



# Directional Survey Report

**Calpine Corp**

Well ID: Wildhorse St# 71

Well Name: Wildhorse State # 71

Field: Geysers

Sect: 3 Town: 11 N Rng: 9 W County: Sonoma State: CA

Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates N-S	E-W	Closure	Vertical Section	Dog Leg Severity
<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	
VERTT	253.0	0.05	90	253.0	0.0	0.1	0.1	0.0	0.020
VERTT	589.0	0.06	90	589.0	0.0	0.4	0.4	0.0	0.003
VERTT	881.0	0.05	180	881.0	-0.1	0.6	0.6	-0.1	0.027
VERTT	1,199.0	0.09	270	1,199.0	-0.3	0.3	0.4	-0.3	0.032
VERTT	1,519.0	0.14	0	1,519.0	0.1	0.1	0.2	0.1	0.052
VERTT	1,774.0	0.02	180	1,774.0	0.4	0.1	0.4	0.4	0.063
VERTT	2,028.0	0.13	270	2,028.0	0.3	-0.2	0.4	0.3	0.052
VERTT	2,346.0	0.06	0	2,346.0	0.5	-0.6	0.8	0.5	0.045
VERTT	2,382.0	0.16	129.5	2,382.0	0.5	-0.5	0.7	0.5	0.565
TRUET	2,447.0	0.76	56.75	2,447.0	0.7	-0.1	0.7	0.7	1.121
TRUET	2,542.0	1.72	51.75	2,542.0	1.9	1.6	2.5	1.9	1.016
TRUET	2,638.0	2.72	38.93	2,637.9	4.6	4.1	6.2	4.6	1.157
TRUET	2,733.0	3.39	20.62	2,732.8	9.0	6.5	11.1	9.0	1.237
TRUET	2,829.0	4.71	14.61	2,828.5	15.4	8.5	17.6	15.4	1.442
TRUET	2,924.0	6.76	5.53	2,923.0	24.8	10.0	26.7	24.8	2.353
TRUET	3,021.0	8.73	356.88	3,019.2	37.8	10.2	39.1	37.8	2.354
TRUET	3,116.0	10.10	352.2	3,112.9	53.3	8.7	54.0	53.3	1.651
TRUET	3,212.0	10.75	353.42	3,207.3	70.5	6.5	70.8	70.5	0.715
TRUET	3,307.0	12.73	352	3,300.3	89.7	4.0	89.7	89.7	2.106
TRUET	3,402.0	13.96	354	3,392.7	111.4	1.4	111.4	111.4	1.383
TRUET	3,498.0	15.09	357	3,485.7	135.4	-0.5	135.4	135.4	1.414
<b>Well Bore: Side track 1</b>				<b>Plane of Vertical Section: 357.41</b>					
** Tieln	718.0	0.04	213.4	718.0	-0.3	0.2		-0.3	
TRUET	759.0	0.11	307	759.0	-0.3	0.2	0.3	-0.3	0.291
TRUET	802.0	0.25	22.82	802.0	-0.2	0.2	0.2	-0.2	0.575
TRUET	834.0	1.06	78.23	834.0	0.0	0.5	0.5	-0.1	2.940
TRUET	855.0	1.53	86.51	855.0	0.0	1.0	1.0	0.0	2.403
TRUET	887.0	1.92	81.44	887.0	0.1	1.9	1.9	0.0	1.308
TRUET	919.0	2.38	81.72	919.0	0.3	3.1	3.1	0.2	1.438
TRUET	1,015.0	4.40	90.12	1,014.8	0.6	8.8	8.8	0.2	2.161
TRUET	1,110.0	5.33	93.29	1,109.4	0.3	16.8	16.8	-0.4	1.019
TRUET	1,205.0	5.44	95.36	1,204.0	-0.3	25.7	25.7	-1.5	0.235
TRUET	1,301.0	5.27	99.07	1,299.6	-1.5	34.6	34.6	-3.0	0.402
TRUET	1,397.0	5.47	100	1,395.2	-3.0	43.5	43.6	-4.9	0.227
TRUET	1,492.0	5.07	99.05	1,489.8	-4.4	52.1	52.3	-6.8	0.431
TRUET	1,588.0	5.17	88.98	1,585.4	-5.0	60.6	60.8	-7.7	0.941
TRUET	1,684.0	5.87	78.44	1,681.0	-3.9	69.7	69.8	-7.1	1.280
TRUET	1,778.0	5.65	64.96	1,774.5	-1.0	78.6	78.6	-4.6	1.455
TRUET	1,874.0	5.35	52.07	1,870.0	3.7	86.4	86.5	-0.2	1.321
TRUET	1,969.0	5.74	41.85	1,964.6	10.0	93.1	93.6	5.8	1.116
TRUET	2,066.0	7.24	34.67	2,061.0	18.6	99.8	101.5	14.1	1.755
TRUET	2,161.0	8.01	24.67	2,155.1	29.6	106.0	110.0	24.8	1.612
TRUET	2,257.0	8.83	18.64	2,250.1	42.6	111.1	119.0	37.6	1.254



