



“South Y” Brine Well: December 2016 Update

Recently, a number of Carlsbad residents have asked for an update on the State of New Mexico’s efforts to resolve the “South Y” brine well in Carlsbad.

What is a brine well?

A brine well is created when fresh water is injected into a layer of salt beneath the ground to create salt water (brine) used for some oil and gas operations. The fresh water dissolves the salt, creating a cavern under the ground. Brine wells near Loco Hills and Artesia have collapsed, and scientists believe a similar well in Carlsbad also presents a risk.

This brine well is located adjacent to the City’s “South Y,” where Highway 62/180 splits off of Highway 285.

What’s the history of the “South Y” brine well?

The well was first drilled in the 1970s. The State of New Mexico approved and permitted the well, as well as others around the state.

The State of New Mexico’s Oil Conservation Division (OCD) is in charge of oversight of brine wells. The OCD first became concerned about the well in 2008, shortly after similar wells collapsed, creating sinkholes. The OCD provides regular briefings about the monitoring system it installed in 2009, which functions as an early warning system for a potential collapse.

A two-dimensional seismic reflection survey has been completed to determine the extent of the cavern. According to the OCD’s web page, the Division is also “moving forward in redefining the allowable criteria for the proper siting, construction, operation and closure” of brine wells.

What’s happened recently?

- In 2015, state officials told members of the legislature that recent flooding and surface activity has potentially sped up the timeline for a possible well collapse. Previous estimates indicated a high probability of collapse within 10 to 25 years. Currently, experts generally believe the collapse could happen as early as 2021, but they do not rule out the possibility of an earlier collapse.
- Rep. Cathrynn Brown and Sen. Carroll Leavell have received support from the legislature’s Radioactive & Hazardous Materials Committee on legislation they plan to introduce during the 2017 session that will create a state brine well remediation authority and appropriate funding to the OCD for the development of a plan to remediate the well in Carlsbad. These bills will be introduced in the upcoming legislative session.

What is the City of Carlsbad doing?

Although this is a state issue, City of Carlsbad and Eddy County officials, as well as members of the Carlsbad Brine Well Committee, are keeping in regular contact with the OCD and other experts to discuss area concerns. Also, first responders, including the Carlsbad Police Department and Carlsbad Fire Department, in conjunction with the Eddy County Office of Emergency Management, are conducting tabletop simulations to prepare for a possible response if the well collapses.

This is all fine, but is it safe?

While there certainly is a long-term risk, we do want to stress that there is a highly-sensitive collapse detection warning system at the site that will give everyone advance warning before the collapse reaches the surface. That means there will be time to block roads, evacuate buildings and notify the public. The system ties into county and city emergency services and has been tested.

Because of this early-warning system, we do not consider avoiding the area around the “South Y” (as a motorist or resident) to be necessary. We do, of course, advise alertness and caution.

Can you tell me more about this detection warning system?

According to Dr. George Veni, with the National Cave and Karst Research Institute, the following equipment is used for detection:

- 1) Borehole tiltmeters. These are wells drilled around the site that are about 20 ft. deep and essentially contain a wire that is extremely sensitive to tilting or any other movement. As an example of their sensitivity, they have detected earthquakes in Japan and measure the daily swelling and shrinking of the land due to daytime heating and nighttime cooling.
- 2) Microseismic meters. These are also wells around the site, but deeper wells. They detect any fracturing of the rock in the cavity, as well as any rock fall. By triangulating the seismic signal registered at each meter, the location within the cavity of the detected activity can be approximated, which is important in understanding which parts of the cavity are the most unstable.
- 3) Water pressure meter. The cavity is filled with salt water. The buoyancy of the water helps support the weight of the ceiling. Measuring the pressure of the water is another way of detecting changes in the cavity that may indicate instability.

What else can I do?

For more information, please visit <http://www.emnrd.state.nm.us/OCD/brinewellinfo.html>

Carlsbad Mayor Dale Janway, the Carlsbad City Council and the Carlsbad Brine Well Committee support the legislative efforts introduced by Rep. Brown and Sen. Leavell. These bills will allow the state to begin moving forward with remedying this important safety issue. Please contact your elected officials before the upcoming legislative session and urge them to support the brine well bills.