

Utah Seismic Safety Commission Quarterly Meeting Minutes

On April 11, 2019, a regularly scheduled quarterly meeting of the Utah Seismic Safety Commission (USSC) was held in the Kletting Room in the Utah State Capitol, Senate Building, Utah. Chair Leon Berrett called the meeting to order at 9:00 a.m.

Members Present:

Leon Berrett, Chair	American Public Works Association
Walter Arabasz, proxy for Keith Koper, Vice Chair	University of Utah Seismograph Stations
Steve Bowman, Vice Chair	Utah Geological Survey
Kris Hamlet	Utah Division of Emergency Management
Roger Evans	Utah League of Cities and Towns
Meldee Love	Utah Insurance Department
Jessica Chappell	Structural Engineers Association of Utah
Steven Bruemmer	American Institute of Architects, Utah Disaster Assistance
Patrick Tomasino	Utah Division of Facilities and Construction Management
Peter McDonough	American Society of Civil Engineers

USSC Staff Present:

Bob Carey	Utah Division of Emergency Management
John Crofts	Utah Division of Emergency Management
Adam Hiscock	Utah Geological Survey
Emily Kleber	Utah Geological Survey

Guests Present:

Kelly Christensen	
Emma McFee	University of Utah
Matt Barrett	Utah State Board of Education
Kevin Robin	
Jay Dortsich	

Members Not Present:

Chris DuRoss	U.S. Geological Survey (Ex-Officio)
Senator Jerry Stevenson	Utah State Senate
Evan Curtis	Utah Governor's Office
Sean McGowan	Federal Emergency Management Agency (Ex-Officio)
Joaquin Mixco	Utah Department of Transportation
Craig Kerkman	Association of Contingency Professionals

Welcome and Introduction of Members and Visitors/Approval of Minutes

Leon Berrett made introductions and invited attendees to introduce themselves.

Roger Evans made a motion to adopt the minutes.

Kris Hamlet seconded the motion.
The minutes were approved with correction.

Discussion on the USSC Pamphlet

Leon Berrett discussed the new USSC pamphlet and invited the Commission to take copies. He discussed the PDF version, which is already hosted on the Commission website (<https://ussc.utah.gov>).

Steve Bowman said the interactive version will soon be ready on the Commission website.

Kris Hamlet and stated the pamphlet turned out very nice and the Commission agreed it turned out well. Further discussion from the Commission was that the brochure is very informative and should be shared with a large variety of audiences.

Leon introduced Kevin Robins and welcomed him to the Commission to discuss recent and ongoing seismic improvements at the Salt Lake City International Airport.

Presentation on the New Salt Lake International Airport Construction and Seismic Mitigation

Kevin Robins discussed the history of the Salt Lake City International Airport. He provided a demonstration and an aerial view of the airport. He stated that Delta Airlines accounts for 70% of the air service in Salt Lake City with over 100 direct flights. If there were no Delta hub, then Salt Lake City would have one third of the service currently offered. Right now, Salt Lake City is working to replace all three terminals. He discussed the new configuration, benefits, and improved efficiency the improvements will bring. These improvements will help Salt Lake City meet the dramatic growth challenges the airport is now experiencing. The new designs will eliminate many current problems and will allow the airport to recover quickly from a major earthquake.

Pete McDonough asked about work on runways and their ability to be used after an earthquake. **Kevin** stated that they will work with contractors to quickly conduct emergency repairs to any damaged runways. He added that they are pragmatic and that the damage in the valley will be so extensive that they will not be operating in a normal manner immediately following an earthquake—but that they will be operating. He emphasized their goal and planning is to quickly restore the runways to operation, should a major earthquake event occur. He discussed operability restoration as a priority and these new improvements will allow that. The current design of the airport would not allow relatively quick restoration of services. Completing these improvements before a major earthquake is vital to resuming airport operations. He discussed the construction schedule, road changes, and other challenges of building a new airport while keeping current operations underway. Despite these challenges, they are doing an excellent job maintaining operations and conducting construction simultaneously. He discussed some of the specific details of keeping current operations running while building a modern, seismically sound airport. He discussed liquefaction and the mitigation techniques they are utilizing to mitigate the effects of an earthquake. They have utilized unprecedented earthquake mitigation efforts which included over 13,000 stone columns that are 3 feet in diameter.

