



# Directional Survey Report

Well ID: Sulphur bank 32

Field: Geysers

**Calpine Corp**

Well Name: Sulphur Bank # 32

Sect: 11 Town: 11N Rng: 8W County: Sonoma State: CA

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
<b>Well Bore: Original Well Bore</b>				<b>Plane of Vertical Section: 0</b>					
** Tieln	0.0	0.00	0	0.0	0.0	0.0		0.0	
MWD	20.9	11.15	111.72	20.8	-0.8	1.9	2.0	-0.8	53.298
DIGITA	280.0	1.00	148.2	278.1	-12.0	26.4	29.0	-12.0	4.000
DIGITA	534.0	4.30	172.3	531.8	-23.3	28.9	37.1	-23.3	1.343
MWD	678.0	6.30	172.1	675.2	-36.5	30.7	47.7	-36.5	1.389
MWD	719.0	6.63	172.2	715.9	-41.0	31.3	51.6	-41.0	0.805
MWD	751.0	6.42	170.66	747.7	-44.6	31.8	54.8	-44.6	0.854
MWD	783.0	6.17	177.67	779.5	-48.1	32.2	57.9	-48.1	2.524
MWD	815.0	5.70	166.9	811.3	-51.4	32.6	60.9	-51.4	3.770
MWD	846.0	6.83	173.06	842.2	-54.7	33.2	64.0	-54.7	4.236
MWD	910.0	6.68	164.13	905.7	-62.1	34.7	71.1	-62.1	1.656
MWD	941.0	7.28	160.77	936.5	-65.7	35.8	74.8	-65.7	2.340
MWD	973.0	7.50	162.04	968.2	-69.6	37.1	78.9	-69.6	0.856
MWD	1,036.0	7.82	162.73	1,030.7	-77.6	39.7	87.1	-77.6	0.528
MWD	1,068.0	8.05	163.49	1,062.4	-81.8	41.0	91.5	-81.8	0.790
MWD	1,099.0	8.00	164.99	1,093.1	-86.0	42.1	95.7	-86.0	0.694
MWD	1,131.0	8.22	163.67	1,124.7	-90.3	43.4	100.2	-90.3	0.901
MWD	1,162.0	8.48	162.41	1,155.4	-94.6	44.7	104.6	-94.6	1.026
MWD	1,194.0	8.84	162.04	1,187.0	-99.2	46.1	109.4	-99.2	1.138
MWD	1,226.0	9.27	160.92	1,218.6	-104.0	47.7	114.4	-104.0	1.452
MWD	1,257.0	9.57	159.08	1,249.2	-108.7	49.5	119.5	-108.7	1.371
MWD	1,289.0	9.67	157.24	1,280.8	-113.7	51.5	124.8	-113.7	1.010
MWD	1,321.0	9.59	156.58	1,312.3	-118.6	53.6	130.2	-118.6	0.426
MWD	1,352.0	9.67	154.16	1,342.9	-123.3	55.7	135.3	-123.3	1.331
MWD	1,384.0	9.60	148.54	1,374.4	-128.0	58.3	140.7	-128.0	2.946
MWD	1,416.0	9.55	147.69	1,406.0	-132.6	61.1	146.0	-132.6	0.469
MWD	1,448.0	9.38	145.99	1,437.6	-137.0	64.0	151.2	-137.0	1.022
MWD	1,479.0	9.46	143.29	1,468.1	-141.1	66.9	156.2	-141.1	1.449
MWD	1,510.0	9.43	139	1,498.7	-145.1	70.1	161.1	-145.1	2.272
MWD	1,542.0	9.67	134.55	1,530.3	-148.9	73.7	166.2	-148.9	2.425
MWD	1,574.0	9.97	130.44	1,561.8	-152.6	77.8	171.3	-152.6	2.382
MWD	1,605.0	10.45	123.12	1,592.3	-155.9	82.2	176.2	-155.9	4.459
MWD	1,637.0	10.77	120.61	1,623.8	-159.0	87.2	181.3	-159.0	1.756
MWD	1,669.0	10.89	114.47	1,655.2	-161.8	92.5	186.3	-161.8	3.623
MWD	1,700.0	10.34	114.43	1,685.7	-164.1	97.7	191.0	-164.1	1.774
MWD	1,732.0	10.17	115.37	1,717.2	-166.5	102.9	195.7	-166.5	0.745
MWD	1,764.0	9.86	114.37	1,748.7	-168.9	107.9	200.4	-168.9	1.111
MWD	1,795.0	9.99	111.29	1,779.2	-170.9	112.8	204.8	-170.9	1.763
MWD	1,827.0	10.16	111.93	1,810.7	-173.0	118.0	209.4	-173.0	0.636
MWD	1,859.0	10.22	114.15	1,842.2	-175.2	123.2	214.2	-175.2	1.241
MWD	1,890.0	10.10	113.89	1,872.7	-177.4	128.2	218.9	-177.4	0.414
MWD	1,922.0	10.41	113.75	1,904.2	-179.7	133.4	223.9	-179.7	0.972
MWD	1,965.0	10.51	113.43	1,946.5	-182.9	140.6	230.7	-182.9	0.269
MWD	1,997.0	10.72	114.22	1,977.9	-185.3	146.0	235.9	-185.3	0.798



