

Directional Survey Report

Calpine Corp

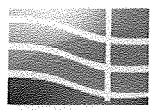
Well ID: Wildhorse St 27A

Well Name: WHS 27A-2

Field: Geysers

Sect: 2 Town: T11N Rng: R9W County: Sonoma 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						
MSS	100.0	0.75	215	100.0	-0.5	-0.4	0.7	-0.5	0.750
MSS	197.0	0.75	255	197.0	-1.2	-1.4	1.8	-1.2	0.529
MSS	289.0	1.25	233	289.0	-2.0	-2.7	3.4	-2.0	0.676
MSS	380.0	0.75	245	380.0	-2.8	-4.1	5.0	-2.8	0.593
MSS	442.0	0.75	248	442.0	-3.2	-4.8	5.8	-3.2	0.063
MSS	536.0	0.75	228	535.9	-3.8	-5.8	7.0	-3.8	0.277
MSS	628.0	1.00	234	627.9	-4.7	-6.9	8.4	-4.7	0.289
MSS	723.0	0.75	226	722.9	-5.6	-8.1	9.8	-5.6	0.292
MSS	817.0	1.00	200	816.9	-6.8	-8.8	11.1	-6.8	0.492
MSS	910.0	1.50	212	909.9	-8.6	-9.7	13.0	-8.6	0.604
MSS	973.0	2.00	215	972.9	-10.2	-10.8	14.8	-10.2	0.807
MSS	1,027.0	3.00	224	1,026.8	-12.0	-12.3	17.2	-12.0	1.984
MSS	1,058.0	3.00	224	1,057.8	-13.1	-13.4	18.8	-13.1	0.000
MSS	1,089.0	4.00	224	1,088.7	-14.5	-14.7	20.7	-14.5	3.226
MSS	1,233.0	4.00	217	1,232.4	-22.1	-21.2	30.7	-22.1	0.339
MSS	1,358.0	4.25	211	1,357.0	-29.6	-26.3	39.5	-29.6	0.399
MSS	1,568.0	4.75	261	1,566.5	-37.6	-38.9	54.1	-37.6	1.823
MSS	1,600.0	4.75	269	1,598.4	-37.8	-41.5	56.2	-37.8	2.069
MSS	1,663.0	5.00	293	1,661.1	-36.8	-46.6	59.4	-36.8	3.237
MSS	1,694.0	5.50	300	1,692.0	-35.5	-49.2	60.7	-35.5	2.618
MSS	1,726.0	6.00	306	1,723.8	-33.8	-51.8	61.9	-33.8	2.441
MSS	1,852.0	6.75	333	1,849.1	-23.3	-60.5	64.9	-23.3	2.428
MSS	1,883.0	7.25	335	1,879.9	-19.9	-62.2	65.3	-19.9	1.794
MSS	1,914.0	8.50	333	1,910.6	-16.1	-64.0	66.0	-16.1	4.127
MSS	2,017.0	9.00	338	2,012.4	-1.9	-70.5	70.5	-1.9	0.883
MSS	2,141.0	9.00	338	2,134.8	16.1	-77.8	79.4	16.1	0.000
MSS	2,200.0	9.12	337	2,193.1	24.7	-81.3	85.0	24.7	0.336
Well Bore: Sidetrack			Plane of Vertical Section: 32.86						
** MSS	2,200.0	9.12	337	2,193.1	24.7	-81.3	85.0	-23.4	
MMS	2,296.0	10.50	357.6	2,287.7	40.5	-84.7	93.9	-12.0	3.902
MMS	2,393.0	10.50	7.6	2,383.1	58.1	-83.9	102.0	3.3	1.876
MMS	2,489.0	11.00	19.6	2,477.4	75.4	-79.7	109.6	20.1	2.384
MSS	2,584.0	12.00	27.8	2,570.5	92.6	-72.0	117.3	38.7	2.015
MSS	2,681.0	12.20	36.8	2,665.4	109.8	-61.2	125.6	59.0	1.954
MSS	2,713.0	12.50	39.9	2,696.7	115.1	-56.9	128.4	65.8	2.274
MSS	2,796.0	13.80	40	2,777.5	129.6	-44.8	137.1	84.6	1.567
MSS	2,873.0	13.60	34.8	2,852.3	144.1	-33.7	148.0	102.7	1.620
MSS	3,033.0	14.90	37.1	3,007.4	175.9	-10.6	176.2	142.0	0.886
MSS	3,192.0	16.50	39	3,160.4	209.8	16.0	210.4	184.9	1.057
MSS	3,331.0	16.70	29.7	3,293.7	242.5	38.3	245.5	224.4	1.915
MSS	3,490.0	16.90	32.2	3,445.9	281.9	61.9	288.6	270.4	0.471
MSS	3,649.0	16.20	22.5	3,598.3	321.9	82.7	332.4	315.3	1.790
MSS	3,807.0	15.90	27.1	3,750.2	361.6	101.0	375.4	358.5	0.827
MSS	3,969.0	15.10	19	3,906.3	401.3	118.0	418.3	401.1	1.423



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Survey Type	Meas. Depth	Inc.	Azimuth	TVD	Coordinates		Closure	Vertical Section	Dog Leg Severity
					N-S	E-W			
MSS	4,127.0	15.00	19.5	4,058.9	440.0	131.5	459.2	441.0	0.104
MSS	4,285.0	14.60	17.9	4,211.6	478.2	144.5	499.6	480.1	0.362
MSS	4,444.0	14.40	17.5	4,365.6	516.2	156.6	539.4	518.5	0.141
MSS	4,540.0	13.90	20.7	4,458.6	538.3	164.2	562.8	541.3	0.967
MSS	4,572.0	13.60	23.7	4,489.7	545.4	167.1	570.4	548.8	2.417
MSS	4,604.0	13.60	24.8	4,520.8	552.2	170.2	577.9	556.2	0.808
MSS	4,636.0	13.50	27	4,551.9	559.0	173.5	585.3	563.7	1.641
MWD	4,667.0	13.80	29.1	4,582.1	565.4	176.9	592.5	570.9	1.869
MWD	4,699.0	13.70	33.5	4,613.2	571.9	180.9	599.8	578.5	3.282
MWD	4,730.0	13.80	38.5	4,643.3	577.9	185.2	606.8	585.9	3.846
MWD	4,762.0	14.10	42.2	4,674.3	583.7	190.2	613.9	593.5	2.940
MWD	4,793.0	14.30	45.1	4,704.4	589.2	195.4	620.8	601.0	2.383
MSS	4,868.0	13.70	47.5	4,777.1	601.8	208.6	636.9	618.7	1.113
MSS	4,963.0	13.60	45.3	4,869.5	617.2	224.8	656.9	640.4	0.557
MSS	5,058.0	13.50	45.8	4,961.8	632.8	240.7	677.0	662.2	0.162
MSS	5,122.0	13.70	43.4	5,024.0	643.5	251.2	690.8	676.9	0.935
MSS	5,235.0	14.10	44.4	5,133.7	663.1	270.1	716.0	703.5	0.413
MSS	5,331.0	14.10	44	5,226.8	679.9	286.4	737.7	726.5	0.102
MSS	5,426.0	13.70	44.6	5,319.0	696.2	302.3	759.0	748.8	0.448
MSS	5,767.0	13.70	44.6	5,650.3	753.7	359.0	834.8	827.9	0.000

Calculations using Minimum Curvature Method