Jessica Chappel added that these systems represent “soil improvement”. They take an unstable layer that could liquefy and change the behavior of the layer. This increases the soil stability and reduces the potential for liquefaction.

Kevin further discussed the seismic improvements and soil stability measures taking place with the new construction.

Pete McDonough asked how deep the stone columns went.

Kevin stated the columns are about 40 feet deep.

Pete asked how long they estimate would be needed to restore airport operability following an earthquake.

Kevin said that with the improvements they estimate operability would be restored within a couple of days—depending on the time of year. He mentioned they would likely be operating off a shorted runway—but the airport would be operational.

Jessica stated that with the seismic improvements, the buildings are designed for immediate occupancy. She discussed the balance of cost versus seismic resiliency and said they seemed to achieve a favorable balance.

Kevin discussed that they decided to make sure the mechanical systems could withstand the earthquake and that the airport was designed to withstand an earthquake similar to standards of other critical facilities such as hospitals. All the terminals, parking garages, and other buildings would withstand an earthquake and be able to be occupied after the maximum ground shaking anticipated to occur.

Walter Arabaz asked about the jurisdictions and their interactions with the airport.

Kevin said they are paying for three full-time positions for inspectors. These inspectors will work very closely with other jurisdictions.

Glen Palmer asked about immediate occupancy.

Jessica stated that they go beyond the International Code Council (ICC) codes. Most buildings are designed to two-thirds of the maximum credible acceleration from an earthquake. Hospitals and other critical facilities are designed to this acceleration from an earthquake. The term “fully functional” is designed to a much higher standard than the ICC requires. The airport is being designed to fully functional, meaning you can immediately enter and conduct repairs. Currently, there are not a performance-based codes. Performance based standards are higher—and that is what the airport is following. The latest building codes are moving towards performance-based standards utilizing U.S. Geological Survey (USGS) mapped ground acceleration values.

Glen discussed the ground acceleration values and the huge variability depending on location.

Kevin stated that with these improvements they will have tremendous international growth that will more than double their current international flight capacity. He invited the Commission to have a site tour.

**The USSC tour has been scheduled for October 4, 2019. For details, please contact John Crofts.

Break

Presentation on Detailed Mapping and Special Study Zone Delineation for the Wasatch and East and West Cache Fault Zones by Emily Kleber

Emily gave a presentation on Utah’s current and new mapping of hazardous faults and related paleoseismic trenching. The Utah Geological Survey have several projects partially funded by the USGS. She demonstrated a map showing current, completed, and future investigations. The UGS is currently mapping the East and West Cache fault zones. They were recently funded to map the East and West Bear Lake, Oquirrh, and Toppliff Hills fault zones. The East and West

Bear Lake fault zones extend into Idaho and are collaborative work with the Idaho Geological Survey to complete these investigations. She discussed various mapping methods, including high-resolution lidar elevation data, aerial photography, previous geologic mapping, as well as field reconnaissance. She demonstrated what lidar is and showed how the data can be utilized to view geologic fault traces and the valuable geologic analysis that it offers to geologists.

The mapping of the Wasatch fault zone using lidar is being completed and a technical report will be being submitted to the USGS. The final report should be completed in the next few months. She also discussed LIDAR as an excellent tool to identify areas for Special Study Zones, which are an important tool for Salt Lake City and other local governments and discussed including Special Study Zones into their online Utah Quaternary Fault and Fold Database (<https://geology.utah.gov/apps/qfaults/>). Additionally, they are proposing additional hazardous fault mapping in southern Utah. She discussed Special Study Zones and the importance of recognizing these zones in a variety of community planning functions.

Walter asked if the Special Study Zones have zoning requirements.

Emily clarified that she was not aware of any specific ordinances that required any additional requirements—unless certain cities required them.

Steve clarified that Salt Lake City, Draper, Sandy, Cottonwood Heights, and Salt Lake County were communities that had adopted these standards. He added there is a list of cities that have adopted these higher standards.

Walter asked what the standards for defining zones involved.

Emily responded that it was 250 feet on the footwall side, 500 feet on the hanging wall side, and 1,000 on both sides for inferred or moderately constrained fault locations.

Walter asked if anyone had previously challenged the standards adopted by communities.

Emily stated she had not been involved in the process with other states or if they had been challenged.

Steve discussed the process and said based on updated information, the Special Study Zones have been modified slightly from previous definitions.

