

Directional Survey Report

Well ID: D&V-3

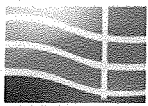
Field: Geysers

Calpine

Well Name: DV 3

Sect: 34 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			
Well Bore: Original well bore				Plane of Vertical Section: 339.06					
MSS	0.0	0.00	0	0.0	0.0	0.0	0.0	0.0	0.000
MSS	306.0	1.00	225	306.0	-1.9	-1.9	2.7	-1.1	0.327
MSS	385.0	1.25	255	385.0	-2.6	-3.2	4.1	-1.3	0.798
MSS	535.0	1.00	332	534.9	-1.9	-5.4	5.7	0.2	0.943
MSS	689.0	1.25	256	688.9	-1.1	-7.7	7.7	1.7	0.909
MSS	1,005.0	2.00	225	1,004.8	-5.8	-14.9	16.0	-0.1	0.358
MSS	1,321.0	2.50	233	1,320.6	-13.9	-24.3	28.0	-4.3	0.186
MSS	1,801.0	3.75	258	1,799.9	-23.4	-48.0	53.4	-4.7	0.379
MSS	1,991.0	4.00	237	1,989.4	-28.3	-59.7	66.0	-5.1	0.754
MSS	2,020.0	3.75	262	2,018.4	-29.0	-61.5	68.0	-5.1	5.841
MSS	2,059.0	3.75	285	2,057.3	-28.9	-63.9	70.2	-4.1	3.831
MSS	2,090.0	3.75	315	2,088.2	-27.9	-65.6	71.3	-2.6	6.258
MSS	2,121.0	4.50	338	2,119.1	-26.0	-66.8	71.7	-0.4	5.807
MSS	2,187.0	6.25	350	2,184.9	-20.1	-68.4	71.3	5.7	3.138
MSS	2,282.0	8.50	350	2,279.1	-8.1	-70.5	71.0	17.6	2.368
MSS	2,378.0	10.00	352	2,373.8	7.2	-72.9	73.3	32.7	1.598
MSS	2,478.0	10.25	351	2,472.3	24.5	-75.5	79.4	49.9	0.306
MSS	2,604.0	10.25	354	2,596.2	46.8	-78.4	91.3	71.7	0.424
MSS	2,795.0	25.80	344.3						
MSS	2,946.0	9.50	352	2,933.2	105.0	-85.6	135.4	128.6	0.241
MSS	3,199.0	9.75	354	3,182.6	147.0	-90.7	172.7	169.7	0.165
MSS	3,379.0	10.00	355	3,359.9	177.7	-93.7	200.8	199.4	0.168
MSS	3,641.0	10.50	357	3,617.8	224.2	-96.9	244.2	244.0	0.234
MSS	3,892.0	10.00	357	3,864.8	268.8	-99.2	286.5	286.5	0.199
MSS	4,298.0	11.25	357	4,263.8	343.5	-103.1	358.7	357.7	0.308
Well Bore: Side track #3				Plane of Vertical Section: 339.06					
** Tieln	1,779.0	3.68	257.25	1,777.9	-23.1	-46.6		-4.9	
MWD	1,819.0	5.30	273.71	1,817.8	-23.3	-49.7	54.9	-4.0	5.136
MWD	1,884.0	6.20	292.29	1,882.5	-21.7	-55.9	60.0	-0.3	3.162
MWD	1,992.0	8.00	308	1,989.6	-14.9	-67.3	68.9	10.1	2.437
MWD	2,056.0	8.80	317.5	2,052.9	-8.5	-74.1	74.6	18.5	2.499
MWD	2,119.0	10.00	319	2,115.1	-0.9	-80.9	80.9	28.1	1.944
MWD	2,184.0	12.10	325	2,178.9	9.0	-88.5	89.0	40.0	3.679
MWD	2,248.0	13.80	332.8	2,241.3	21.3	-95.9	98.2	54.1	3.804
MWD	2,280.0	14.10	338.2	2,272.3	28.3	-99.1	103.0	61.8	4.173
MWD	2,312.0	14.40	343	2,303.3	35.7	-101.7	107.8	69.7	3.808
MWD	2,376.0	16.80	341.8	2,365.0	52.1	-106.9	118.9	86.9	3.784
MWD	2,408.0	17.90	340.8	2,395.5	61.1	-110.0	125.8	96.4	3.561
MWD	2,479.0	18.10	342.7	2,463.1	82.0	-116.8	142.7	118.3	0.874
MWD	2,611.0	19.40	338.2	2,588.1	121.9	-131.1	179.0	160.7	1.473
MWD	2,730.0	23.70	343.8	2,698.7	163.2	-145.1	218.4	204.3	4.002
MWD	2,795.0	25.80	344.3	2,757.7	189.4	-152.6	243.2	231.4	3.247
MWD	2,851.0	27.80	343.7	2,807.7	213.7	-159.5	266.7	256.6	3.604
MWD	2,947.0	27.70	344.5	2,892.7	256.7	-171.8	308.8	301.1	0.402



