

**THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

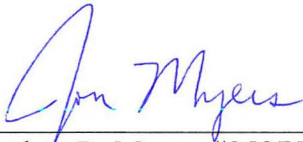
Before Commissioners: Jay Scott Emler, Chairman
 Shari Feist Albrecht
 Pat Apple

In the Matter of an Order Reducing Saltwater) Docket No.: 15-CONS-770-CMSC
Injection Rates into the Arbuckle Formation,)
Applicable to Wells in Defined Areas of) CONSERVATION DIVISION
Increased Seismic Activity in Harper and)
Sumner Counties.)

REPORT AND RECOMMENDATION OF COMMISSION STAFF

The Commission's October 29, 2015, Order in this docket directed Staff to submit a report and recommendation on or before March 13, 2016. Pursuant to that Order, Staff submits the attached report and recommendation.

Respectfully submitted,



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Phone: 316-337-6200; Fax: 316-337-6106

**REPORT AND RECOMMENDATION
CONSERVATION DIVISION**

To: Chairman Jay Scott Emler
Commissioner Shari Feist Albrecht
Commissioner Pat Apple

From: Ryan A. Hoffman, Director, Conservation Division

Date: 2/19/16

Re: Staff Recommendation Docket No. 15-CONS-770-CMSC

SUBJECT:

15-CONS-770-CMSC: In the Matter of an Order Reducing Saltwater Injection Rates into the Arbuckle Formation, Applicable to Wells in Defined Areas of Increased Seismic Activity in Harper and Sumner Counties.

EXECUTIVE SUMMARY:

Staff recommends continuing the injection limitations currently implemented in this docket and expanding their geographic scope.

BACKGROUND:

The Commission issued the initial Order in this Docket on March 19, 2015, citing the correlation between increased seismicity and large-volume Arbuckle saltwater disposal wells. The Order contained an overall maximum per well daily allowable for Arbuckle disposal of 25,000 barrels per day and identified five areas of concern necessitating further volume restrictions. These restrictions were phased in over a 100-day period with a built-in 80-day observation period. Additionally, the Order required wells drilled deeper than the Arbuckle to be plugged back, under staff supervision, and mandated monthly reporting for all Arbuckle disposal wells with permits allowing for more than 5,000 barrels of saltwater disposal per day. Citing data that was encouraging but inconclusive, staff requested a 180-day extension of the limitations set forth in the Order to further observe seismic activity. The Commission granted staff's motion to extend the limitations and directed staff to have a recommendation in place prior to the passage of the 180-day monitoring period. During the time frame these volume restrictions have been in place, there has been a modest reduction in the overall seismic activity recorded by the United States' Geological Survey National Earthquake Information Center (NEIC). The NEIC reported 136 earthquakes in the 180 days prior to the Order in this

docket and 85 earthquakes in the first 180 days after the Order was issued. There were also fewer large earthquakes after the Order, as the number of M 3.0 or greater earthquakes decreased from 44 in the 180 days before to 23 in the 180 days after. Since the extension of the Order (153 days at the time of drafting), there have been 70 earthquakes, 15 of which were M 3.0 or greater.

2015 marked the first year Kansas had an enhanced seismic monitoring network in place to observe the activity in south-central Kansas. This KCC/KGS network was able to provide more detailed and specific information regarding seismic activity in the region because it has allowed researchers and staff to see much smaller seismic events and trends than are recorded by the NEIC. The more precise information obtained using this network has factored into staff's recommendation.

ANALYSIS:

K.S.A. 2014 Supp. 77-536(a) gives the agency the authority to act when there is “an immediate danger to the public health, safety or welfare requiring immediate state agency action” or “as otherwise provided by law.”

K.S.A. 55-162(b) gives the Commission the authority to issue orders “[i]f it appears to the commission that damage may result if immediate remedial action is not taken.”

Paragraph E of the original Order and Paragraph D of the Order Extending the volume restrictions provide the Commission with the authority to enter additional orders in this Docket as deemed appropriate.

STAFF'S ANALYSIS:

Based on publically available information on the USGS NEIC website, the number of felt¹ earthquakes in Harper and Sumner County has decreased with each successive timeframe since the Commission's Order. In the 180 days prior to the Order, the NEIC indicates 107 M 2.5 or greater earthquakes with 44 being M 3.0 or greater and four greater than M 4.0. In the 180 days after the Commission Order, there were 65 M 2.5 or greater earthquakes with 23 registering M 3.0 or greater and one M 4.1. From September 15, 2015 until February 15, 2016, there have been 52 M 2.5 or greater earthquakes with 14 measuring M 3.0 or greater and zero M 4.0 or larger. While the number of felt earthquakes recorded by the NEIC have modestly decreased and become weaker in magnitude over the timeframe the restrictions have been in place in this docket, the number of earthquakes recorded by the KCC/KGS network increased over the second half of 2015. It is important to note the final volume reduction within the areas of seismic concern occurred on June 27, 2015.

The KCC/KGS network recorded 4,785 earthquakes statewide ranging from M 0.0 to M 3.7. Eighty-five percent of the earthquakes occurred in Harper and Sumner County, Kansas.² This network recorded 1,690 earthquakes in Kansas from January 2015 through

¹ Felt earthquakes are generally M 2.5 or greater. [Kansas Seismic Action Plan](#), p. 1, citing Hayes, 2012.

² KGS presentation to the House Standing Committee on Energy and Environment, Buchanan and Miller, January 20, 2016. A copy of the full presentation is included as Exhibit A.

