59.9	-49.0	3.146
MWD	3,440.0	12.32	36.97	3,435.0	41.2	-43.3	59.7	-36.3	2.208
MWD	3,535.0	12.90	49.7	3,527.8	56.1	-29.1	63.2	-19.9	2.982
MWD	3,566.0	12.83	53.7	3,558.0	60.4	-23.7	64.9	-13.9	2.881
MWD	3,597.0	13.20	56.2	3,588.2	64.4	-18.0	66.9	-7.6	2.173
MWD	3,629.0	13.70	57.1	3,619.3	68.5	-11.7	69.5	-0.9	1.694
MWD	3,661.0	14.00	60.6	3,650.4	72.5	-5.2	72.6	6.2	2.781
MWD	3,692.0	14.37	62.43	3,680.4	76.1	1.5	76.1	13.4	1.875
MWD	3,724.0	14.39	65.42	3,711.4	79.6	8.6	80.0	21.0	2.321



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Calpine

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Field: Geysers

Sect: 5 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			
MWD	3,756.0	13.80	66.24	3,742.5	82.8	15.7	84.2	28.5	1.946
MWD	3,787.0	14.60	68.05	3,772.5	85.7	22.7	88.7	35.9	2.951
MWD	3,819.0	15.40	71.35	3,803.4	88.6	30.5	93.7	44.0	3.656
MWD	3,851.0	16.40	73.46	3,834.2	91.2	38.9	99.2	52.7	3.609
MWD	3,883.0	17.30	76.2	3,864.8	93.6	47.8	105.1	61.9	3.750
MWD	3,947.0	18.90	82	3,925.7	97.4	67.3	118.4	81.8	3.762
MWD	4,011.0	21.00	84.2	3,985.8	100.0	89.0	133.8	103.6	3.484
MSS	4,152.0	21.00	84	4,117.5	105.1	139.3	174.5	154.0	0.051
MSS	4,376.0	21.50	85	4,326.2	112.9	220.1	247.4	235.1	0.276