Emily said if we get the other Utah fault mapping proposal funded that we will have a lot of Special Study Zones mapped.

Steve clarified that Special Study Zones are only areas that recommend further surface fault rupture hazard investigation.

Pete asked clarification of the 500-foot hanging wall side.

Adam Hiscock discussed the hanging wall side and why that is used. There was a discussion of the subtle changes and Special Study Zones and areas that determine further investigations are required.

Emily stated that lidar data helped to determine critical areas for further study.

Discussion on the USSC Progress Report

John Crofts asked the Commission to provide any updates on the USSC Progress Report. He asked everyone to review their reports and provide updates. He encouraged everyone to provide updates by May and offered his assistance. He discussed the Legislature's requirement to have the report completed in an electronic format. A draft Progress Report will be provided at the next Commission meeting.

Leon asked all the members to please review and take a few minutes get information back to John or Bob if you are creating something for the first time.

Discussion on the USSC 25th Anniversary Open House

Leon discussed the 25th Anniversary Open House and discussed a variety of options available for the event.

Kris Hamlet said that the Utah Department of Public Safety (DPS) has a Legislative Liaison that could assist in communicating to everyone the event details.

Bob suggested putting out literature and bringing in the traveling display and something from our BeReady Utah office. This year is the 60th anniversary of the Hansel Valley earthquake and the 85th anniversary of the Hebgen Lake, Montana earthquake. Provide historical knowledge of why this commission exists.

Discussion of having some other tools... **Leon** asked to have Marilyn Hoff present.

Bob discussed using the Utah State Capitol Copper Room, along with another room.

Glen Palmer said he has a banner.

Walter suggested that if we bring elected officials, we make it worth their while. Must have a connection with the 25th anniversary and the information. He suggested it be clear messaging—otherwise leave public officials out and invite their friends.

Bob agreed with what **Walter** said that we must put something into their hand and let them take back with them. If there is a theme, we should give them something they can take back and a message we want to push, such as geologic hazards and the new Utah State Prison.

Leon said we can discuss in more detail. He suggested an hour lunch.... Perhaps speakers in morning and open lunch so they can look at it.

Points included:

- Salt Lake City's Fix the Bricks Program
- You get a seven to one return on mitigation spending.
- Other elected officials around the state.
- Home show format where it open and preset presentations

Leon said we would hold elections and he would be happy to remain Chair, and if anyone wants to be Chair, they are welcome as well to participate. He said it is healthy to have a rotation and if anyone wanted to serve, they are welcome.

For the next meeting, **Walter** asked to have Commission members have a brainstorming session as to why the Commission should not be sunset. He added that depending on who shows up we should make compelling arguments for why the Commission should remain.

Roger suggested having the meeting on Thursday, July 11, 2019, and discuss with Brent Maxfield.

Leon asked John to include in the minutes to have a follow-up planning meeting with Leon, Keith, Bob, John, and Jessica. He also asked to include Glen to present on the manual, Jessica will discuss the scenario document and the probabilities report.

Emily discussed going over important documents with elected officials and asked about extra effort to have elected officials attend.

Leon will discuss with Representative Jerry Stephenson and asked to have them share.

Steve suggested inviting the County Mayor and other elected officials. He said this was something very important.

Kris Hamlet mentioned that DPS has a Legislative Liaison and that she could send to everyone

Leon said that we could invite the media.

Bob discussed putting out the University of Utah Seismograph Stations Traveling Earthquake Display and putting out literature.

Leon met with three delegations in Washington, D.C. They had meetings set up with different staff members. Environment and Public Works group... he discussed one guy who was cynical and spoke strongly to them that you need to pay attention to Public Works. Later, he said that politicians only want to get re-elected. How best to get reelected than to have a resilient community: "This is how this benefits you".

Patrick Tomasion said "performance based today and resilience... from a development standpoint. If we had specific examples (such as the airport) we could point out specifics—not general.

Update on the National Earthquake Program Mangers Meeting and the Upcoming Unreinforced Masonry Summit

Bob discussed the April 23-26th training that will be held in Salt Lake City. The National Earthquake Program Managers (NEPM) will discuss retrofitting structures, ATC-20 related topics, Salt Lake City's Fix the Bricks program, and other programmatic information. He discussed the exchanges between the states and territories as an important part of NEPM and that NEPM designed the gathering as a networking opportunity. He is the Chair this year, and there will be excellent participation from states and territories. The second day consists of a geologic field trip, a tour of the capitol and the University of Utah Seismograph Stations, and a presentation from California.