June 2015, with 1,206 located within the areas of seismic concern.³ Only 79 of the 1,206 earthquakes were M 2.5 or larger.⁴ This means over the first half of 2015 71% of the earthquakes occurred within the seismic concern areas and 7% of those earthquakes recorded at the level to potentially be felt.

From July 2015 through December 2015 there were 3,085 earthquakes in Kansas, with 1,174 occurring within the zones of seismic concern.⁵ Only 23 of the 1,174 earthquakes were M 2.5 or larger.⁶ This means 38% of the earthquakes recorded by this network in the second half of 2015 occurred within the seismic concern areas and 2% of these earthquakes were at a level to potentially be felt.⁷

This data supports the encouraging preliminary conclusion that volume reductions are impacting the seismicity in the counties subject to the Order. Further, the reduction in the amount of energy released by the earthquakes, about half from July 2015 to December 2015 when compared with January 2015 to June 2015, is another positive sign the volume reductions should continue.⁸ However, the increase in seismicity outside the areas subject to the volume reductions, while not consisting of larger magnitude earthquakes at this time, is concerning to staff. The earthquakes are also continuing to cluster similarly to the manner in which they did prior to staff's earlier recommendation in this docket. The cluster and cloud-like patterns of earthquakes were the basis for staff's recommendation in the original Order in this docket. Based on the new data, staff recommends a proposed area of reduction (PAR) to replace the current Areas of Seismic Concern subject to the conditions described below.⁹

RECOMMENDATION:

- 1) All Arbuckle injection wells in Harper and Sumner County should remain capped at a daily maximum injection allowable of 25,000 barrels per well per day.
- 2) Monthly reporting of daily data should remain in effect for all Arbuckle injection wells in Harper and Sumner County permitted for greater than 5,000 barrels per day.
- 3) Operators of all Arbuckle injection wells permitted for greater than 5,000 barrels per day in the PAR portions of Barber, Kingman, and Sedgwick Counties should be required to keep daily injection records and provide them monthly no later than the eighth day of the succeeding month, on a form developed by staff.
- 4) Wells currently subject to enhanced reductions should remain at a maximum daily injection allowable of 8,000 barrels per day.
- 5) All Arbuckle injection wells located within the PAR, but outside of the original areas of concern should be subject to the following scheduled reductions:
 - a) 16,000 barrels per day per well within 10 days of the Order in this docket.
 - b) 12,000 barrels per day per well within 55 days of the Order in this docket.

³ Id.

⁴ Id.

⁵ Id.

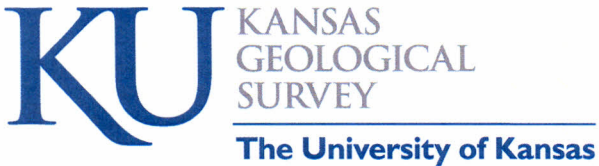
⁶ Id.

⁷ See attached Exhibits B and C.

⁸ Id.

⁹ The PAR is outlined on the map attached as Exhibit D to this recommendation. The locations comprising the PAR are included on Exhibit E.

- c) 8,000 barrels per day per well within 100 days of the Order in this docket.
- 6) The wells subject to these recommended provisions are attached as Exhibit F.
- 7) Staff should monitor the activity in conjunction with KGS and KDHE through the remainder of 2016.
- 8) The reductions should remain in place without further Order or extension.
- 9) Staff should make a further recommendation within 365 days from the date of the Commission's Order.



TESTIMONY

House Standing Committee on Energy and Environment
Rex Buchanan, Interim Director
Kansas Geological Survey
20 January 2016

Mr. Chairman, Members of the Committee:

My name is Rex Buchanan. I am the interim director of the Kansas Geological Survey, a research and service division of the University of Kansas. I also chair the state's task force on induced seismicity. I am here today to provide a brief update on the issue of seismicity in Kansas and to answer questions.

As you know, induced seismicity is generally defined as earthquakes that are caused by human activity. The consensus within the scientific community is that the recent increase in seismicity in the midcontinent, including Kansas, is generally related to increases in the disposal of saltwater produced along with oil and gas. A handful of midcontinent earthquakes have been attributed directly to hydraulic fracturing, but to the best of our knowledge, no Kansas earthquakes have been directly caused by hydraulic fracturing. Instead, the issue appears to be one of disposal of large volumes of saltwater that has activated critically stressed faults in the deep subsurface.

Since we appeared before you last year, there have been a number of developments. Working with the Kansas Corporation Commission, the KGS has established a temporary seismic array for the monitoring of earthquakes in south-central Kansas. Dr. Richard Miller from our staff will brief you on the results of that monitoring. In March 2015 the KCC issued an order that, among other things, resulted in a staged reduction in the volume of saltwater being disposed of in five zones of seismic concern in Harper and Sumner counties. Ryan Hoffman, head of the KCC oil and gas division, will update you on that.

In the past year, we've seen a significant reduction in larger earthquakes (>2.7) with epicenters in Kansas, as shown on the attached graph of earthquakes reported by the U.S. Geological Survey's National Earthquake Information Center. There were about 60% fewer earthquakes of Magnitude 2.7 and larger in the last six months of 2015 compared to the last six months of 2014. We have discussed the possible reasons for this reduction, including the KCC order and the slow-down in exploration, production, and saltwater disposal that has resulted from low oil prices. At the same time, smaller earthquakes (<2.0) have not decreased, but appear to be increasing.

