Slide #1. Good morning. I’d like to begin by thanking Chair Wixom for inviting me to talk about the Nevada Seismological Laboratory, and thank you for setting aside the time in your busy agenda.
Slide #2. The Seismo Lab was approved as a statewide research unit by the Regents in 1974. Thank you for your ongoing support. We are organized as part of the Mackay School of Earth Sciences and Engineering, in the College of Science, with statewide responsibilities. Our state-funded faculty have joint teaching appointments. Our external grants have averaged about six times our state support. The grants contribute to the academic, research and service missions of the university. Last year, we employed 14 undergraduate students, funded 4 graduate students, and 27 additional personnel.
Major Collaborators

- Nevada Division of Emergency Management (DEM)
- Nevada Earthquake Safety Council
- Clark County Building Dept.
- UNLV (Geology, Civil Engineering)
- UNR (Geology, NBMG, Civil Engineering, Physics, Math)
- Washoe County DEM
- US Geological Survey
- US Department of Energy
- Sandia and Lawrence Livermore Nat’l Labs
- Optim LLC

Slide # 3. We provide a vital service to the state and the nation. Our mission is monitoring earthquakes affecting the state, understanding the science behind them, and outreach on earthquake hazards. We have quite a few partners, and some of the more important ones are listed here: (read list)
Slide #4. This map shows the Nevada seismic network. When you hear on the news that the US Geological Survey reported an earthquake in this region, remember that we are the face of the USGS here. I have a few quick slides showing some activities.
Slide # 5. Facilities and field work
Earthquake Damage in Wells, NV, Feb. 21, 2008, USGS $M_W=6.0$

Photo by Craig dePolo
August 7, 2008

Slide # 6. Damage in Wells
Slide # 7. Recording aftershocks in Wells
Slide # 8. Damage in Mogul
Slide #9. After the Mogul earthquake, a lot of citizens hosted instruments in their yards, at all the dots on this map.
Slide # 10. Mogul station to record aftershocks
Slide #11: News crews recording a story at a different Mogul aftershock station
Slide # 12. Let me also show you a new observation from the largest Mogul earthquake. This shows shaking in Mogul, M=5, and in Iran, in 2003, magnitude 6.7. The shaking lasted longer in Iran. The surprise is that the shaking was a little stronger in Mogul. Both records are among the 25 strongest accelerations ever recorded. The Iran earthquake killed at least 30,000 people. In Mogul, there was only a little structural damage. This is evidence of the value to the state of promoting good building codes, and a reminder that we still have a lot to learn.
These examples show that Nevada has a serious earthquake hazard. We have more earthquakes than every state in the lower 48 except California. The map on the left shows 33 earthquakes with magnitude over 6, with an average rate of once every 3 years. A strong earthquake could happen anywhere in the state. The hazard map on the right, which we partnered with the US Geological Survey to develop, shows that in western Nevada, the hazard is comparable to much of coastal southern California. I should also mention that a study by FEMA finds that the annualized losses in Las Vegas are higher than in Reno, due to fewer earthquakes but many more buildings.
Slide # 14. Finally let me mention our outreach. The earthquakes in Wells and west Reno certainly demonstrated the demand for local expertise on earthquakes, and in our responses we emphasized preparedness. All the time, our web page is popular, we give tours and talks, and we answer a steady stream of inquiries from state agencies, businesses, and citizens. So we are an important part of the university, with our research, teaching, public service.
We are a resource for everyone in the state, so if you have questions you are welcome to call, or visit us here on campus.

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