



Induced Seismicity Consortium (ISC)



First Quarter, 2014 Review Meeting

ISC Overview and Status

Fred Aminzadeh,

Los Angeles, CA
February 25, 2014



Q1-04, ISC Agenda

- 8:00 Registration- Breakfast**
- 8:15 ISC Overview and Status Report** Fred Aminzadeh
- 8:25 NRC Induced Seismicity Report** Elizabeth Eide (NRC)
- 8:40 IS Applications with RSQSim** Jim Dieterich (UC-Riverside)
- 9:00 Highlights of accomplishment on different tasks**
 - California Project/Laboratory Studies** Goebel (CalTech)
 - Induced Seismicity Mapping (ISM) Software** Tiwari/Chen
 - Oklahoma Project/Seismic Surveys** Sumy
 - Template Matching for Detection of Seismicity** Walker
 - Geomechanics and its Impact on Seismicity** Hosseini
- 10:30 Break**



Q1-04, ISC Agenda, Cont.



- 11:15 SAB/TAB) Meeting – Dan Schwartz, Martin Karrenbach**
Regulatory process engagement guidelines and priorities
Murphy – Commissioner, Oklahoma Corporation Commission
Keller – Oklahoma Geological Survey
Hatfield – Regulatory Chair, OIPA, President, Crawley Petroleum
Updated Frequently Asked Questions Document
External communication guidelines and priorities
Data from sponsors
- 12:15 Luncheon talk:**
Oil and Gas Technologies for California Initiative Don Paul
- 1:15 Highlights of joint SAB/TAB Meeting - Schwartz/Karrenbach**
- 1:45 Q&A and Brainstorming Session**
- 2:30 Coffee Break**
- 2:45 Discussion of Current Priorities and Technical Challenges**
- 4:00 Concluding Remarks and Next Fred Aminzadeh**
- 4:30 Meeting adjourns**



Strategic Advisory Board,



- Bill Bartling, SR2020
- Brent Glassborow , British Gas Group
- Quang Nguyen, City of Long Beach
- Bjorn Paulsson, Paulsson (PI)
- Daniel Schwartz, Aera Energy, Chairman
- Richard Zhu, SINOPEC
- Victor Ziegler, Occidental Petroleum
- Don Paul, USC, Coordinator
- Marina Voskanian California State Lands Commission, MRM (O)
- Frank Verrastro, CSIS (O)
- Scott Anderson, Environmental Defense Fund (EDF) (O)
- James Slutz (O)
- Mike Smith IOGCC (O)
- Dana Murphy, Oklahoma Corporation Commission (O)

Technical Advisory Board,

- Martin Karrenbach, SR2020, Chairman
- Aaron Speirs, Aera Energy
- Tim, Rathmann, British Gas Group
- Hemang Vora, Oxy
- Kevin Tougas, City of Long Beach
- Guo Quanshi. Sinopec
- Iraj Ershaghi, Coordinator
- Besana-Ostman, Glenda Ohio DNR (O)
- Ehsan Tajer, California State Lands Commission, MRM (O)
- Elizabeth Eide, National Research Council (O)
- Debotyam Maity, Gas Technology Institute (O)
- Kurt Strack, KMS Technology (O)
- Ehsan Tajer, California State Lands Commission, MRM (O)
- Thomas Goebel, California Institute of Technology (O)
- Thomas Jordan, Charles Sammis. Adam Rose, Julie Albright. Behnam Jafarpour, Theo Tsotsis, Roger Ghanem, Felipe de Barros, USC



Update on ISC and recent developments

- First Annual Report was Released
- Induced Seismicity Mapping (ISM) software was released
- Three papers were presented at the AGU Meeting in SF (Dec. 2013)
 - The November 2011 M5.7 Oklahoma Earthquake: Induced or Triggered? Sumy, Cochran and Aminzadeh
 - Hydraulic Fracturing and the Environment, Jabbari, Tafti, Aminzadeh, Barros, and Jafarpour
 - Identifying induced seismicity in active tectonic regions: A case study of the San Joaquin Basin, California, Aminzadeh, and Goebel
- Communication / Outreach
 - Fred Aminzadeh addressed the Annual IOGCC Annual meeting, Long Beach California, November 5 2013 on: **Monterey Shale Potential**
 - Fred Aminzadeh and Don Paul talked on **Induced Seismicity Intersection of Science, Public and Regulation** at the IOGCC meeting.
 - Drafted the Frequently asked questions document and revised per the feedback



Second Year Project Activity Prioritization



- 1. Identify potentially induced seismicity within California.**
- 2. Ground Motion and Seismic Hazard Assessment in Oklahoma.**
- 3. Laboratory Tests to Analyze Induced Fractures and Faults**
- 4. Subsurface Imaging near Youngstown, Ohio**
- 5. Geomechanical Modeling of Induced Seismicity**
- 6. Development of Seismic Surveys for Real Time Monitoring**

Public Outreach

1. Public Communication on Induced Seismicity


- i.** Video
- ii.** Publications (Internal and External)
- iii.** FAQ
- iv.** External Links

2. Water contamination from HF




Released Software

Menu



California Oil and Gas Field Seismicity Induced Seismicity Consortium (ISC)



Field District **Field Name**

District 1 <Please select a Field District first>

Setting

| | |
|--|---|
| <p>Data Source</p> <p><input type="checkbox"/> NCEDC (Northern California)</p> <p><input type="checkbox"/> SCEC (Southern California)</p> <p><input checked="" type="checkbox"/> ANSS (General California)</p> | <p>Hydraulic Fracture Jobs</p> <p><input type="checkbox"/> 2011 - present (Details from fracfocus)</p> <p><input checked="" type="checkbox"/> All (from Doggr database)</p> <p>Occurrence Year</p> <p>ALL</p> |
| <p>Well Type</p> <p><input type="checkbox"/> WF <input type="checkbox"/> WD <input type="checkbox"/> SF <input type="checkbox"/> GS <input type="checkbox"/> AI <input type="checkbox"/> PM <input type="checkbox"/> OG</p> | |

Preview **Report** **Support** **Exit**

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Tayeb Ayatollahy Tafti



Support Status



- All the following Members From Last Year Have Renewed Their Membership
 - Aera Energy
 - British Gas (Confirmed their renewal yesterday)
 - Occidental Petroleum
 - SINOPEC
 - SR2020
- New Members for 2013-2014
 - City of Lang Beach
 - Paulsson Inc. (PI)
- We need to find a mechanism for State and Federal Agencies Membership and expand membership base