The KGS, the KCC, and Kansas Department of Health and Environment staff have been in regular, close contact throughout the past two years. This is a challenging issue, but I believe these organizations have worked it cooperatively and effectively. At the same

TESTIMONY
House Standing Committee on Energy and Environment
Rex Buchanan, Kansas Geological Survey
20 January 2016
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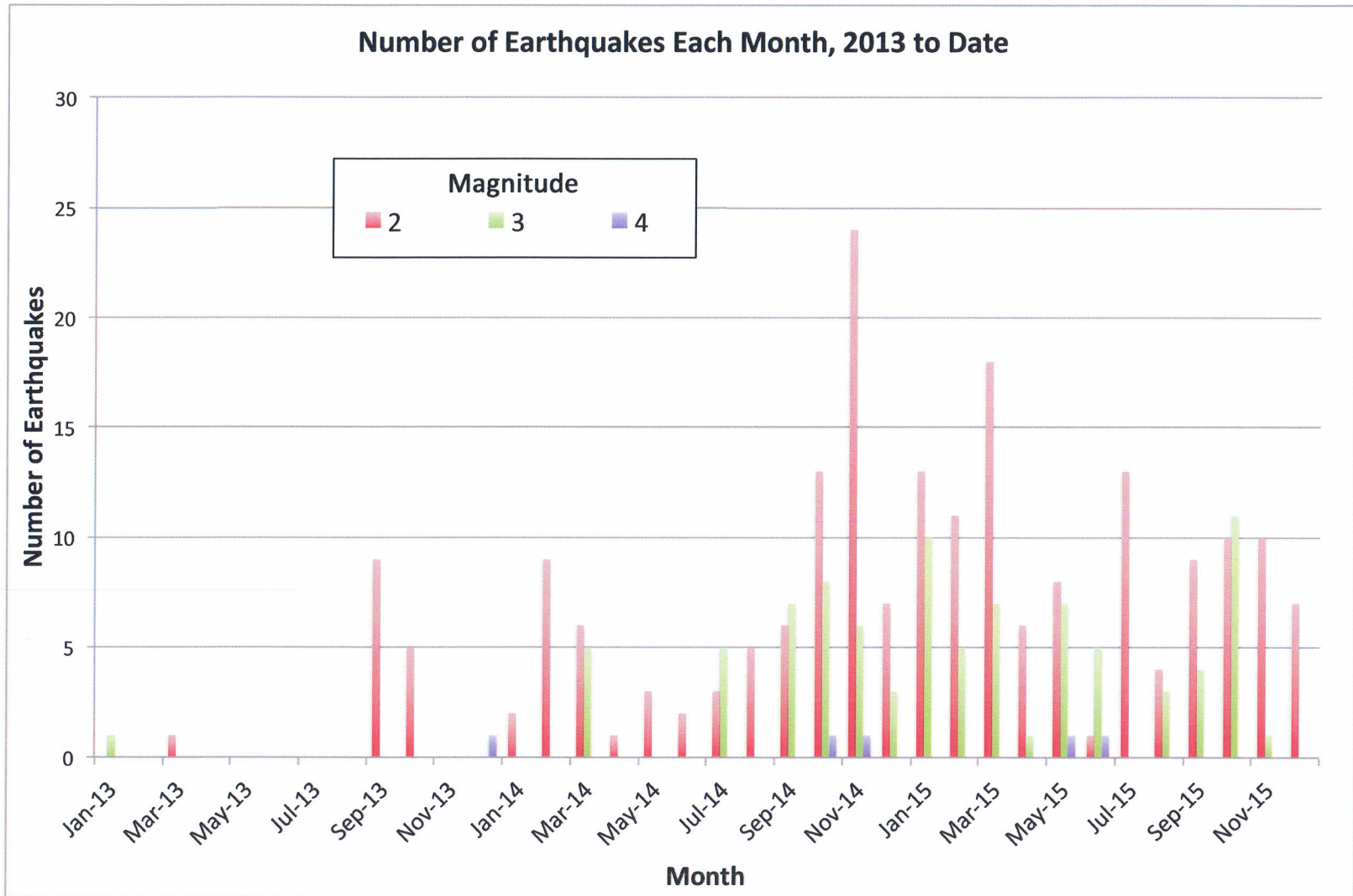
time, we have learned as much as possible from other organizations and localities that are studying induced seismicity. In the past year, we hosted presentations and conversations with representatives from ExxonMobil, Pioneer Natural Resources, the U.S. Geological Survey, and other state geological surveys, all of which are studying induced seismicity in the midcontinent. We have talked with researchers at the Stanford University Center for Induced and Triggered Seismicity, an industry-funded consortium that has a long history of research into rock mechanics and induced seismicity. Both the KGS and the KCC were involved in a national effort by the Interstate Oil and Gas Compact Commission and the Groundwater Protection Council to develop information on induced seismicity for state regulators. Kansas efforts to mitigate seismicity have been informed by all these conversations.

We've also worked hard to provide regular updates and listen to concerns within the state. We've met regularly with the Governor and the Harper County Commission, and we've spoken to a number of state organizations, including engineering, insurance, and environmental groups, the Kansas Independent Oil and Gas Association, and the Kansas Geological Society. We have also begun conversations with the Kansas Water Office and others about possible reuse and recycling of saline water produced from oil and gas wells.

