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DEC 22 2011



Directional Survey Report

Well ID: DX - 88

Field: Geysers

DIVISION OF OIL & GAS
G3-SANTA ROSA

Calpine Corp

Well Name: DX_88

Sect. 7 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: 321.6							
** Tieln	0.0	0.00	0	0.0	0.0	0.0		0.0	
MWD	43.0	15.55	322.02	42.4	4.6	-3.6	5.8	5.8	36.205
VERTT	104.0	0.14	0	102.7	11.1	-8.6	14.1	14.1	25.291
VERTT	195.0	0.23	90	193.7	11.2	-8.4	14.1	14.1	0.296
VERTT	288.0	0.38	180	286.7	10.9	-8.3	13.7	13.7	0.478
VERTT	385.0	0.19	270	383.7	10.6	-8.4	13.5	13.5	0.438
VERTT	480.0	0.27	0	478.7	10.8	-8.6	13.8	13.8	0.348
VERTT	571.0	0.09	90	569.7	11.0	-8.5	13.9	13.9	0.313
TRUET	667.0	0.06	180	665.7	11.0	-8.4	13.9	13.9	0.113
TRUET	730.0	0.11	270	728.7	11.0	-8.5	13.9	13.9	0.199
TRUET	822.0	0.66	268.85	820.7	11.0	-9.1	14.2	14.2	0.598
TRUET	917.0	0.52	313.72	915.7	11.2	-10.0	15.0	15.0	0.493
TRUET	1,012.0	0.68	247.09	1,010.7	11.3	-10.8	15.6	15.6	0.708
TRUET	1,108.0	0.40	342.57	1,106.7	11.4	-11.4	16.2	16.0	0.855
TRUET	1,204.0	0.52	334.77	1,202.7	12.1	-11.7	16.9	16.8	0.141
TRUET	1,299.0	0.38	8.16	1,297.7	12.8	-11.9	17.5	17.4	0.307
TRUET	1,394.0	0.03	147.94	1,392.7	13.1	-11.8	17.6	17.6	0.425
TRUET	1,489.0	0.28	308.1	1,487.7	13.2	-12.0	17.8	17.8	0.325
TRUET	1,584.0	0.34	336.06	1,582.7	13.6	-12.3	18.3	18.3	0.169
TRUET	1,711.0	0.35	85.4	1,709.7	14.0	-12.0	18.5	18.5	0.443
TRUET	1,806.0	0.28	234.96	1,804.7	13.9	-11.9	18.3	18.3	0.640
TRUET	1,901.0	0.28	310.76	1,899.7	13.9	-12.3	18.6	18.6	0.362
TRUET	1,996.0	0.34	259.85	1,994.7	14.0	-12.7	19.0	18.9	0.286
TRUET	2,091.0	0.23	33.5	2,089.7	14.1	-12.9	19.2	19.1	0.553
TRUET	2,186.0	0.48	249.86	2,184.7	14.2	-13.2	19.4	19.3	0.715
MWD	2,281.0	0.11	108.35	2,279.7	14.0	-13.5	19.4	19.3	0.600
MWD	2,376.0	0.15	190.25	2,374.7	13.8	-13.4	19.3	19.2	0.182
MWD	2,471.0	0.31	219.73	2,469.7	13.5	-13.6	19.2	19.0	0.204
MWD	2,566.0	0.54	193.7	2,564.7	12.9	-13.9	18.9	18.7	0.310
MWD	2,661.0	1.45	164.45	2,659.7	11.3	-13.7	17.7	17.3	1.067
MWD	2,756.0	1.19	160.45	2,754.6	9.2	-13.0	15.9	15.3	0.290
MWD	2,850.0	0.49	157.49	2,848.6	7.9	-12.5	14.8	14.0	0.746
MWD	2,946.0	0.28	212.6	2,944.6	7.3	-12.5	14.5	13.5	0.419
MWD	3,112.0	1.10	261.19	3,110.6	6.8	-14.3	15.8	14.2	0.565
MWD	3,207.0	1.00	237.18	3,205.6	6.2	-15.9	17.0	14.7	0.471
MWD	3,302.0	1.31	260.9	3,300.6	5.6	-17.6	18.5	15.3	0.593
MWD	3,404.0	1.60	258.46	3,402.6	5.1	-20.2	20.8	16.5	0.291
MWD	3,499.0	2.40	292.81	3,497.5	5.6	-23.3	24.0	18.9	1.481
MWD	3,594.0	4.01	307.54	3,592.3	8.4	-27.8	29.0	23.8	1.890
MWD	3,688.0	4.28	316.23	3,686.1	12.9	-32.8	35.3	30.5	0.726
MWD	3,788.0	8.40	326.36	3,785.5	21.7	-39.5	45.0	41.5	4.253
MWD	3,883.0	10.37	324.94	3,879.2	34.5	-48.2	59.3	57.0	2.088
MWD	3,978.0	11.91	324.6	3,972.4	49.5	-58.8	76.8	75.3	1.623
MWD	4,073.0	13.88	324.72	4,065.0	66.8	-71.1	97.5	96.5	2.074



