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Presentation of Kansas Corporation Commission Staff's Neutral Testimony
Concerning HB2641

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By

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Chairman Sloan, Vice Chair Rahjes, Ranking Minority Member Victors, and members of the committee, thank you for the opportunity to present testimony on behalf of staff of the Kansas Corporation Commission (Commission or KCC) concerning HB 2641.

The KCC has been actively involved in the induced seismicity issue in Kansas since 2014, when we were a part of Governor Brownback's Induced Seismicity Task Force. As part of this group, we worked with the Kansas Geological Survey (KGS) and the Kansas Department of Health and Environment (KDHE) to devise a response plan regarding induced seismicity which was delivered to the Governor in September of 2014.

In March 2015, in response to the increasing level of seismicity and the related imminent threat to health and safety of the citizens in the area, the Commission issued an Order reducing the daily injection rates for large volume Arbuckle formation wells in Harper and Sumner Counties. The Commission Order established a maximum injection rate of 25,000 barrels per well per day for approximately 74 Arbuckle disposal wells in these counties and identified five distinct Seismic Areas of Concern (SAC). The Order established a maximum injection rate of 8,000 barrels per well per day for 23 large volume Arbuckle disposal wells within the SACs. This daily limit was established based on historic disposal rates for the area before recorded seismicity. The SACs were established based upon the clustered earthquakes in the two counties, which identified potential linear features, or faults. The 23 large volume Arbuckle disposal wells within the SACs were required to verify their true vertical depth, and if the wells were completed deeper than the base of the Arbuckle, then the operators were required to plug the wells back up into the Arbuckle. Further, all of the large volume Arbuckle injection wells were required to submit monthly injection reports. A large volume Arbuckle injection well was defined as one permitted to inject more than 5,000 barrels per day.

In August 2016, the Commission issued another Order. In this 2016 Order, the Commission noted the decreasing number and magnitude of earthquakes within the SACs and the increasing number of micro-seismic earthquakes extending outward from them. The 2016 Order reduced

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daily maximum injection rates to 16,000 barrels per Arbuckle injection well per day for Harper, Sumner, and parts of Barber, Kingman, and Sedgwick Counties not included in the SACs.

These volume reductions, along with a decline in new drilling activity in these areas, have contributed to the reduction of felt earthquakes originating in Kansas in these areas. Further, an increased monitoring presence by the KGS has provided all parties with a better understanding of seismicity in these areas.

The above background demonstrates the Commission's commitment to addressing the induced seismicity issue in Kansas. Given this background, I would like to speak to several concerns I have with the HB 2641 as it is currently composed. First, the 8,000 barrel per well per day volume limitation within the SACs was appropriate because it was based on the evidence of disposal rates preceding the seismic activity and was limited to the areas where clustering of earthquakes occurred. The 16,000 barrel per well per day limitation was based on the spread of seismicity and targeted reducing then current injection and limiting prospective disposal activity in an attempt to stave off future induced seismicity. Further, these limits applied only to Arbuckle injection wells because of their proximity to the granite basement and faults therein. Staff believes establishing a statewide disposal limitation, absent a specific formation limitation and actual seismic hazard, is arbitrary and capricious because it is not supported by any evidence to be an appropriate disposal limitation for all formations statewide.

Additionally, staff believes the definition of injection disposal well to be confusing because it appears to implicate both disposal and injection wells. Based on the definition, staff believes it could reasonably apply the standards in HB 2641 to all 16,000+ injection wells in Kansas. The universe of Class II injection wells in Kansas includes both injection and disposal wells. The majority of the injection wells are used for the purpose of Enhanced Oil Recovery (EOR). These wells inject the produced water from the oil and then re-inject it into the same formation. This cycle of putting the water back into the same formation helps maintain the pressure necessary to sweep unproduced oil reserves to production wells. The water injected into these wells goes back to the formation from where it came and these wells have not been associated with induced seismicity in Kansas. Conversely, a disposal well is a well that injects water into a formation with no future prospect or use, such as EOR. Given this distinction, staff believes the restrictions in the bill are overbroad enough to include all injection wells, not just disposal wells.

Also, the definition of induced seismicity is problematic for several reasons. First, it would rely on the national monitoring system but does not identify with specificity which system it means. No matter the national network used, it still pales in comparison to the level of seismic data available from the local KGS statewide network. Staff believes it would be a disservice to rely on any lesser alternative because it would not be able to capture the micro-seismicity that the KGS network can. Secondly, the definition assumes an induced earthquake can be attributed to a single well. Staff would concede that there have been instances where a single well could be established as the cause of an earthquake in places other than Kansas; however, staff would note

to date it has been unable to attribute any earthquake to any specific well. Rather, staff believes the seismicity experienced in Kansas was a regional issue influenced by disposal practices associated with the Mississippi Lime Play. Staff further believes the induced seismicity issue in Kansas was primarily a result of the density of large volume Arbuckle disposal wells injecting large volumes of Mississippi formation water from a large area into a much smaller number of Arbuckle disposal wells.

Finally, staff would point to the issue of quarterly injection reporting as included in HB 2641 to note a few concerns. Currently, staff receives daily injection information for the large volume Arbuckle wells on a monthly basis, and staff believes this to be the best method to monitor disposal trends among the largest disposal wells in areas where seismicity occurs. This requirement is in addition to the annual reporting currently required by Commission regulation K.A.R. 82-3-409. The majority of Class II injection wells in Kansas are not disposal wells and do not inject/dispose of large volumes. Requiring this information to be filed for every disposal well (or perhaps even every injection well) quarterly would be of little utility to staff and could impose an unnecessary burden on operators. Further, injection data is currently reported electronically via the Kansas On-Line Automated Reporting (KOLAR) system. Staff works with KGS programmers annually to establish a priority listing and fee schedule to update this system. This reporting change could have significant fiscal impacts on the KCC because staff estimates it would require the addition of at least one full time employee not currently in the budget who would have to be responsible for processing these forms. There would also be an additional fiscal impact because the KCC would be required to pay for the unbudgeted programming changes to the current filing system. Given the limited resources available, staff believes KOLAR programming dollars could be more efficiently spent on other, currently negotiated matters.

Thank you for the opportunity to speak to you today and I will gladly stand for questions at the appropriate time.