Our understanding of this issue is significantly better today than it was a year ago. I believe that we have made significant progress. Having said that, the issue has not gone away and there is no reason to expect that it will. We continue to have small magnitude earthquakes. The conventional wisdom in the scientific community is that it took years for this issue to develop, and it will take significant time to remediate it. And while oil prices are currently low, we know that they will recover, that new technologies will be brought to bear on exploration and production. We view this as a long-term issue that requires ongoing monitoring and response. I would hope that you all view it that way too.

Thank you for the opportunity to appear before you today.

Exhibit A



Kansas Earthquake Activity in 2015

Kansas Geological Survey

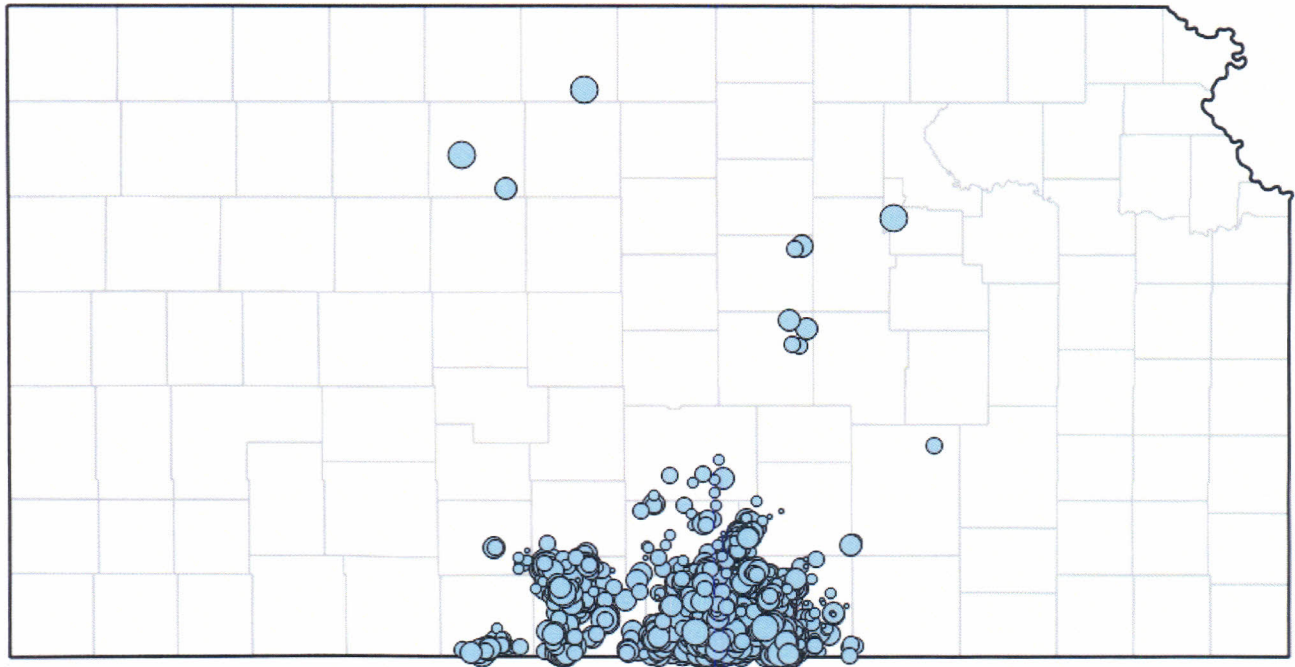


Figure 1. 4785 earthquakes ranging from magnitude 0.0 to 3.7 were located by the KCC/KGS network in Kansas in 2015. Eighty-five percent of the earthquakes occurred in Harper and Sumner counties.

