



Tecton Geologic

COMPANY: Calpine Corporation
 WELL NAME: BEF 87-28
 FIELD: The Geysers
 COUNTY: Sonoma
 STATE: California
 WELL HEAD COORDINATES: Section 28, T11N, R8W
 403655.9, 1789026.7
 ELEVATION: 3090', GL
 RIG - DAY RATE START DATE: 8/28/2011
 TO DATE: 9/25/2011
 TOTAL DEPTH: 3080'
 TRUE VERTICAL DEPTH: 3056'
 LOCATION: 208.7' S, and 225.3' W of wellhead
 DRILLING CONTRACTOR: Nabors Rig 472
 COMPANY REPRESENTATIVES: Gamble, Potter

LOG INTERVAL:
 DATE LOGGED: 8/28/11 TO 9/27/11
 DEPTH LOGGED: 502' TO 3080'
 MUD DRILLING: 502' TO 3080'
 AIR DRILLING: n/a TO n/a
 LOG SCALE: 1:600
 UNIT NO.: C23
 LOGGING GEOLOGISTS: Mike McLaughlin (mm), Brandon Mills (bm), Charlie Wahl (cw), Daniel Phelps (dp), Patrick Broderick (pb), Eric ter Wee (et)

HOLE		CASING	
26"	TO 52'	20"	FROM Surface TO 52'
14.5"	TO 490'	9.625"	FROM Surface TO 486'
8.5"	TO 2467'	7"	FROM Surface TO 2451'
6.125"	TO 3080'	LINER	
		4.5	FROM 2286' TO 3080'

ABBREVIATIONS		SYMBOLS	
NB	New Bit	BHT	Bottom Hole Temp
RRB	Re-run Bit	c	Carbide Test
CB	Core Bit	NR	No Returns
WOB	Weight on Bit	LAT	Logged After Trip
SPM	Strokes per Minute	CFM	Cubic Feet per Min
PP	Pump Pressure	BUT	Bottoms Up Temp
RPM	Revolutions per Min		
SFR	Steam Flow Rate		

LITHOLOGY		REMARKS	
[Symbol]	Argillite	[Symbol]	Siliceous Graywacke
[Symbol]	Chert	[Symbol]	Metamorphic Ultramafic
[Symbol]	Siltstone	[Symbol]	Weak Foliation
[Symbol]	Greenstone	[Symbol]	Strong Foliation
[Symbol]	Serpentine	[Symbol]	Marginal Alteration
[Symbol]	Blueschist	[Symbol]	Pervasive Alteration
[Symbol]	Flueschite	[Symbol]	Weakly Hornfelsic
[Symbol]	Clay	[Symbol]	Strongly Hornfelsic
[Symbol]	Argillaceous Graywacke		
[Symbol]	Volcanic Graywacke		

SECONDARY MINERALS	
Q = Quartz	Rare << 1%
G = Gaiite	Trace < 1%
P = Pyrite	Trace < 1%
E = Epidote	Trace < 1%
R = Pyroxene	Common 45 to 7%
Ch = Chlorite	Abundant 7% to 10%
A = Actinolite	> 10%
T = Tourmaline	

