

Susan K. Duffy, Chair
Dwight D. Keen, Commissioner
Andrew J. French, Commissioner

Laura Kelly, Governor

THIRD QUARTER REPORT

To: Susan K. Duffy, Chair
Dwight D. Keen, Commissioner
Andrew J. French, Commissioner

From: Ryan A. Hoffman, Director, Conservation Division

Date: 9/30/2020

Re: Docket No. 20-CONS-3218-CINV

BACKGROUND

On February 6, 2020, the Commission opened an investigative docket for the purpose of “(1) keeping the public and the Commission apprised of the investigation of Commission Staff into the causes of increased seismic activity occurring in Reno County; and (2) providing a forum by which the Commission may take any advisable action as it relates to increased seismic activity in Reno County.”¹ This is the third quarterly report.

REPORT

A. Injection Volumes

As discussed in the prior reports, Commission Regulation K.A.R. 82-3-408 requires injection information from the prior calendar year to be filed by March 1 of the following year. This means that final 2020 data is not due to the Commission until March 1, 2021. On August 7, 2020, Staff mailed a Data Request pursuant to K.A.R. 82-3-128 to the operators of Class II wells within the investigation area. The letter established a deadline of August 28, 2020, to supply the data via downloadable form from the Commission’s website. The letter warned that failing to supply the requested data for the wells in the investigation area was punishable by monetary fine and that each day of a continuing violation was a separate violation. Finally, Staff has updated Class I well injection information using monthly reports published on the Kansas Geological Survey’s (KGS) website to compare the activity level of both classes of wells in the investigation area for the first six months of 2020.²

¹ Docket No. 20-CONS-3218-CINV, ¶A, p. 2.

² http://maps.kgs.ku.edu/kgs_web/injection/class1_permits.cfm

Class I and Class II Volume* Comparison for 15-mile Radius Surrounding Reno County Earthquakes in 2020

Class I = 10 wells Class II = 24⁺ wells

Month	Class I Monthly Volume	Class II Monthly Volume	Class I Monthly Average per Well	Class II Monthly Average per Well
January	1,452,088	1,086,912	145,209	45,288
February	1,271,077	1,027,445	127,108	42,810
March	1,368,419	1,071,775	136,842	44,657
April	1,468,559	959,485	146,856	39,979
May	1,462,041	970,305	146,204	40,429
June	1,756,122	904,705	175,612	37,696

* Volume is in barrels.

+ One Class II well has been plugged within the search area prior to January 2020.

The trend of decreasing disposal volumes into Class II wells in the 15-mile search radius surrounding the earthquake epicenters in Reno County continues to decline from periods of higher oil prices. Staff anticipates this decline will be larger for calendar year 2020 based on the impact of the pandemic on the oil and gas industry. The average monthly Class II disposal volume in the investigation area was 1,078,375 barrels in 2019. Since February 2020, each month has been less than the average month in 2019. Class I disposal volume averaged 1,640,348 barrels per month in 2019. The chart above shows that Class I wells disposed of smaller cumulative monthly volumes in the first six months of 2020 except for the month of June.

B. Earthquakes

Data in the table below is from the KGS earthquake database for Reno County in the third quarter of 2020.

Local Date and Time	Latitude	Longitude	Magnitude
AUG-03-2020, 10:32:34 AM	38.024	-97.98	2.4

The location of the earthquake with respect to Class I and Class II wells within the investigation area is depicted on the map attached as Exhibit A. Staff would note the number of earthquakes occurring within Reno County during the third quarter of 2019 was 31 according to the KGS earthquake website.³ The 2019 third quarter Reno County earthquakes ranged in magnitude from M 2.0 to M 4.4.⁴

³ https://chasm.kgs.ku.edu/ords/elog quake3.SelectQuakes?f_month1=JUL&f_year1=2019&f_month2=OCT&f_year2=2019&f_30=&f_360=&sort_by=7&f_pg=2