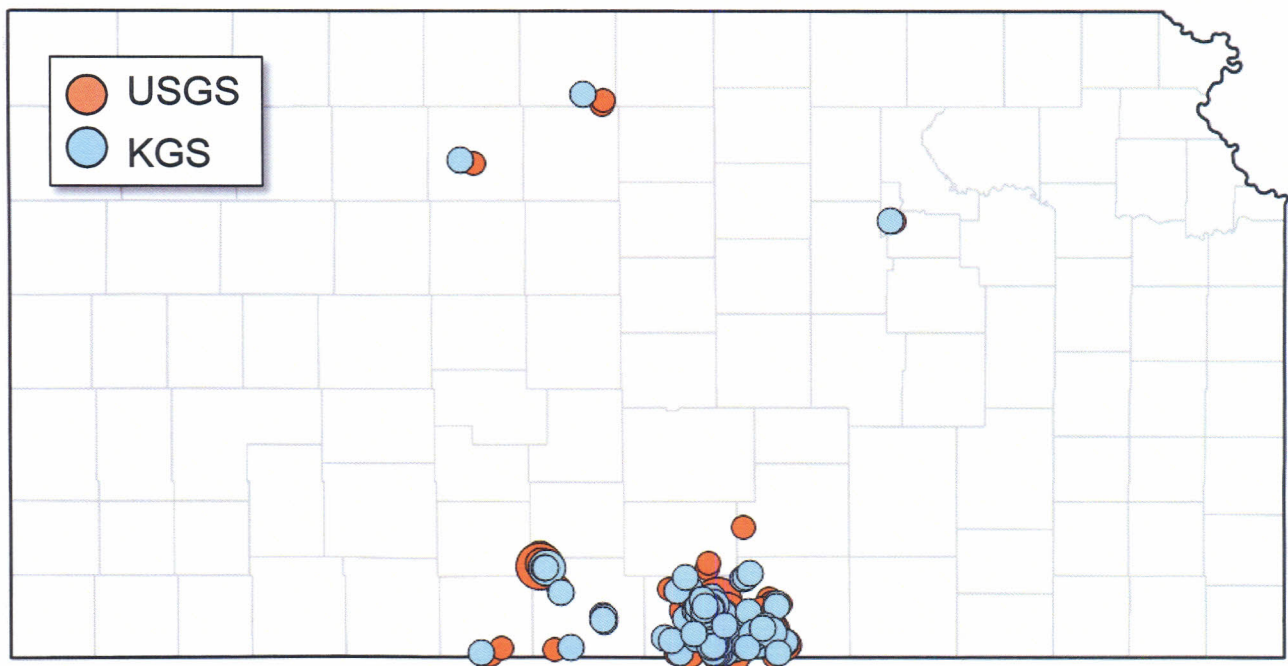


Figure 2. Earthquakes reported by the USGS (orange, 172) and KGS (blue, 148) with magnitude 2.5 or greater. Locations of earthquakes of this size reported by both agencies are generally consistent.

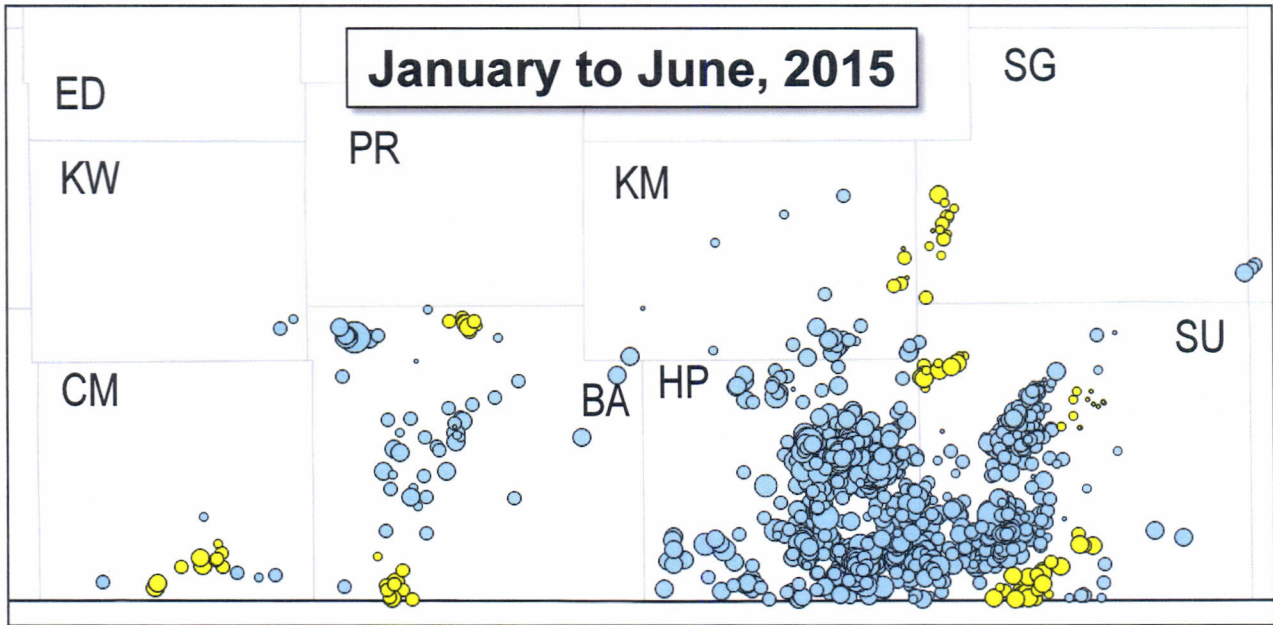


Figure 3. 1690 earthquakes were located by the KCC/KGS network in south-central Kansas from January to June, 2015. Yellow indicates areas with very little activity during the first half of the year that increased significantly during the second half of the year.

