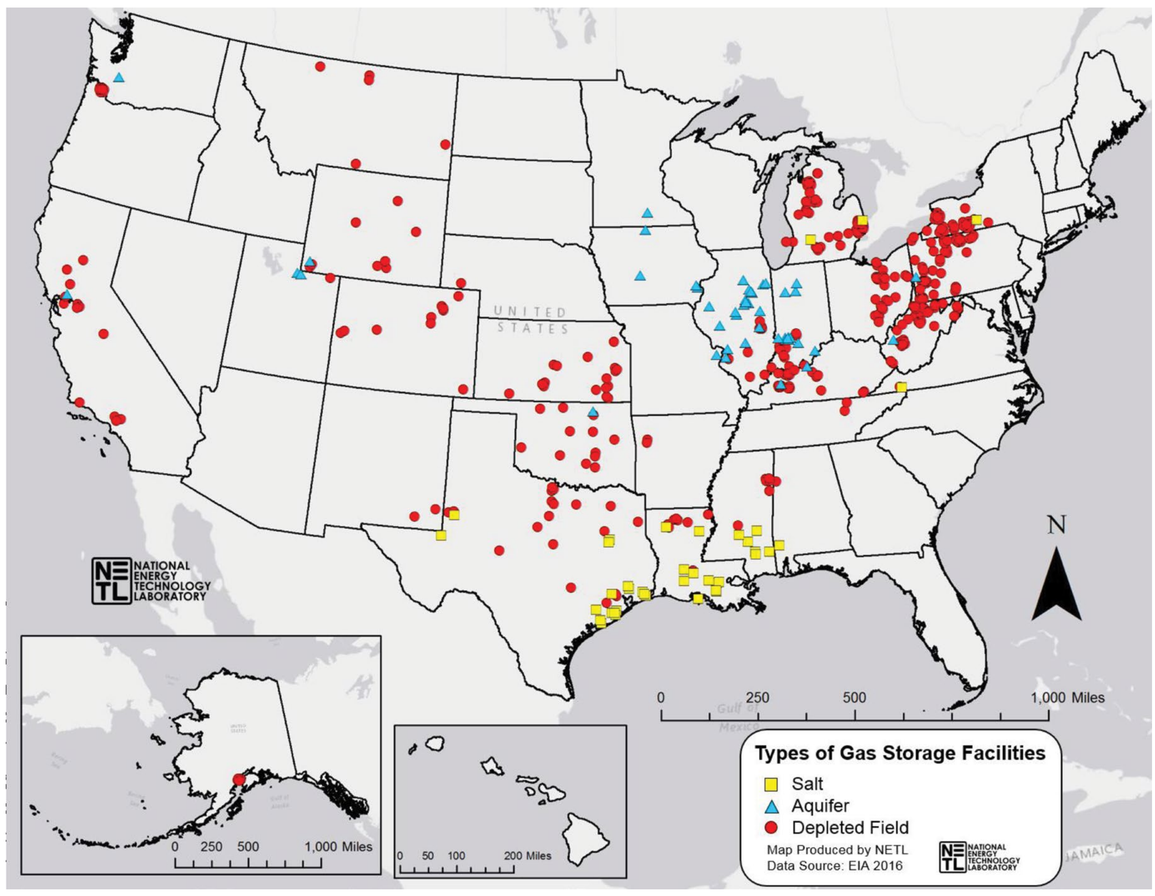
Determining Gas Storage Well Integrity After the 2015–16 Aliso Canyon Leak Crisis

The launch of Pyrochem Catalyst Company (PCC) in 2011 marked the first time an NETL technology provided the foundation for an entrepreneurial venture.



U.S. gas storage facilities and types.

Natural gas storage facilities are a critical component of our energy supply and distribution chain, allowing elasticity in gas supply to accommodate daily to seasonal demand fluctuations. As was made evident by the 2015–16 Aliso Canyon Gas Storage facility incident, a loss of well integrity may result in significant consequences, including the prolonged shutdown of an entire facility. The Aliso Canyon gas well blowout emitted approximately 100,000 tonnes of natural gas (mostly methane) over four months and displaced thousands of nearby residents from their homes.

The high visibility of the event led to increased scrutiny not only of the safety of natural gas storage at the Aliso Canyon facility but also associated questions about energy reliability. The event also raised broader concerns for natural gas storage integrity throughout the country.

The DOE National Laboratories Well Integrity Working Group was formed as an outgrowth of the initial Aliso Canyon Natural Gas Leak Task Force to focus on the integrity of U.S. gas storage wells. It leveraged NETL capabilities in subsurface characterization, risk modeling and fluid spill analysis as well as geodata modeling, visualization, and mapping and resulted in publication of Well Integrity for Natural Gas Storage in Depleted Reservoirs and Aquifers (Freifeld et al., 2016).

Research tools, methods and approaches across NETL's R&D portfolio can trace their roots to this Aliso Canyon response, from EDX's EDX4CTS, CO_2Locate and EWellID geodatabases and visualization to drone methane leak detection and wellbore cement analysis.

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