Well Bore: Fork ST #1

Plane of Vertical Section: 103.9

** Tieln	3,535.0	12.90	49.7	3,528.8	56.1	-29.1	445.1	-41.7	
MSS	3,557.0	12.45	51	3,550.3	59.2	-25.4	64.4	-38.9	2.422
MWD	3,588.0	11.40	54.2	3,580.6	63.1	-20.3	66.3	-34.9	4.002
MWD	3,617.0	11.20	55.4	3,609.0	66.4	-15.7	68.2	-31.1	1.064
MWD	3,652.0	11.30	55	3,643.4	70.2	-10.1	71.0	-26.6	0.362
MWD	3,683.0	11.40	57.4	3,673.8	73.6	-5.0	73.8	-22.5	1.557
MWD	3,714.0	11.60	59	3,704.1	76.9	0.3	76.9	-18.2	1.214
MWD	3,745.0	11.60	61.5	3,734.5	80.0	5.7	80.2	-13.7	1.621
MWD	3,777.0	12.00	63.3	3,765.8	83.0	11.5	83.8	-8.8	1.699
MWD	3,809.0	12.20	66	3,797.1	85.9	17.5	87.7	-3.6	1.876
MWD	3,841.0	12.20	70.2	3,828.4	88.4	23.8	91.6	1.9	2.773
MWD	3,872.0	12.30	74.4	3,858.7	90.4	30.1	95.3	7.5	2.892
MWD	3,902.0	12.60	78	3,888.0	91.9	36.4	98.9	13.2	2.773
MWD	3,934.0	13.00	81.6	3,919.2	93.2	43.3	102.8	19.7	2.788
MWD	3,965.0	13.30	83.4	3,949.4	94.1	50.3	106.7	26.2	1.637
MWD	3,998.0	13.70	84.6	3,981.5	94.9	58.0	111.2	33.5	1.480
MWD	4,028.0	13.20	86.77	4,010.6	95.4	64.9	115.4	40.1	2.368
MWD	4,060.0	13.30	89.4	4,041.8	95.7	72.3	119.9	47.2	1.909
MWD	4,091.0	13.50	89	4,071.9	95.8	79.4	124.5	54.1	0.711
MWD	4,122.0	13.60	91.07	4,102.1	95.8	86.7	129.2	61.2	1.597
MWD	4,154.0	13.40	94.2	4,133.2	95.4	94.2	134.1	68.5	2.367
MWD	4,185.0	13.60	97.5	4,163.3	94.7	101.4	138.7	75.6	2.567
MWD	4,217.0	13.70	100.2	4,194.4	93.5	108.8	143.5	83.2	2.015
MWD	4,248.0	14.30	102.6	4,224.5	92.1	116.2	148.2	90.7	2.693
MWD	4,280.0	14.90	102.8	4,255.5	90.3	124.0	153.4	98.7	1.882
MWD	4,312.0	15.50	105.5	4,286.4	88.2	132.2	158.9	107.1	2.899
MWD	4,344.0	16.30	106.9	4,317.1	85.8	140.6	164.7	115.9	2.772
MWD	4,375.0	16.80	107.1	4,346.9	83.2	149.0	170.7	124.7	1.623
MWD	4,406.0	17.00	106.8	4,376.5	80.6	157.7	177.1	133.7	0.704
MWD	4,437.0	17.40	107.6	4,406.1	77.9	166.4	183.7	142.8	1.499
MWD	4,469.0	18.20	107	4,436.6	75.0	175.8	191.1	152.6	2.565
MWD	4,499.0	19.00	106.5	4,465.0	72.2	184.9	198.5	162.2	2.719
MWD	4,530.0	19.80	106.5	4,494.3	69.3	194.8	206.7	172.4	2.581
MWD	4,560.0	20.60	106.8	4,522.4	66.3	204.7	215.2	182.8	2.689
MWD	4,611.0	21.80	108.65	4,570.0	60.7	222.3	230.4	201.2	2.694



Directional Survey Report

Calpine

Well ID: NEGU # 8

Well Name: Negu # 8 Fork

Field: Geysers

Sect: 5 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			
MSS	4,792.0	20.50	108	4,738.8	40.1	284.3	287.1	266.3	0.730
MSS	5,044.0	19.00	108	4,975.9	13.8	365.3	365.5	351.2	0.595
MSS	5,254.0	20.00	110	5,173.9	-9.0	431.5	431.6	421.0	0.572
MSS	5,806.0	24.00	118	5,685.7	-94.1	619.5	626.6	623.9	0.904
MSS	6,022.0	26.00	119	5,881.5	-137.6	699.7	713.1	712.2	0.946
MSS	6,116.0	26.50	119	5,965.8	-157.8	736.0	752.7	752.4	0.532

