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NEWS RELEASE

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Concerned Citizens Gather for More Information About a Potential Carlsbad Brine Well Collapse

CARLSBAD, NM – The Oil Conservation Division hosted its third public meeting Wednesday evening, at the Pecos River Village Conference Center in Carlsbad, New Mexico, to provide the public with information about an early warning system, which is designed to automatically contact Eddy County Emergency Management in the event a brine well collapse is imminent.

Approximately 75 citizens, including Carlsbad Mayor Bob Forrest and Eddy County Emergency Manager Joel Arnwine were in attendance. Jim Griswold, a hydrologist with the Oil Conservation Division, gave a presentation on the early warning system and the results of the seismic survey.

Monitoring of seismic activity at the I & W Facility along with continuous measurement of groundwater levels form the basis of the early warning system. The system went operational on June 23, 2009. It contains three borehole tiltmeters, pressure transducers installed in each of the two monitoring wells, barometer to measure ambient atmospheric pressure, signal conditioning system, an on-site building that houses a computer with wireless internet that is backed up to a secured remote server. Eddy County would be the first responder and implement its Emergency Response Plan.

“It is hoped that this early warning system and its automated notification features will allow for the mobilization of local emergency responders to mitigate property losses and potentially eliminate injury or loss of life in the event of a collapse,” Griswold said.

In a previous incident, the Oil Conservation Division was fortunate to obtain information from a seismometer located in reasonable proximity to the first brine well collapse southeast of Artesia in July of 2008. This data was received several days after the collapse of the Artesia well and indicated that anomalous seismic activity occurred six to eight hours prior to the appearance of the hole at the surface. Outside experts concurred that this data represented the failure of the brine cavern’s roof underground. Knowing this, the Oil Conservation Division conducted a seismic survey to characterize the nature of the Carlsbad brine well cavern and surrounding geology.

Griswold explained the Oil Conservation Division currently has no “in-house” expertise in the areas of cavern stability or seismic interpretation, which is why the division sought outside help. It selected the company called RESPEC based on input from the solution mining industry.

The Oil Conservation Division relied on RESPEC’s expertise and interpretation of gathered data. The seismic reflection survey was independently analyzed by several individuals under the direction of RESPEC for quality control purposes. While those interpretations are not entirely consistent, they reflect diligent effort on the part of all analysts and the aggregate information they provide all appear to account for what is otherwise known about the historic brine-producing operation in Carlsbad and the solution mining of salt in general. These interpretations affirm the division’s concern with respect to a potential cavern collapse.

The Oil Conservation Division has been investigating and studying brine wells in New Mexico since two brine wells catastrophically collapsed without warning last year in Eddy County. The I & W facility in Carlsbad with two brine wells raised red flags for the Oil Conservation Division due to its location, which is between US 285 and US 180/62 where those two highways meet at a “Y”-shaped intersection. Certain aspects of the Carlsbad facility, such as the shallow depth and length of time in service, are similar to the two wells that already collapsed and the Oil Conservation Division has concluded that the site poses a serious risk to human life and to property.

“The Oil Conservation Division took the lead in this situation to protect human health and safety by monitoring the site, characterizing the underground cavity and installing the early warning system,” stated Division Director Mark Fesmire. “The division has spent over \$563,000 to get to where we are.”

Previously, the Oil Conservation Division organized a Brine Well Evaluation Work Group. The group consists of experts from the Oil Conservation Division, industry, the national labs, the Environmental Protection Agency, the Waste Isolation Pilot Project, the National Cave and Karst Research Institute in Carlsbad, and national organizations concerned with solution mining. The group met and expressed concern that any brine well operation that had produced large volumes of brine from a shallow salt bed was subject to collapse and needed to be heavily scrutinized. Five brine well facilities in New Mexico fell into this category, including the two that had already collapsed. The facility in Carlsbad is one of the other three that fall into this category and it poses a significant additional risk due to its close proximity to the Carlsbad Irrigation District Canal, businesses, homes and a church.

Griswold’s presentation included an analysis of the risk posed by the Carlsbad facility. He explained that two of the 34 brine facilities in New Mexico have collapsed, a failure rate of 6 percent.

“If you consider only shallow brine wells in New Mexico – those wells with a depth to bottom of casing of less than 500 feet- you are looking at 5 facilities, including the Carlsbad facility,” said Griswold. “Two of those five have collapsed, for a failure rate of 40 percent. And if you consider only shallow brine wells that have produced a large amount of brine, you are looking at 3 facilities, including the Carlsbad facility. The two other shallow brine facilities with high production volume have already collapsed, for a failure rate of 67 percent.”

See chart below:

Five brine well facilities in New Mexico produced large volumes of brine from a shallow salt bed: Combining the shallow depth with the overall volume of brine produced raises the historic probability in NM to 67 percent (2 in 3).				
Facility	Production	Cavern Depth	D/H	Status
Jim's Water Service	8 million barrels	397 ft	1.13	Collapsed
Loco Hills Disposal	7 million barrels	505 ft	0.70	Collapsed
Carlsbad Facility	6 million barrels	456 ft	0.66 to 1.10	
<i>"Cratering does not occur when the ratio between cavern diameter and cavern depth (D/H) is significantly smaller than 0.67"</i>				
<i>Subsidence, Sinkholes and Craters above Salt Caverns.</i> M. Karimi-Jafari, P. Berest, and B. Brouard. Solution Mining Research Institute Spring 2008 Meeting, Portugal				

The Oil Conservation Division will continue to work with the owners and make suggestions to them about possible solutions or remedies to stabilize the brine well they own, operated, and for which they are responsible.

For more information, including Griswold's presentation visit the website:

<http://www.emnrd.state.nm.us/ocd/BrineWells.htm>.

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The Energy, Minerals and Natural Resources Department provides resource protection and renewable energy resource development services to the public and other state agencies.

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