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OIL & GAS CONSERVATION DIVISION



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July 17, 2015

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OCC ANNOUNCES NEXT STEP IN CONTINUING RESPONSE TO EARTHQUAKE CONCERNS

200-plus more disposal wells added to action list

With the help of a \$200,000 grant from the Oklahoma Secretary of Energy and Environment at the direction of Governor Fallin, the Oklahoma Corporation Commission's Oil and Gas Conservation Division (OGCD) is taking action on more oil and gas wastewater disposal wells in response to induced seismicity concerns.

In March, the OGCD issued a directive covering more than 300 disposal wells that inject into the Arbuckle formation and are in "areas of interest," areas of seismicity which now include 21 of Oklahoma's 77 counties. The latest OGCD directive expands the total size of the areas covered and applies to 211 more such wells. The Arbuckle is the state's deepest formation and encompasses most of the state. Under the latest directive, the operators of the wells will have until August 14 to prove they are not injecting below the Arbuckle. There is broad agreement among seismologists that disposal below the Arbuckle poses a potential risk of causing earthquakes, as it puts the well in communication with the "basement" rock.

OGCD Director Tim Baker says the main focus remains on high volume Arbuckle disposal wells that research shows hold the highest potential risk for induced seismicity.

"However, the directive we issued in March allowed some of the disposal wells to continue to operate if they reduced volume by 50 percent," said Baker. "Those operators are now being told they must reduce their depth if they are currently below the Arbuckle.

"Also, we have had recent seismicity in some areas that don't have any of the high-volume, deep disposal wells considered of highest potential risk, most notably in the northern Oklahoma county and southern Logan county area. Operators of low-volume Arbuckle disposal wells in the area

that have long been proven to be operating at the proper depth have now voluntarily shut down their wells to aid research efforts.”

To date, under the March directive:

- 124 Arbuckle disposal wells have now reduced their depth (“plugged back”)
- 16 are in the process of plugging back.
- 54 are limiting their volume to less than 1,000 barrels a day.
- 96 have proven they are at the proper depth
- 25 have cut their injection rate in half
- 37 are not injecting

Baker said the latest action should not be viewed as a final step, stressing that all options are being explored, and more actions are being formulated.

“There has been progress made, and we know far more than we did, but there is much more to be learned and more actions to be taken as we go forward based on the latest data and research,” said Baker. “There is still no issue more important to us, and to thousands of Oklahomans, than this. The progress that has been made is due to the hard work and dedication of the Oklahoma Geological Society (OGS) and other researchers across the nation, support from Governor Fallin and Secretary of Energy and Environment Michael Teague, and the cooperation and input of Oklahoma’s oil and gas producers, who have not only cooperated on the operational level, but have also provided essential and sometimes proprietary data to OGS. I have no doubt the extraordinary effort, support, and cooperation will continue.”

The “traffic light” system was first put in place in 2013 in response to the concerns over the possibility of earthquake activity being caused by oil and gas wastewater disposal wells in Oklahoma. It has been in a state of constant evolution since then, as new data becomes available.

Other elements of the traffic light system include:

- Required seismicity review for any proposed disposal well.
 - Those proposed wells that do not meet “red light” (stop) standards but are still of concern:
 1. Must have public review
 2. Permit is temporary (six months)
 3. Permit language requires**
 1. Seismometers
 2. Shut down if rise in background seismicity or there is a defined seismic event
 3. Shut in and perform reservoir pressure testing every 60 days.** Applicant agreement to conditions does not guarantee approval
- Weekly volume reporting requirements for and close scrutiny of all disposal wells in an Area of Interest (AOI):
 - AOI now defined as a 10 kilometer (about 122 square miles) area surrounding the center mass of an earthquake “cluster”

- Rules increasing from monthly to daily the required recording of well pressure and volume from disposal wells that dispose into the Arbuckle formation (the state's deepest injection formation)
- Rules requiring Mechanical Integrity Tests for wells disposing of volumes of 20,000 barrels a day or more have increased from once every five years to every year, or more often if so directed by the Commission

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