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Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates N-S	E-W	Closure	Vertical Section	Dog Leg Severity
TRUET	2,383.0	9.13	17.01	2,374.6	61.4	117.1	132.2	56.0	0.312
TRUET	2,478.0	9.60	13.54	2,468.3	76.3	121.2	143.2	70.7	0.773
TRUET	2,573.0	11.13	11.66	2,561.7	93.0	124.9	155.7	87.2	1.649
TRUET	2,669.0	12.35	8.67	2,655.7	112.2	128.3	170.4	106.3	1.420
TRUET	2,765.0	14.08	6.24	2,749.2	133.9	131.1	187.4	127.9	1.892
TRUET	2,860.0	15.50	2.85	2,841.0	158.1	133.0	206.6	151.9	1.750
TRUET	2,988.0	16.15	2.9	2,964.2	193.0	134.8	235.4	186.7	0.508
TRUET	3,116.0	17.28	1.89	3,086.8	229.7	136.3	267.1	223.4	0.911
TRUET	3,211.0	18.18	358.94	3,177.3	258.7	136.5	292.5	252.2	1.338
TRUET	3,338.0	18.71	357.18	3,297.7	298.8	135.1	328.0	292.4	0.605
TRUET	3,435.0	18.49	358.38	3,389.7	329.7	133.9	355.9	323.3	0.455
TRUET	3,530.0	18.67	355.72	3,479.7	360.0	132.4	383.5	353.6	0.912
TRUET	3,626.0	18.77	356.1	3,570.7	390.7	130.2	411.8	384.4	0.164
TRUET	3,721.0	18.65	358.08	3,660.6	421.1	128.6	440.3	414.9	0.680
TRUET	3,849.0	18.32	359.93	3,782.0	461.7	127.9	479.1	455.4	0.526
TRUET	3,945.0	17.18	354.43	3,873.5	490.9	126.5	506.9	484.7	2.111
TRUET	4,072.0	17.47	352.35	3,994.7	528.5	122.2	542.4	522.4	0.538
TRUET	4,155.0	18.02	352.47	4,073.8	553.5	118.8	566.1	547.6	0.664
MSS	4,392.0	17.40	350.1	4,299.5	624.8	107.9	634.0	619.3	0.401
MSS	5,088.0	15.80	347.5	4,966.5	819.8	69.5	822.8	815.8	0.253
MSS	5,340.0	15.10	347	5,209.4	885.3	54.7	887.0	881.9	0.283
MSS	5,658.0	13.80	345	5,517.3	962.3	35.6	963.0	959.7	0.438
MSS	6,070.0	13.20	345	5,917.9	1,055.2	10.7	1,055.3	1,053.6	0.146
MSS	6,324.0	12.90	343	6,165.4	1,110.3	-5.1	1,110.3	1,109.4	0.213
MSS	6,518.0	13.00	343	6,354.5	1,151.9	-17.8	1,152.0	1,151.5	0.052
MSS	6,791.0	12.40	341	6,620.8	1,209.0	-36.3	1,209.5	1,209.4	0.272
MSS	7,062.0	12.60	342.6	6,885.4	1,264.7	-54.7	1,265.9	1,265.9	0.148
MSS	7,402.0	12.10	340.3	7,217.5	1,333.6	-77.8	1,335.9	1,335.8	0.206
MSS	7,669.0	13.30	336.1	7,478.0	1,388.1	-99.6	1,391.6	1,391.1	0.567
MSS	7,861.0	14.50	336	7,664.3	1,430.2	-118.4	1,435.1	1,434.1	0.625
MSS	8,020.0	14.80	331	7,818.2	1,466.2	-136.3	1,472.5	1,470.8	0.817
MSS	8,249.0	14.60	329.9	8,039.7	1,516.7	-165.0	1,525.7	1,522.6	0.150
MSS	8,887.0	14.00	335	8,657.9	1,656.2	-237.9	1,673.2	1,665.3	0.219
MSS	9,280.0	14.50	329	9,038.9	1,741.5	-283.3	1,764.4	1,752.5	0.397
MSS	9,772.0	13.60	340.4	9,516.2	1,848.8	-334.5	1,878.8	1,862.0	0.590
MSS	9,976.0	13.60	340	9,714.5	1,893.9	-350.7	1,926.1	1,907.8	0.046

Calculations using Minimum Curvature Method