He said the National Earthquake Management Association (NEMA) is holding an earthquake subcommittee meeting and will present a national perspective to the meeting that is worthwhile. The meeting will include earthquake program manager guidance, how to receive National Earthquakes Hazards Reduction Program (NEHRP) funding, and other programmatic guidance. He discussed direct funding versus a 50/50 match as another avenue to get funding through the various earthquake consortia. He explained the benefits of having the money sent directly to the states. If the states receive direct funding, you can get more funding to accomplish your goals by saving extra administrative costs. He detailed the agenda and invited Commission members to participate.

Bob then discussed the Unreinforced Masonry (URM) Summit and provided the background on its creation. The proposal was cooperative effort between Utah and Nevada. The proposal was submitted to the Federal Emergency Management Agency and they recognized its value and decided to fund and hold the summit, themselves. He discussed the summit agenda and components of the conference and invited the Commission to participate. He stated he hoped to attract policy makers to attend the conference.

Report on the Recent Idaho Earthquake Clearinghouse Exercise

Emily stated the exercise was March 5-7th.

Bob discussed his participation with the Idaho Earthquake Exercise. He participated and evaluated the cyber and communications elements. He discussed the differences between our states. The exercise worked as a real-time experience. He discussed ATC-20 and how it would

play into an earthquake. The scenario they ran presented some significant challenges. He discussed mistakes and how to work through mistakes to generate positive results.

Emily discussed her participation with Idaho and provided more details of the digital clearinghouse. She stated that Zack Lifton from the Idaho Geological Survey (Emily's counterpart) set up a digital clearinghouse, based on a clearinghouse template from the Earthquake Engineering Research Institute (EERI) that was funded by the Western States Seismic Policy Council (WSSPC). This represented a physical and digital clearinghouse. Matthew Wall and Laura Brodtsky from WSSPC participated in the exercise, and they also had participation from a large group of volunteers. During the exercise, she updated the EERI digital clearinghouse and posted observations from field onto the website. She explained that Utah uses a different program and process. The exercise was beneficial. It was both interesting and scary to consider the scenarios and what could occur in Utah.

General Updates Legislation and Other Miscellaneous Items

Roger Evans provided a legislative update and discussed future progress.

Steve stated that the Commission needs a Legislative bill to reverse the sunset.

Bob said we have friendly Legislators that he believes could reverse the sunset. He stated that we could also go back to our roots—and keep the Commission without Legislative approval.

Kris discussed House Bill 305- Local Disaster Recovery Account which was originally supposed to be increased \$2 million every year—eventually increasing up to \$10 million. After it reaches \$10 million, any extra funding would then go back into the general fund. They passed it; however, it was reduced to \$300,000 a year. Now communities can apply to UDEM after the Governor declares a disaster. This is the first time we have had a local fund like this. When a disaster reaches a State Disaster level, then we can immediately respond with funding. The Legislative sponsor of the bill will try to increase funding next year to \$2 million. HB 423 is our other Disaster fund, which is for State Agencies. It currently has \$24 million. This bill gives us more access to this funding. They increased our threshold with this bill. Now we can spend up to \$500,000 with no approval. Governor's approval is required for \$500,000 to \$3 million. After \$3 million we would need Legislative action.

Pete discussed WSSPC and the committee meetings on April 25th. Anyone is invited to attend. Patti Sutch is the retiring WSSPC Executive Director and Matthew Wall will be replacing her. Both will be attending the meeting.

Emily said she and Adam manage the Twitter account and reported the Commission has 295 followers. If anyone wants to contribute to Twitter, then let her or Adam know.

Bob provided the Commission with some updates regarding the Great Utah Shakeout and provided details. He also discussed the Publications Committee and wants to start it up again. He invited anyone interested to let him know. The Putting Down Roots document needs to be updated.

Kris said 850,000 signed up for the upcoming Great Utah Shakeout.

Leon said they will have an exercise for this year's Great Utah Shakeout at the Welby Pit and invited anyone to come participate if they wish.

Next meeting: July 11, 2019.

Roger made a motion to dismiss.

Steve seconded the motion.
Meeting adjourned.