

Susan K. Duffy, Chair
Shari Feist Albrecht, Commissioner
Dwight D. Keen, Commissioner

Laura Kelly, Governor

FIRST QUARTER REPORT

To: Susan K. Duffy, Chair
Shari Feist Albrecht, Commissioner
Dwight D. Keen, Commissioner

From: Ryan A. Hoffman, Director, Conservation Division

Date: 5/18/2020

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 initial report, originally due March 31, 2020²; however, due to the ongoing public health emergency, the Commission extended Staff’s filing deadline to May 18, 2020.³

REPORT

A. Injection Volumes

This first quarter report will update information previously presented to the Commission regarding injection information for calendar year 2019. 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 2019 data was due to the Commission March 1, 2020. Staff has updated the information previously provided using data from the annual filings submitted in 2020. Further, Staff has updated Class I well injection information using monthly reports published on the Kansas Geological Survey’s website.⁴ The table on the following page was part of Staff’s presentation to

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

² *Id.*, ¶C, p. 2.

³ Docket No: 20-GIMX-393-MIS, ¶9(g), p. 5.

⁴ http://maps.kgs.ku.edu/kgs_web/injection/class1_permits.cfm

the Commission and has been filed in this docket as a visual filing; however, it now contains information for calendar year 2019.⁵

Class I and Class II Volume* Comparison for 15-mile Radius Surrounding Reno County Earthquakes Class I = 10 wells Class II = 25 wells				
Year	Class I Annual Volume	Class II Annual Volume	Class I Monthly Average	Class II Monthly Average
2015	20,051,154	14,842,795	1,670,929.46	1,236,899.58
2016	20,291,175	13,863,791	1,690,931.29	1,155,315.92
2017	19,524,792	14,081,320	1,627,065.97	1,173,443.33
2018	19,435,893	14,017,617	1,619,657.77	1,168,134.75
2019	19,684,173	12,940,497	1,640,347.75	1,078,374.75

* Volume is in barrels.

As Staff mentioned in its presentation to the Commission, the injection data for Class II wells in the 15-mile search radius surrounding the earthquake epicenters in Reno County continue 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. As noted earlier, the Class II injection well volume reports for calendar year 2020 are not due until March 1, 2021; however, Staff anticipates requesting a partial report for a future Quarterly Report in this docket.⁶

B. Earthquakes

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

Local Date and Time	Latitude	Longitude	Magnitude
JAN-19-2020, 01:08:43 PM	38.01819	-97.9868	7.1
JAN-27-2020, 02:44:22 AM	38.02807	-97.9742	2.2
FEB-07-2020, 11:51:52 AM	38.0204	-97.9798	2.3
MAR-04-2020, 03:07:09 AM	38.00602	-98.0028	2.4

⁵ Staff would note that the data for Class II wells for calendar year 2019 is still subject to review and may be updated in future reports.

⁶ Staff would also note that while Class I wells provide volume reports on a monthly basis, the KGS website did not have March reports for all ten of the Class I wells in the investigative search radius.

As a preliminary matter, Staff will work to verify the accuracy of the magnitude of the January 19, 2020 earthquake as it is clearly erroneous. The USGS National Earthquake Information Center lists this earthquake as a magnitude 4.5.⁷ Staff would also note that all four of the earthquakes are within the 15-mile investigation area and there have only been two within the search area since this docket was opened.

C. Additional Information

Staff would note that it 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.

Additionally, the Kansas Department of Health and Environment (KDHE) has provided Staff with more than 1,500 digital records for the Class I wells in Kansas. Staff is currently in the process of performing quality control and analysis on this data.

Recommendation

At this time, Staff makes no recommendation for further Commission action related to the seismicity in Reno County based on the data available. Staff will continue to monitor the injection and earthquake activity within the 15-mile investigation area. 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. Finally, Staff will update the information contained herein and supplement it as necessary on a quarterly basis as contemplated by the Commission's order in this docket.

⁷ <https://earthquake.usgs.gov/earthquakes/eventpage/us60007att/executive>