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					N-S	E-W			
MWD	4,168.0	14.84	322.38	4,157.0	85.7	-85.1	120.8	120.0	1.181
MWD	4,263.0	14.96	321.14	4,248.8	104.9	-100.2	145.0	144.4	0.359
MWD	4,382.0	16.20	322.97	4,363.5	130.1	-119.8	176.9	176.4	1.121
DIGITA	4,675.0	14.40	324.3	4,646.1	192.3	-165.7	253.9	253.6	0.626
DIGITA	4,802.0	14.30	322.2	4,769.1	217.5	-184.5	285.3	285.1	0.417
DIGITA	5,026.0	13.70	317	4,986.5	258.8	-219.6	339.4	339.2	0.622
DIGITA	5,249.0	14.00	314.1	5,203.0	296.9	-257.0	392.6	392.3	0.339
DIGITA	5,407.0	14.90	306.04	5,356.0	322.1	-287.1	431.5	430.8	1.393
DIGITA	5,565.0	15.90	314.4	5,508.3	349.2	-319.0	473.0	471.8	1.539
DIGITA	5,722.0	16.60	303.7	5,659.1	376.7	-353.0	516.3	514.5	1.956
DIGITA	5,923.0	16.80	304.1	5,851.6	408.9	-401.0	572.7	569.6	0.115
DIGITA	6,178.0	16.20	303.4	6,096.1	449.2	-461.2	643.8	638.5	0.248
DIGITA	6,432.0	15.20	300.4	6,340.6	485.5	-519.5	711.1	703.2	0.507
DIGITA	6,622.0	14.80	307.7	6,524.2	513.0	-560.2	759.6	750.0	1.016
DIGITA	6,877.0	14.70	305.4	6,770.8	551.7	-612.3	824.2	812.7	0.233
DIGITA	7,022.0	15.90	300.8	6,910.7	572.5	-644.4	862.0	848.9	1.177
DIGITA	7,239.0	15.60	292.4	7,119.5	598.8	-696.9	918.8	902.2	1.059
DIGITA	7,524.0	16.40	290.3	7,393.5	627.4	-770.1	993.3	970.0	0.346
DIGITA	7,810.0	14.90	297.3	7,668.9	658.3	-840.6	1,067.7	1,038.0	0.842
DIGITA	8,032.0	14.70	298.3	7,883.5	684.7	-890.8	1,123.5	1,089.9	0.146
DIGITA	8,317.0	13.00	295.5	8,160.2	715.7	-951.6	1,190.6	1,151.9	0.641
DIGITA	8,634.0	13.40	279.6	8,469.0	737.1	-1,020.0	1,258.5	1,211.2	1.149
DIGITA	8,898.0	12.90	289.6	8,726.1	752.1	-1,077.9	1,314.4	1,259.0	0.881
DIGITA	9,435.0	11.00	281.5	9,251.5	782.5	-1,184.6	1,419.7	1,349.0	0.471
DIGITA	9,479.0	11.00	281.5	9,294.7	784.1	-1,192.8	1,427.5	1,355.4	0.000

Calculations using Minimum Curvature Method

