

OKLAHOMA
CORPORATION COMMISSION

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OIL & GAS CONSERVATION DIVISION



Tim Baker, Director

TO:

FROM: Tim Baker, Director, Oil and Gas Conservation Division

RE: Reduction in Volumes for Wells Located in Area of Interest for Induced Seismicity

DATE: August 3rd, 2014

The Commission's Oil and Gas Conservation Division (OGCD) is expanding its efforts to reduce the risk of earthquakes potentially triggered by saltwater disposal wells. The following addresses the reduction of volumes being disposed in the Arbuckle formation within the defined area of interest. Any company that has been identified as operating one or more Arbuckle disposal well(s) located within the defined area will need to reduce volumes disposed into such well(s).

The area highlighted on the attached map has been designated based upon the dramatic increase in earthquakes within the immediate area. The OGCD has reviewed the earthquake activity of magnitude 2.5 mm and greater, as reported by the Oklahoma Geological Survey (OGS). The earthquake activity from the last three years and seven months is summarized below and is also reflected in the attached map:

Earthquake activity in 2012:	2
Earthquake activity in 2013:	14
Earthquake activity in 2014:	359
Earthquake activity in 2015: (as of 7/31/15)	253

Total volumes of produced water disposed of in the Arbuckle formation, by wells within the designated area, as reported on OCC Forms 1012A beginning in 2012 are as follows:

2012 volumes: 7,788,710 Bls.

2013 volumes: 6,039,802 Bls.

2014 volumes: 8,847,093 Bls.

As part of an effort to decrease the risk of induced seismicity, you will need to complete reduction of disposal volumes in accordance with the following schedule and as indicated for

the wells below. All disposal well volumes shall be calculated on a daily basis. In addition, gauges and flow meters should be placed on such wells on or before August 14, 2015 so that Commission Field Inspectors can verify pressures and volumes. As has been the practice, pressures and volumes for such wells should continue to be supplied to the Commission on a weekly basis at ogvolumes@occemail.com.

Using the daily average of the total volume reported on the 2014 1012A Annual Fluid Injection Report, disposal volumes need to be reduced in accordance with the following schedule:

(a) On or before August 23rd, 2015, daily volumes should be reduced by thirteen percent (13%) of the daily average of the total volume reported on the 2014 1012A Annual Fluid Injection Report.

(b) On or before September 12th, 2015, daily volumes should be reduced by an additional thirteen percent (13%), for a total volume reduction of twenty-six percent (26%) of the daily average of the total volume reported on the 2014 1012A Annual Fluid Injection Report.

(c) On or before October 2nd, 2015, daily volumes should be reduced by an additional twelve percent (12%), for a total volume reduction of thirty-eight percent (38%) of the daily average of the total volume reported on the 2014 1012A Annual Fluid Injection Report.

Contact Charles Lord of the OGCD at 405-522-2751 or c.lord@occemail.com if you have any questions.

Thank you in advance for your continued cooperation and attention to this matter.

Reduced daily volume totals are calculated as follows:

Example 2014 1012A Volume	8% reduction	23% reduction	38 % reduction
365000 (1000 bpd)	780	560	340
Formula	$(365000/365) \times 0.92$	$(365000/365) \times 0.77$	$(365000/365) \times 0.62$

The wells in this area operated by your company, and the volume reduction schedule are listed below: