

DOCKETED

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Project Title:	Research Idea Exchange
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Document Title:	DOGGR Seismic Risk Analysis
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Aliso Canyon Seismic Risk and Risk Management Analysis

Division of Oil, Gas, and Geothermal Resources

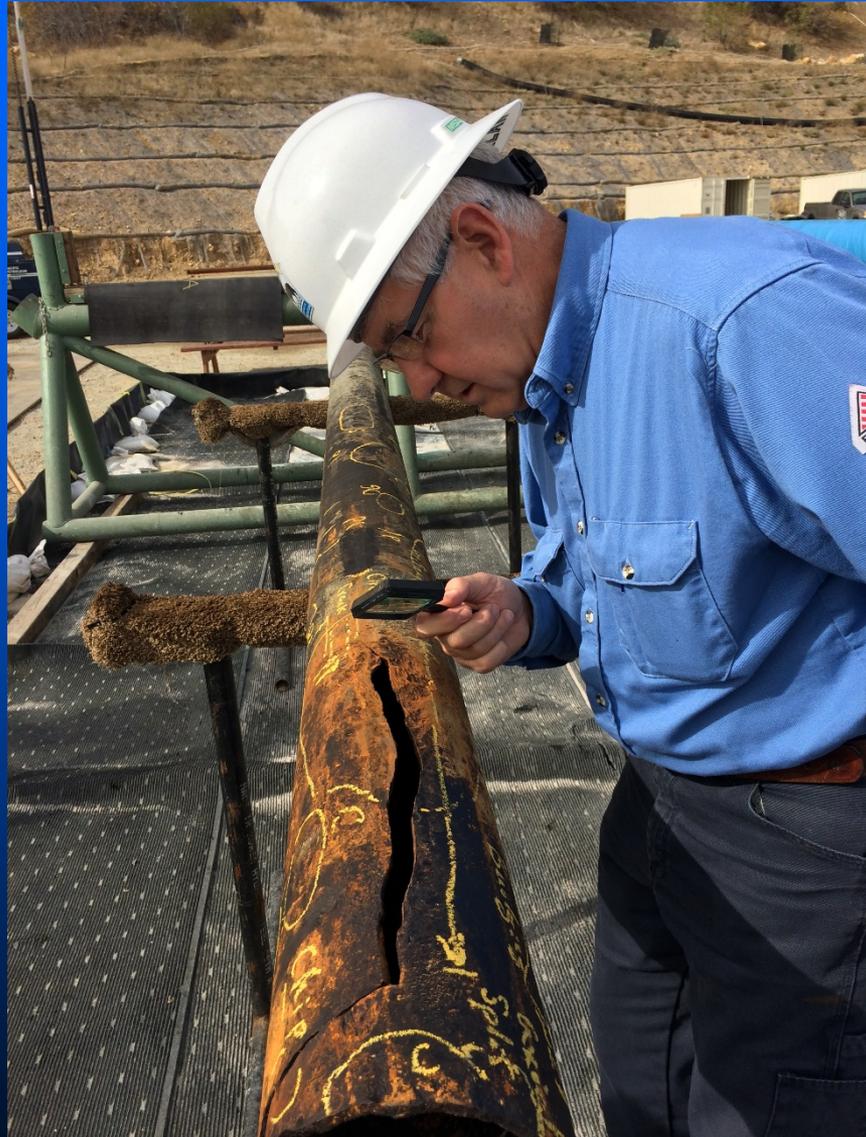
Alan Walker, Supervising Engineer



SS 25 Heat Shield and Bridge



SS25 Casing Failure



Seismic Risk Analysis Statement of Work

- **Requirement from November 2016
Technical Compliance Inspection**
- **DOGGR and CPUC joint requirement**
- **DOGGR Order No. 1118**
- **SoCalGas funded**
- **Leading geoscience and engineers
reviewed by LLNL, LBNL, and SNL**

SOW Tasks

- 1. Petrophysical Model (Reservoir)**
- 2. Seal Analysis (Confinement)**
- 3. Probabilistic Seismic Hazard Analysis**
- 4. Probabilistic Fault Displacement Analysis**
- 5. Landslide Hazard Analysis**
- 6. Wellbore Loading (Mechanical Integrity)**
- 7. Dynamic Modeling of Potential Migration**
- 8. Mitigation Evaluation**

Third-Party Consultants

- **Dr. John Shaw – Seismic Lead, Harvard**
- **John Harris – Petrophysical Lead, Numeric Solutions, LLC**
- **Dr. Ramamoorthy – Structural Engineering Lead, Stress Engineering Services**
- **Dr. Schultz- Geomechanical Lead, UT Austin**
- **Dr. Shlemon-Landslides Lead, Roy Shlemon & Assoc**
- **Dr. Somerville-PSHA/PFDHA Lead, AECOM**

Physical Testing for Validation of Numerical Modelling



Well Integrity Analysis Scale Model



Additional Considerations

- **UGS regulations effective – Oct 2018**
 - **Risk Management Plans – Apr 2019**
 - seismicity, landslides, subsidence, tsunami
 - **Compliance schedule through 2026**
- **Aliso seismic risk analysis – Dec 2018**
- **Aliso Canyon Safety Review-Dec 2018**
- **Root cause analysis – Spring 2019**
- **Exceptionally complex disclosures**



Thank
You!

Questions?