⁴ *Id.*

C. Additional Information

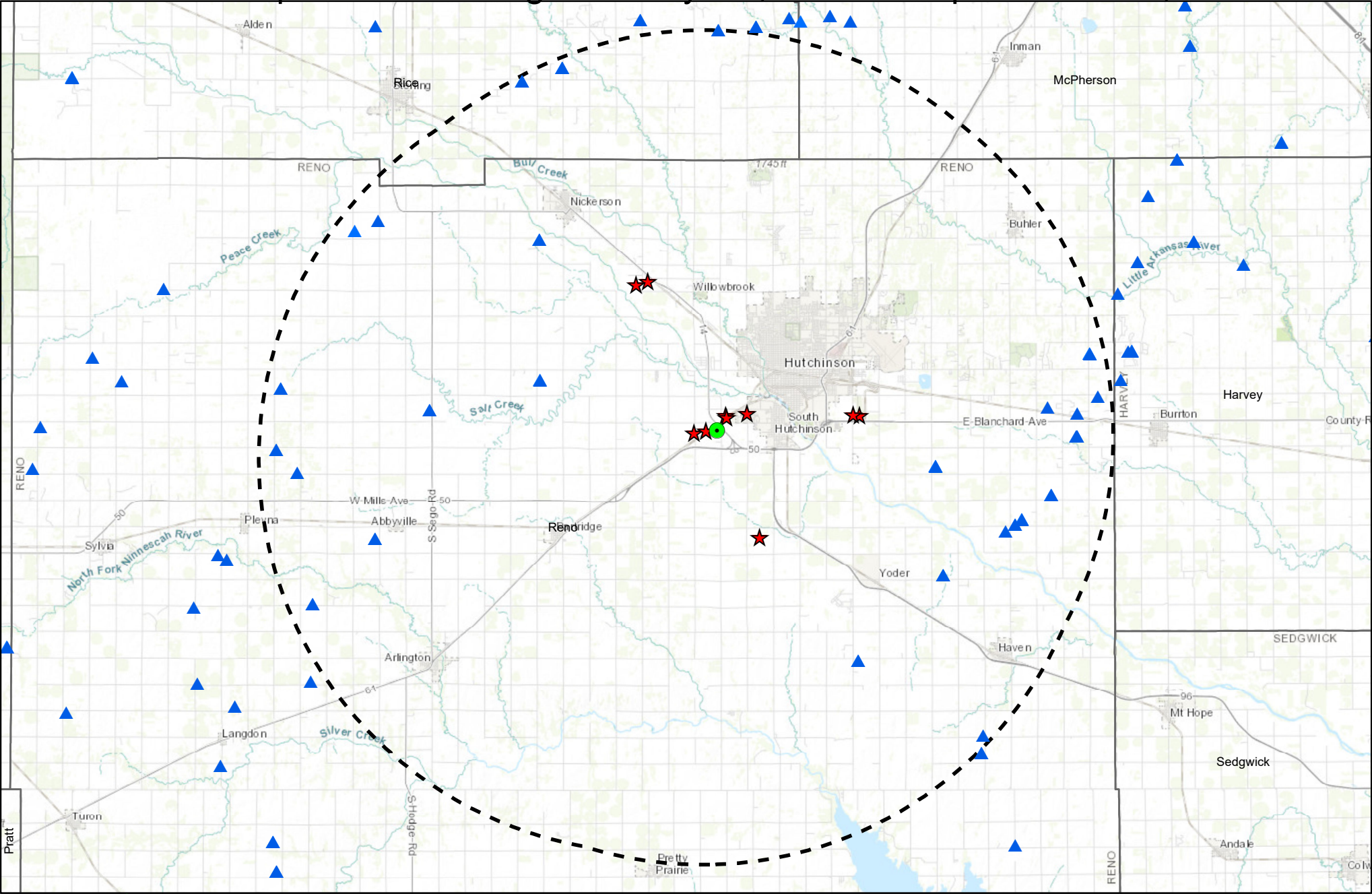
Staff has participated in several meetings of a group formed by Governor Kelly to study the Arbuckle. During these meetings the group has primarily discussed different data needs and made the decision to focus its initial efforts on the South Central Kansas region. The Chair of the Study Group presented a letter on the progress of the group to the Governor's Office on August 28, 2020.


Recommendation

At this time, Staff makes no recommendation for further Commission action related to the seismicity in Reno County based on the data discussed above. Staff will continue to monitor the injection and earthquake activity within the 15-mile investigation area and report on it to the Commission quarterly. Should either of these activities require immediate action, Staff will request the Commission take such action if the Commission does not take the action on its own motion.

Reno County Investigative Docket Area

With Earthquakes Occurring from July 1st, 2020 to September 29th, 2020





Earthquake Epicenters

Class I Arbuckle SWD Wells

Reno County 15-Mile Search Radius

Class II Arbuckle SWD Wells

Class II Granite Wash SWD Wells

0 1.25 2.5 5 7.5 10 Miles

N

Data Sources: ESRI, RBDMS, KGS, DASC, USGS, KDHE, KCC

Date: 09/29/2020