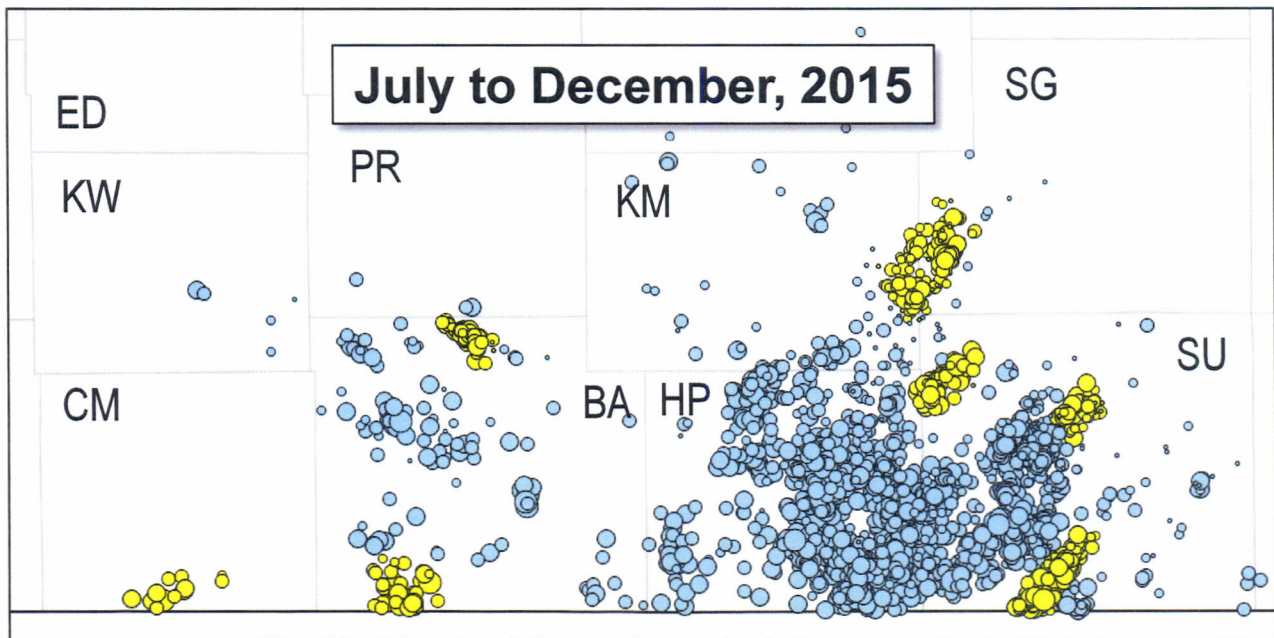


Figure 4. 3085 earthquakes were located by the KCC/KGS network in south-central Kansas from July to December, 2015. Yellow indicates cluster areas with very little activity during the first half of the year that increased significantly during the second half of the year.

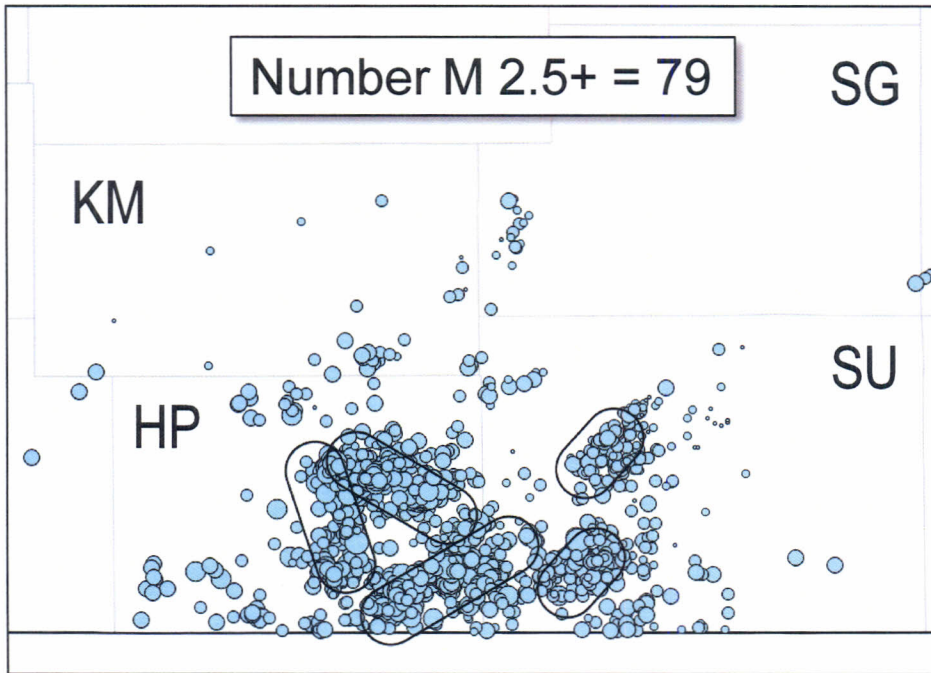


Figure 5. Of the 1690 earthquakes that occurred in Kansas from January to June 2015, 1206 were located within the areas of seismic concern where the KCC ordered a reduction in saltwater disposal volumes.

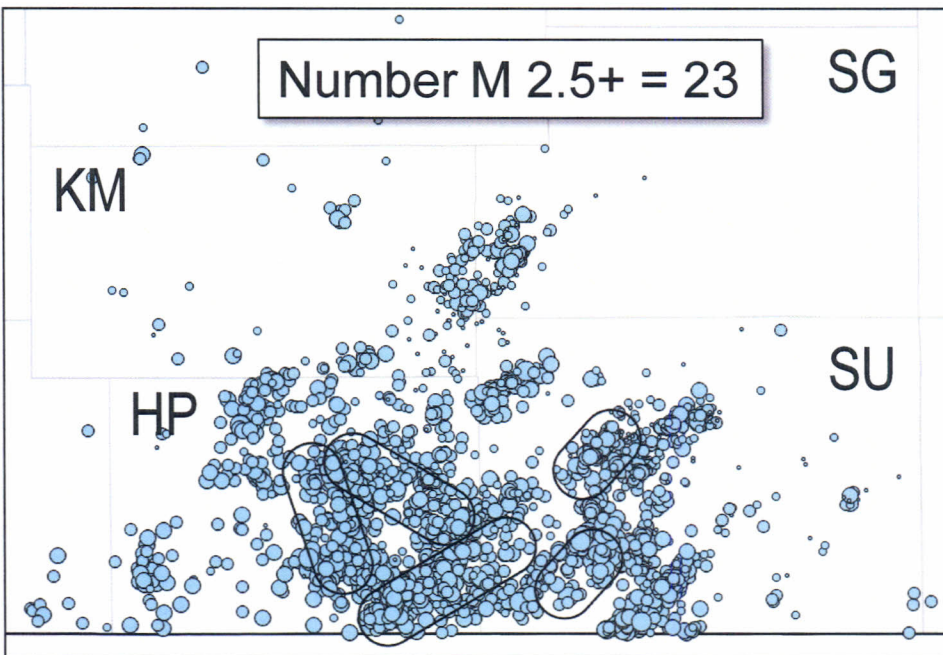


Figure 6. Of the 3085 earthquakes recorded in Kansas from July to December 2015, 1174 were located within the areas of seismic concern.