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					N-S	E-W			
MWD	3,075.0	27.40	345	3,006.2	313.8	-187.3	365.5	360.0	0.296
DIGITA	3,236.0	26.60	345	3,149.6	384.4	-206.3	436.2	432.7	0.497
DIGITA	3,339.0	26.50	345.1	3,241.8	428.9	-218.1	481.2	478.5	0.106
DIGITA	3,433.0	26.20	344.6	3,326.0	469.1	-229.0	522.1	520.0	0.397
DIGITA	3,529.0	26.40	345.2	3,412.1	510.2	-240.1	563.9	562.3	0.347
DIGITA	3,719.0	25.80	345	3,582.7	591.0	-261.6	646.3	645.4	0.319
DIGITA	3,754.0	35.00	337	3,612.8	607.6	-267.5	663.9	663.1	28.666
DIGITA	3,846.0	25.90	345.4	3,692.1	651.5	-282.9	710.3	709.6	10.899
DIGITA	3,972.0	26.10	344	3,805.4	704.7	-297.5	765.0	764.5	0.512
DIGITA	4,099.0	25.90	346.7	3,919.5	758.6	-311.6	820.1	819.8	0.945
DIGITA	4,258.0	25.20	346.6	4,063.0	825.3	-327.4	887.9	887.8	0.441
DIGITA	4,378.0	25.40	346.1	4,171.5	875.1	-339.5	938.7	938.7	0.244
DIGITA	4,505.0	24.00	347.6	4,286.8	926.8	-351.6	991.3	991.3	1.208
DIGITA	4,600.0	24.20	347.2	4,373.5	964.7	-360.1	1,029.7	1,029.6	0.272
DIGITA	4,695.0	23.02	345	4,460.6	1,001.6	-369.2	1,067.5	1,067.4	1.550
DIGITA	4,796.0	23.60	343.1	4,553.4	1,040.0	-380.2	1,107.3	1,107.2	0.940
DIGITA	4,891.0	27.60	342.7	4,639.0	1,079.2	-392.3	1,148.3	1,148.2	4.214
DIGITA	4,970.0	29.90	341.2	4,708.3	1,115.4	-404.1	1,186.3	1,186.1	3.051
DIGITA	5,048.0	31.40	344.1	4,775.4	1,153.3	-415.9	1,226.0	1,225.8	2.700
DIGITA	5,143.0	30.50	348.6	4,856.9	1,200.8	-427.4	1,274.6	1,274.2	2.613
DIGITA	5,270.0	30.20	341.9	4,966.5	1,262.7	-443.7	1,338.4	1,337.9	2.675
DIGITA	5,421.0	30.00	342.4	5,097.1	1,334.8	-466.9	1,414.1	1,413.5	0.212
DIGITA	5,580.0	28.70	343	5,235.7	1,409.2	-490.1	1,492.0	1,491.3	0.838
DIGITA	5,745.0	27.70	338.4	5,381.1	1,482.8	-515.8	1,569.9	1,569.2	1.450
DIGITA	5,925.0	28.10	338.2	5,540.2	1,561.0	-547.0	1,654.1	1,653.4	0.228
DIGITA	6,084.0	30.20	334.4	5,679.1	1,631.9	-578.2	1,731.3	1,730.7	1.760
DIGITA	6,210.0	32.20	339.4	5,786.9	1,691.9	-603.7	1,796.4	1,795.9	2.596
DIGITA	6,308.0	33.40	338.1	5,869.2	1,741.4	-622.9	1,849.4	1,849.0	1.420
DIGITA	6,404.0	33.60	333.9	5,949.3	1,789.7	-644.5	1,902.2	1,901.9	2.423
DIGITA	6,755.0	37.00	341.5	6,235.9	1,977.3	-720.8	2,104.5	2,104.3	1.581
DIGITA	7,000.0	37.00	341.5	6,431.5	2,117.1	-767.6	2,251.9	2,251.6	0.000

Calculations using Minimum Curvature Method