



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
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Office of the Regional Administrator

November 22, 2016

Bob Anthony, Chairman  
Oklahoma Corporation Commission  
P.O. Box 52000  
Oklahoma City, OK 73152-2000

Dana Murphy, Vice-Chairman  
Oklahoma Corporation Commission  
P.O. Box 52000  
Oklahoma City, OK 73152-2000

Todd Hiett, Commissioner  
Oklahoma Corporation Commission  
P.O. Box 52000  
Oklahoma City, OK 73152-2000

Dear Chairman Anthony, Vice-Chairman Murphy and Commissioner Hiett:

The people of Oklahoma and those in surrounding states face a significant challenge with respect to increased earthquake activity. As you know, Governor Fallin, supported by both the Oklahoma Geological Survey and the United States Geological Survey, link these earthquakes to the disposal of produced water into Class II underground injection disposal wells.

We recognize the important steps taken by the state this year to curb a rising intensity of earthquakes. Your response to the magnitude 5.8 earthquake on September 3 in Pawnee, restricting the use of underground injection wells in the Arbuckle geologic formation and your continued restrictions in the area demonstrate your interest in addressing this challenge. We also appreciate other recent actions taken by the Oklahoma Corporation Commission (OCC) to shut-in and reduce injection volumes in wells located in areas of concern in response to recent earthquakes.

However, I want to encourage you to consider additional actions to protect public safety, health and the environment for the citizens of Oklahoma. Two significant earthquakes in November, one near Pawnee and another near Cushing, and two additional earthquakes just today, suggest that more needs to be done to address this issue. We recognize that the Oklahoma Geological Survey reports the total number of 2016 earthquakes appears to be dropping from last year's activity, but we also see a continued and disturbing upward trend in event magnitudes.

In particular, the magnitude 5.0 earthquake in Cushing raises concern over risks to public safety and the environment. This event occurred despite previous actions in the area by OCC and EPA to curtail injection volumes into the Arbuckle Formation, caused considerable damage to the city of Cushing, and

heightened concern over the integrity of infrastructure associated with the Cushing Oil Hub. The U.S. Department of Homeland Security (DHS) projects that a quake of magnitude 5.7 could significantly damage the oil storage tanks in Cushing. Furthermore, a study led by U.S. Geological Survey (USGS) seismologist Dr. Daniel McNamara concluded that in 2014, earthquakes increased stresses along two stretches of a fault beneath Cushing and could lead to higher magnitude events. As you fully recognize, a breach in the integrity of the Cushing pipelines and storage facilities could be catastrophic for both the environment and the national energy system given the more than 80 million barrels of crude oil storage capacity.

In our annual Underground Injection Control program review, we recently shared our technical evaluation with you and provided recommendations related to injection-induced earthquakes. Our findings are supported by USGS data showing the dramatic increase in energy (Moment of Magnitude) released by earthquakes in 2016, despite the decrease in cumulative number of tremors in 2016. Due to this trend, we believe further actions to address disposal well-related pressure buildup in the Arbuckle Formation are imperative to protect human health and to prevent contamination of underground sources of drinking water from induced earthquakes. These further actions should include looking at reasonable strategies to treat such discharges so that, in the event additional moratoria are needed, treatment options would be available. I urge you to respond to this program review and adopt its recommendations to assist in addressing the increased risks of earthquakes.

We appreciate OCC's efforts thus far in addressing the threat of increasing earthquakes, and stand ready to offer any assistance in addressing earthquakes as part of the EPA's ongoing input and oversight of state regulation of Class II underground injection disposal wells under the Safe Drinking Water Act.

Feel free to contact me at (214) 665-2200 or Bill Honker, Director, Water Quality Protection Division at (214) 665-3187, if we can be of assistance.

Sincerely,

  
Ron Curry  
Regional Administrator

cc: Mike Teague, Oklahoma Secretary for Energy and Environment