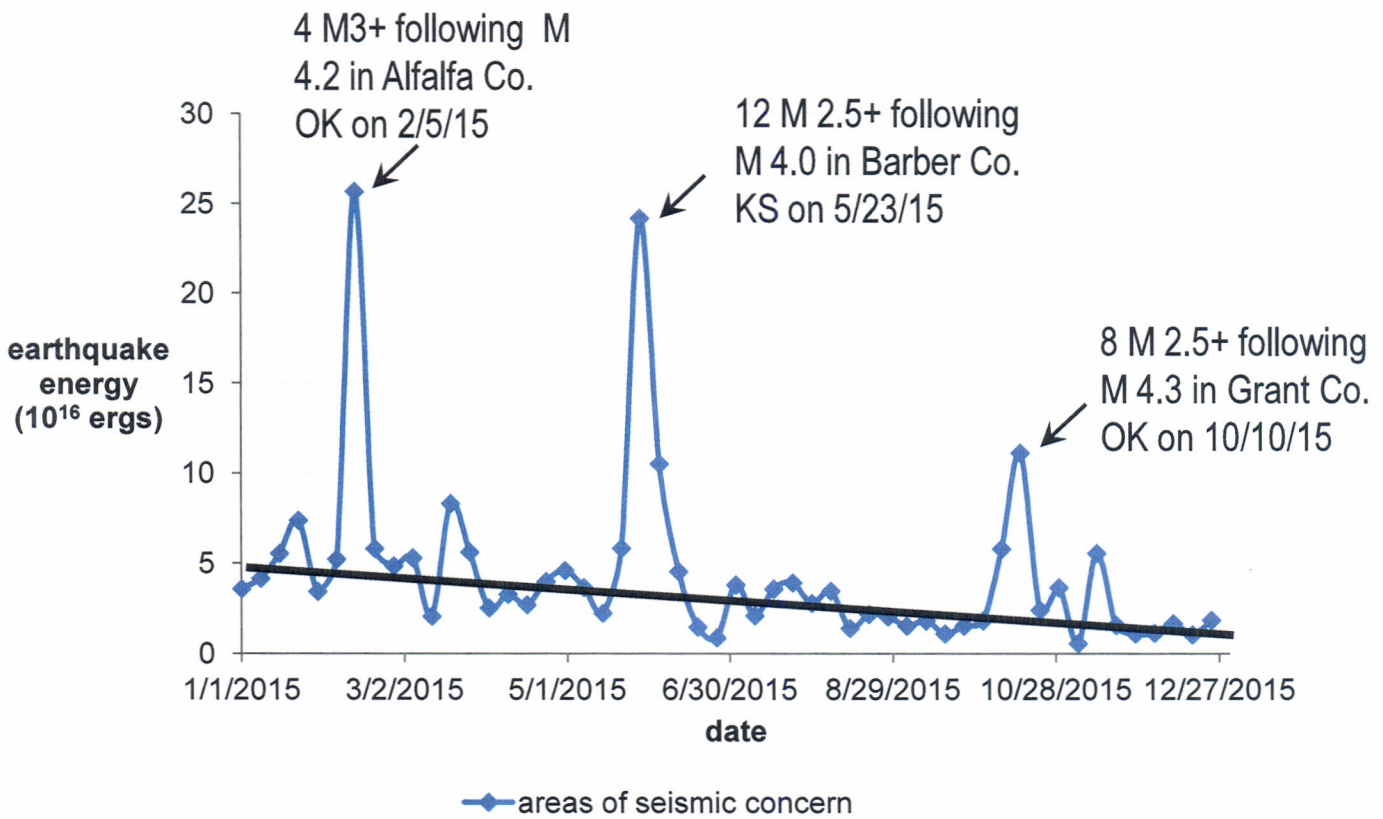


Figure 7. Total earthquake energy per week in the areas of seismic concern in 2015. Weeks with a large amount of energy typically followed a large event in neighboring Kansas and Oklahoma counties in the preceding days. Earthquake energy from July to December energy is approximately half that observed from January to June.

