PROJECT UPDATES — March 2017

Summary — The Bureau, along with our UT-Austin, SMU, and TAMU research partners, continue to make progress on this highly successful program as highlighted below. Numbers referenced below are for the month of March.

Network Installation and Operations
- Six portable stations were installed in Snyder and one auxiliary station in Del Rio bringing the total number of portable hardware station installations to 18 out of a planned total of 33.

Synopsis of March 2017 Seismicity in Texas
- TexNet recorded 120 earthquakes (M≤2.5) in Texas in the areas of DFW, Pecos, Snyder, Fashing and elsewhere.
- TexNet recorded 35 earthquakes in the Fort Worth Basin (M≤1.5). Thirty-four were in the Venus, Johnson Co. sequence, mainly occurring March 10-20. One event, recorded March 6, was associated with the Irving-Dallas sequence.

Partnership
- *Bureau Faults and Geomodels* team has shared the detailed Azle-area 3D geomodel with TAMU.
- *Bureau Hydrology* team has received complete datasets for Texas wellbores, production, and injection through partnership with the RRC Underground Injection Control team.

Research
- *Bureau Faults and Geomodels* team's 3D geomodel now contains the known regional mapped faults as well as the results from the completed petrophysical study. A subset model of the Azle area field has been completed, containing three separate sealed faulted framework scenarios.
- *Bureau Hydrology* team has identified all disposal wells and disposal volumes being injected into Cambrian-Ordovician formations in the Ft. Worth Basin. Disposal wells in the Permian Basin are being characterized.
- *Bureau Fault Reactivation, Geomechanics* team simulated (1) steady-state injection rate and steady-state excess pore pressure in the vicinity of a potentially reactivated fault; (2) the effect of decline rates on pore pressure; (3) fault reactivation potential by injection into the footwall and hanging wall for dipping faults.
- *UT Pore Pressure Analysis of Ft. Worth Basin* team updated its layered permeability model, which has resulted in increased pressure predictions in the Ellenburger due to injection.
- *TAMU Fluid Flow, Geomechanics* team continues to calibrate the Azle model with seismic events using coupled fluid flow and geomechanics. History matching is based on arrival times for local seismic events with M>2.0.
- *UT Seismic Hazard and Risk* team discussed Texas construction practices with local engineers for details on façade detailing and installation. Vulnerability of facade veneers are being evaluated in failure models.
- *UT Seismic Risk Social Science* team is near completion of interviews with oil and gas company executives. Response analyses of the Texas residential mailed survey continue.

Outreach
- "TexNet: Texas Earthquake Monitoring" video: http://www.beg.utexas.edu/node/1788.
- *Bureau* hosted training on the Earthquake Management System "Introduction to SeisComP3" by *gempa GmbH, Potsdam/Germany* for 13 participants from multiple states and CISR industrial sponsors.
- *Bureau, US Army Corps of Engineers, and RRC* met to discuss seismicity monitoring at USACE facilities in N. TX.
- *Bureau* presented the TexNet-CISR monitoring and research program to the Permian Basin Petroleum Assoc.
- *Bureau and SMU* teams presented an update on Ft. Worth earthquakes and research to the Irving City Council.
- *SMU* spoke on induced earthquakes in the Central US at Park University (Parkville, MO).
- *UT Seismic Hazard and Risk* team presented new ground motion models for Texas and Oklahoma at the USGS-organized Induced Seismicity Ground Motion Workshop in Menlo Park, California.