

# AGENDA

## SEISMIC MONITORING ADVISORY COMMITTEE

**November 16, 2023 at 9:30 A.M.**  
Calpine Geothermal Visitors Center  
15500 Central Park Road, Middletown

Join Zoom Meeting:

<https://us06web.zoom.us/j/82178791851?pwd=L0dtMlphL000dTISQ1ZmQkFrMHBudz09>

Meeting ID: 821 7879 1851

Passcode: 466943

- I. Introductions
- II. Approval of SMAC minutes from **May 11, 2023 meeting**
- III. Southeast Geysers Effluent Pipeline (SEGEP) Operations & Northern California Power Agency Update – Dylan Esquivel & Ed Voge, NCPA
- IV. Santa Rosa Geysers Recharge Project (SRGRP) Update & Calpine Update - Craig Hartline, Calpine Corporation
- V. Report from CALGEM – California Geologic Energy Management Division – Amar Rao
- VI. Report on US Geothermal - Western Geo Power– Scott Nichols
- VII. Anderson Springs Community Service District – Rose Knudsen
- VIII. Anderson Springs Public Input – Jacquelyn Bartlett
- IX. Cobb Area Water –
- X. Cobb Area Public Input – Robert Stark
- XI. Middletown Community Input –
- XII. General Public Input
- XIII. Schedule Next Meeting for \_\_\_\_\_
- XIV. Adjournment

## SEISMIC MONITORING ADVISORY COMMITTEE (SMAC)

Thursday, May 11, 2023

### MINUTES

Meeting Called to order by Scott Harter, Committee Chair (Lake County Special Districts) at 9:35 A.M.

Minutes recorded via Zoom and transcribed to Draft Minutes by Lori Baca.

#### I. **Introductions**

Introductions conducted by Scott Harter:

*Present:* Scott Harter, Committee Chair (Lake County Special Districts), Craig Hartline (Geysers Power Company, LLC), Dylan Esquivel (Northern California Power Agency), Danielle Seperas (Calpine) Amar Rao (CALGEM), Robert Stark (Cobb Community Representative)

#### II. **Approval of SMAC minutes from Nov 10, 2022 meeting**

Motion made by Dylan Esquivel to approve the minutes, second by Amar Rao, all in favor. Motion carried.

#### III. **Update of SE Geysers Pipeline Operations- Dylan Esquivel (Figures 1-7)**

- Historical SE Geysers Effluent Pipeline Deliveries to The Geysers since 1997
  - Total Daily Delivery = 64.3 billion gallons at an average rate of 4,793 gpm to the South East Geysers steam field for injection (see Figure 1)

##### ***Reporting period October 1, 2022 through March 31, 2023***

- Average Daily Injection = 2.8 MGD or 1,946 gpm
- SEGEP Availability = 72.0%
- Observed Seismicity
  - The USGS recorded 86 Seismic Events of Magnitude 1.5 and greater, this larger than the 50 seismic events over the previous six month reporting period.
  - Steam Production for the area in the reporting period was 16.36 billion pounds mass for this reporting period, while water injection was 7.55 billion pounds mass.
  - There was one magnitude 3.0 or greater seismic event in the Southeast Geysers during this reporting period.
- Seismic Activity in The Geysers (KCGRA)
  - 395 events of magnitude 1.5 were recorded for this reporting period. There were 10 events of magnitude 3.0 or greater. The largest event was magnitude 3.59 which all occurred on March 2, 2023. Figure 6 shows the trends of seismic events for the Geysers since 2010 while Figure 7 shows the locations of the events for the last six months.

*There was much discussion on each figure noted above. Please see presentation on Calpine website for additional data details*

#### IV. **Geysers Power Company, LLC Report,- Craig Hartline (Figures 1-35)**

**Reporting period, October 01, 2022 through March 31, 2023**

- Seismic Monitoring Networks
  - LBNL/ Geysers Power Company, LLC Seismic Monitoring Networks
  - LBNL/ Geysers Power Company, LLC Calpine Strong Motion Network
  - USGS/ Northern California Seismic Network
  - Upgrades to Radio Telemetry Systems
- Field wide Induced Seismicity Analysis
  - Induced Seismicity Analysis
  - Water Injection and Induced Seismicity Animation
- Strong Motion Data Analysis
  - Peak Ground Acceleration vs. Hypocentral Distance
- Community Hotline
  - Seismic Events of Concern
  - April 12, 2023 Seismic Event Series
- Analysis of Individual Wells
  - Criteria for Minimization of Water Injection Rate Variability
  - Energy Release
  - B-Values
- 3D Structural Model
  - Goals

*There was much discussion on each figure noted above. There was also additional handouts available. Please see presentation on Calpine website for additional data details.*

- V. Report on CALGEM- Amar Rao**  
Amar was present and discussed permits issued. There were two last year and one this year, and one pending. The permit issued was for the mechanical integrity tests, which tests injection wells for their strength of the casing and the overall well. We have approved 21 tests since the last meeting which was in November and we did not fail any tests in that period. There are three tests pending review currently so a total of 24 tests that have been submitted.
- VI. Report on US Geothermal – Western Geo Power- Scott Nichols**  
Scott Nichols was not present
- VII. Anderson Springs Community Service District - Rose Knudsen**  
Rose Knudsen was not present
- VIII. Anderson Springs Public Input – Jacquelyn Bartlett**  
Jacquelyn Bartlett was not present
- IX. Cobb Area Water - None**
- X. Cobb Area Public Input - Robert Stark**  
Robert Stark talks about the larger event that took place and said there was a lot of attention from the community.
- XI. Middletown Community Input - None**

**XII. General Public Input –**  
No General Public Input.

**XIII. Schedule Next Meeting for - November 16, 2023**

**XIV. Adjournment**

Motion– Robert Stark, Second-Scott Harter, all in favor (everyone)

Meeting Adjourned at approx. 11.01 AM

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