Well Bore: Fork ST # 2

Plane of Vertical Section: 103.9

** Tieln	4,060.0	13.30	89.4	4,053.3	95.8	79.4	479.7	54.1	
MWD	4,092.0	12.80	89.7	4,084.4	95.9	86.6	129.2	61.1	1.577
MWD	4,123.0	12.20	92.7	4,114.7	95.7	93.3	133.7	67.6	2.851
MWD	4,154.0	12.20	96.4	4,145.0	95.2	99.9	138.0	74.1	2.522
MWD	4,185.0	12.00	100.5	4,175.3	94.2	106.3	142.1	80.5	2.846
MWD	4,217.0	11.90	105.6	4,206.6	92.8	112.7	146.0	87.1	3.314
MWD	4,247.0	11.90	109.6	4,236.0	90.9	118.6	149.4	93.3	2.749
MWD	4,277.0	12.10	113.4	4,265.3	88.6	124.4	152.7	99.5	2.716
MWD	4,307.0	12.60	115	4,294.6	86.0	130.3	156.1	105.8	2.020
MWD	4,337.0	12.90	115.4	4,323.9	83.1	136.3	159.6	112.3	1.042
MWD	4,369.0	13.20	114.2	4,355.1	80.1	142.8	163.8	119.4	1.263
MWD	4,401.0	13.60	115.1	4,386.2	77.0	149.6	168.2	126.7	1.410
MWD	4,432.0	13.80	115.9	4,416.3	73.9	156.2	172.8	133.9	0.889
MWD	4,459.0	14.20	114.3	4,442.5	71.1	162.1	177.0	140.3	2.061
MWD	4,494.0	14.40	110.6	4,476.4	67.8	170.1	183.1	148.8	2.672
MWD	4,526.0	14.90	110	4,507.4	65.0	177.7	189.2	156.9	1.633
MWD	4,558.0	15.60	109.2	4,538.2	62.2	185.6	195.7	165.2	2.284
MWD	4,589.0	16.50	109.6	4,568.0	59.3	193.7	202.6	173.8	2.925
MWD	4,619.0	17.30	111	4,596.7	56.3	201.9	209.6	182.4	2.992
MWD	4,634.0	17.70	111.7	4,611.0	54.6	206.1	213.2	186.9	3.013
MSS	4,767.0	17.75	115	4,737.7	38.6	243.2	246.3	226.8	0.756
MSS	4,868.0	17.75	118	4,833.9	24.9	270.8	271.9	256.9	0.905
MSS	4,963.0	18.00	120	4,924.3	10.7	296.3	296.5	285.0	0.698
MSS	5,058.0	18.00	122	5,014.7	-4.4	321.4	321.5	313.1	0.651
MSS	5,214.0	18.00	120	5,163.1	-29.2	362.8	363.9	359.2	0.396
MSS	5,478.0	19.50	122	5,413.0	-73.0	435.5	441.5	440.2	0.618
MSS	5,721.0	21.00	125	5,641.0	-119.4	505.5	519.4	519.4	0.751
MSS	6,089.0	22.00	125	5,982.7	-197.8	617.5	648.4	646.9	0.194
MSS	6,315.0	23.50	126	6,191.1	-248.6	688.6	732.1	728.2	0.685
MSS	6,519.0	25.00	125	6,377.1	-297.2	756.8	813.1	806.1	0.762

Well Bore: Fork ST #3

Plane of Vertical Section: 104

** Tieln	5,721.0	21.00	125	5,641.0	-119.4	505.5	1,036.7	967.9	
MSS	6,247.0	20.00	125	6,133.7	-225.1	656.4	693.9	691.3	0.190
MSS	6,636.0	20.00	125	6,499.2	-301.4	765.4	822.6	815.6	0.000
MSS	6,928.0	21.00	123	6,772.7	-358.5	850.2	922.7	911.6	0.418
MSS	7,105.0	21.00	122	6,938.0	-392.6	903.7	985.3	971.8	0.202

Well Bore: Fork ST #4

Plane of Vertical Section: 104

** Tieln	6,928.0	21.00	123	6,772.7	-358.5	850.2	1,255.5	1,187.1	
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Directional Survey Report

Calpine

Well ID: NEGU # 8

Well Name: Negu # 8 Fork

Field: Geysers

Sect: 5 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			
MSS	7,143.0	20.00	122	6,974.1	-399.0	913.7	997.0	983.1	0.493
MSS	7,423.0	15.00	121	7,241.0	-443.0	985.4	1,080.4	1,063.3	1.789
MSS	7,701.0	15.00	114	7,509.6	-476.2	1,049.1	1,152.1	1,133.2	0.651
MSS	7,980.0	15.00	116	7,779.1	-506.7	1,114.5	1,224.3	1,204.0	0.186
MSS	8,258.0	17.00	112	8,046.3	-537.7	1,184.6	1,300.9	1,279.5	0.821
MSS	8,569.0	17.00	116	8,343.7	-574.7	1,267.6	1,391.8	1,369.0	0.376
MSS	8,605.0	17.00	116	8,378.2	-579.3	1,277.1	1,402.3	1,379.3	0.000

Calculations using Minimum Curvature Method