OpenSRA is a new open-source seismic risk assessment software tool for gas utility regulators and owners that will enable them to strategically address challenges posed by the risk from earthquakes and other geological hazards. OpenSRA includes recent computational modeling and laboratory testing of surface infrastructure components and systems. This research provides better information about the fragility of gas storage surface infrastructure.

Results

- Data inventory conducted for seismic performance of gas storage facility subsystems and their individual components. Procedures for computational modeling and laboratory testing established.
- Procedures developed for laboratory testing of system components, including pipe elbows and other connections.
- Representative shaking table testing conducted to capture seismic vulnerabilities of systems.
- Computational models developed to validate laboratory testing of components and systems.

Benefits & advantages

- Results compiled into OpenSRA to aid in studying earthquake scenarios, prioritizing mitigation efforts, and planning post-earthquake assessments of a buried pipeline system.
- Research results from computations and laboratory testing provide state-of-the-art information that is incorporated in fragility curves for surface infrastructure components and systems.
- System-wide fragilities and prioritization of mitigation will provide greater reliability of the overall system. A methodical and rational approach to implementing mitigation increases safety.