

AGENDA

SEISMIC MONITORING ADVISORY COMMITTEE

May 13, 2019 @ 9:30 a.m.
Calpine Geothermal Visitors Center
15500 Central Park Road, Middletown

Call In: 1-888-449-6492; Participant Passcode: 226083

- I. Introductions
- II. Approval of SMAC minutes from **Nov. 13, 2018** meeting.
- III. Calpine - Craig Hartline
- IV. Update of SE Geysers pipeline operations – Ed Voge
- V. Report on DOGGR – Amar Rao
- VI. Report on LBNL – Kurt Nihei (Unable to attend)
- VII. Summary of Seismic Data from USGS Network - Lind S. Gee
- VIII. Report on US Geothermal – Western Geo Power – Scott Nichols
- IX. Anderson Springs Community Service District
- X. Cobb Area Water – Ben Murphy
- XI. Middletown Community Input – Linda Diehl Darms
- XII. Anderson Springs Public Input – Jacquelyn Bartlett
- XIII. Cobb Area Public Input – Robert Stark
- XIV. General Public Input
- XV. Schedule Next Meeting for **Monday, November 18, 2019**
- XVI. Adjournment

SEISMIC MONITORING ADVISORY COMMITTEE (SMAC)

Tuesday, November 13, 2018
Calpine Geothermal Visitor Center
15500 Central Park Road
Middletown, California

MINUTES

Meeting Called to order by Jan Coppinger, Committee Chair (Lake County Special Districts) at 9:38 a.m.

Minutes recorded by Yolanda Garibay and transcribed to Draft Minutes.

I. **Introductions**

Conducted by Coppinger:

Present: Jan Coppinger, Committee Chair (Lake County Special Districts), Craig Hartline (Calpine), Bruce Carlsen (Calpine), Jericho Reyes (Calpine), Danielle Matthews Seperas, (Calpine) Ed Voge (Northern California Power Agency) Amar Rao, (Division of Oil, Gas & Geothermal Resources), Baxter Tackett (Division of Oil, Gas & Geothermal Resources), Meriel Medrano (Anderson Springs Comm. Service District), Linda Darms, Middletown Community Input, Jacquelyn Barlett (Anderson Springs Public Input)

II. **Approval of SMAC minutes from May 14, 2018 meeting, Jan Coppinger**

Motion made by Linda Darms to approve the minutes, seconded by Jacquelyn Barlett, all in favor. Motion carried.

III. **Calpine Report, Craig Hartline** (*Figures 1- 50*)

Reporting period, April 1, 2018 ~ September 30, 2018

- California Total Electrical Generation
- Status of Seismic Monitoring Networks
 - LBNL Seismic Monitoring Networks
 - USGS Northern California Seismic Network
 - Strong Motion Station
 - Shake Alert USGS Earthquake Early Warning System
- Strong Motion Databases, Analysis and Equipment
- Yearly Field-Wide Water Injection and Seismicity
- Field Wide Seismicity Analysis

Calpine Report, Craig Hartline (*Figures 1- 50*) *Continued*

- Water Injection And Induced Seismicity Animations
- Community Hotline
- 3D Structural Monitoring Building
 - Fault/Fracture Analysis
 - Compartmentalization
 - Water Injection Well Planning
- Additional Seismic Monitoring And Research

IV. Update of SE Geyser Pipeline Operations, Ed Voge (Figures 1- 7)

Reporting period, April 1, 2018 ~ September 30, 2018

- Historical SE Geysers Effluent Pipeline Deliveries To The Geysers
 - Total Daily Delivery = 57.74 billion gallons
 - Average Rate = 5,231 gpm
 - Average Daily Injection = 6.97 MGD or 4,843 gpm
 - SEGEP Availability = 98.4%
- Observed Seismicity
 - The USGS Recorded 66 Seismic Events of Magnitude 1.5 and Greater, there were no events reported for a 3.0 Magnitude
 - Steam Production for the area in the reporting period was 18.23 billion pounds mass in the reporting period
- Seismic Activity in The Geysers (KCGRA)
 - Event trend from 2002 ~ 9/30/2018
 - Even Locations is the last 6 months (see map for distances & magnitude ranges)

V. Report on DOGGR, Amar Rao

Amaro gave a brief overview of their process and explained that he would be the point of contact for the regulatory and permitting process for Calpine. There was also some discussion on the percentage of the steam decline. Amaro also explained that Bottle Rock is no affiliated with Calpine.

VI. Report on LBNL, Kurt Nihei

Not present

VII. Summary of Seismic Data from USGS Network, Linda S. Gee

Not Present

VIII. Report on US Geothermal – Western Geo Power, Scott Nichols

Not present

IX. Santa Rosa Geyser Operations, Mike Sherman

Mr. Sherman was present, however did not report

X. Anderson Springs Community Service District, Meriel Medrano

Meriel reported that there was a 4.2 earthquake in the reporting period, which resulted in a broken window. She also explained that she is no longer living in the Anderson Springs area and they are in the process of looking for a replacement for this Committee.

XI. Cobb Area Water, Ben Murphy

Not Present

XII. Middletown Community Input, Linda Darms

Present, however, no report given

XIII. Anderson Springs Public Input, Jacquelyn Barlett

XIV. Cobb Area Public Input, Robert Stark

Mr. Stark explained that there were no seismic activity to report.

- XV. Schedule Next Meeting for Monday, May 13, 2019** Motion made to schedule the next meeting, all in favor for next meeting date.
- XVI. General Public Input** – None to report
- XVII. Adjournment**
There was a consensus to adjourn the meeting at 11:50 a.m.

Next Meeting for Monday, May 13, 2019

Meeting Agenda and Full Presentations are available online at:
<http://www.geysers.com/smac.aspx>