# Directional Survey Report

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Field: Geysers

**Calpine Corp**

Well Name: Sulphur Bank # 32

Sect: 11 Town: 11N Rng: 8W County: Sonoma State: CA

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates N-S	E-W	Closure	Vertical Section	Dog Leg Severity
MWD	2,028.0	10.79	113.48	2,008.4	-187.6	151.3	241.0	-187.6	0.499
MWD	2,060.0	10.98	113.11	2,039.8	-190.0	156.8	246.3	-190.0	0.633
MWD	2,092.0	11.15	111.72	2,071.2	-192.3	162.5	251.8	-192.3	0.989
MWD	2,124.0	11.38	111.23	2,102.6	-194.6	168.3	257.3	-194.6	0.779
MWD	2,155.0	11.67	110.49	2,133.0	-196.8	174.1	262.8	-196.8	1.050
MWD	2,187.0	11.81	107.51	2,164.3	-198.9	180.3	268.5	-198.9	1.944
MWD	2,219.0	11.83	106.66	2,195.6	-200.9	186.5	274.1	-200.9	0.548
MWD	2,250.0	11.99	104.47	2,226.0	-202.6	192.7	279.6	-202.6	1.546
MWD	2,282.0	11.89	103.71	2,257.3	-204.2	199.1	285.2	-204.2	0.582
MWD	2,345.0	11.42	104.82	2,319.0	-207.3	211.4	296.1	-207.3	0.827
MWD	2,410.0	12.43	106.25	2,382.6	-210.9	224.4	308.0	-210.9	1.619
MWD	2,472.0	12.66	106.14	2,443.1	-214.7	237.3	320.0	-214.7	0.373
MWD	2,535.0	11.75	105.65	2,504.7	-218.3	250.1	332.0	-218.3	1.454
MWD	2,598.0	11.93	104.55	2,566.3	-221.7	262.6	343.7	-221.7	0.458
MWD	2,661.0	11.81	104.5	2,628.0	-224.9	275.2	355.4	-224.9	0.191
MWD	2,725.0	12.71	103.85	2,690.5	-228.3	288.3	367.8	-228.3	1.423
MWD	2,788.0	13.07	103.42	2,751.9	-231.6	302.0	380.6	-231.6	0.591
MWD	2,851.0	13.97	106.93	2,813.2	-235.5	316.2	394.2	-235.5	1.933
MWD	2,913.0	13.45	108.29	2,873.4	-239.9	330.2	408.1	-239.9	0.987
MWD	2,977.0	12.84	107.09	2,935.8	-244.3	344.1	422.0	-244.3	1.044
MWD	3,040.0	12.24	107.51	2,997.2	-248.4	357.1	435.0	-248.4	0.963
DIGITA	3,366.0	11.30	101	3,316.4	-264.9	421.4	497.8	-264.9	0.499
DIGITA	3,619.0	10.80	101.5	3,564.7	-274.3	469.0	543.3	-274.3	0.201
DIGITA	3,870.0	10.50	100.7	3,811.4	-283.3	514.5	587.3	-283.3	0.133
DIGITA	4,127.0	9.10	95.6	4,064.6	-289.6	557.8	628.5	-289.6	0.640
DIGITA	4,281.0	8.60	95.8	4,216.8	-292.0	581.3	650.5	-292.0	0.325
DIGITA	4,407.0	8.20	94.2	4,341.5	-293.6	599.7	667.7	-293.6	0.368
DIGITA	4,547.0	8.70	95.1	4,479.9	-295.2	620.2	686.9	-295.2	0.369
DIGITA	4,674.0	10.00	90.2	4,605.2	-296.1	640.8	705.9	-296.1	1.199
DIGITA	4,816.0	10.90	89.6	4,744.9	-296.1	666.5	729.3	-296.1	0.638
DIGITA	4,975.0	10.70	89.1	4,901.1	-295.7	696.3	756.5	-295.7	0.139
DIGITA	5,133.0	11.40	85.2	5,056.1	-294.2	726.5	783.8	-294.2	0.648
DIGITA	5,292.0	11.80	84.6	5,211.9	-291.4	758.4	812.4	-291.4	0.263
DIGITA	5,450.0	12.20	87.2	5,366.4	-289.0	791.1	842.3	-289.0	0.426
DIGITA	5,608.0	12.30	84.7	5,520.8	-286.7	824.6	873.0	-286.7	0.342
DIGITA	5,988.0	13.10	79.5	5,891.6	-275.1	907.2	948.0	-275.1	0.367
DIGITA	6,146.0	13.80	76.1	6,045.2	-267.3	943.1	980.3	-267.3	0.668
DIGITA	6,307.0	14.60	78.2	6,201.3	-258.5	981.6	1,015.1	-258.5	0.591
DIGITA	6,438.0	14.60	76.7	6,328.1	-251.3	1,013.8	1,044.5	-251.3	0.289
DIGITA	6,590.0	15.80	74.5	6,474.8	-241.4	1,052.4	1,079.8	-241.4	0.876
DIGITA	6,782.0	16.80	77.3	6,659.0	-228.3	1,104.7	1,128.0	-228.3	0.662
DIGITA	6,967.0	19.10	73.9	6,835.0	-214.0	1,159.9	1,179.4	-214.0	1.366
DIGITA	7,131.0	16.90	78.4	6,991.0	-201.8	1,209.0	1,225.7	-201.8	1.586
DIGITA	7,320.0	17.00	85.1	7,171.8	-193.9	1,263.4	1,278.2	-193.9	1.034
DIGITA	7,512.0	18.80	75.7	7,354.5	-183.9	1,321.4	1,334.1	-183.9	1.770
DIGITA	8,179.0	16.50	82	7,990.2	-144.1	1,519.4	1,526.2	-144.1	0.448



## Directional Survey Report

**Calpine Corp**

Well ID: Sulphur bank 32

Well Name: Sulphur Bank # 32

Field: Geysers

Sect: 11 Town: 11N Rng: 8W County: Sonoma State: CA

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			

Calculations using Minimum Curvature Method