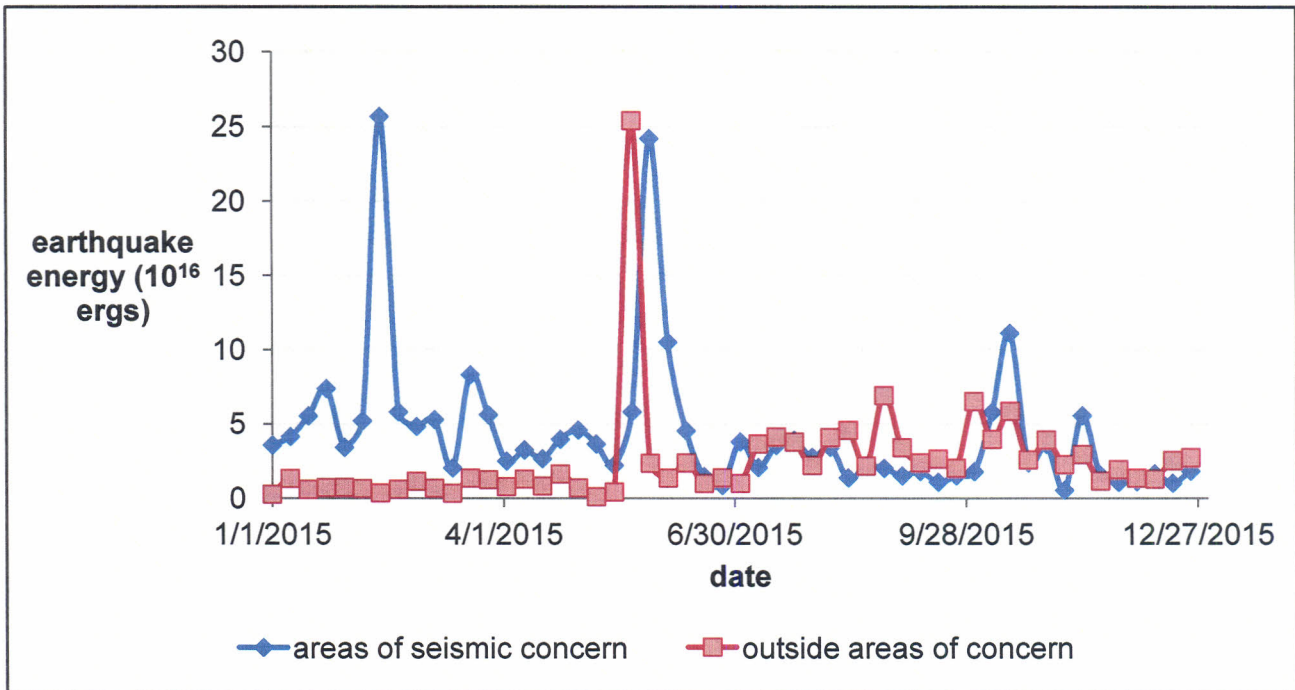


Figure 8. Total earthquake energy per week in the areas of seismic concern (blue) and in the rest of the state of Kansas (red).

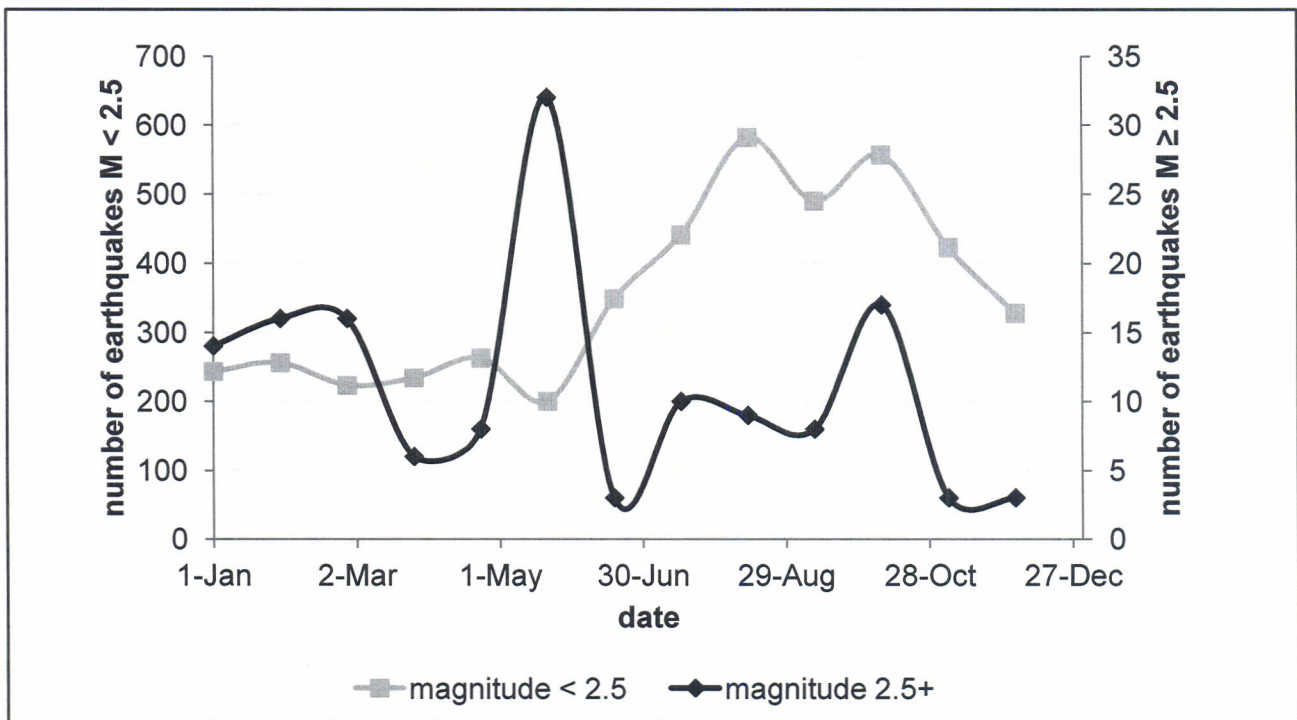


Figure 9. Number of earthquakes in Kansas with magnitude less than 2.5 (gray) and magnitude 2.5 or greater (black) per week.

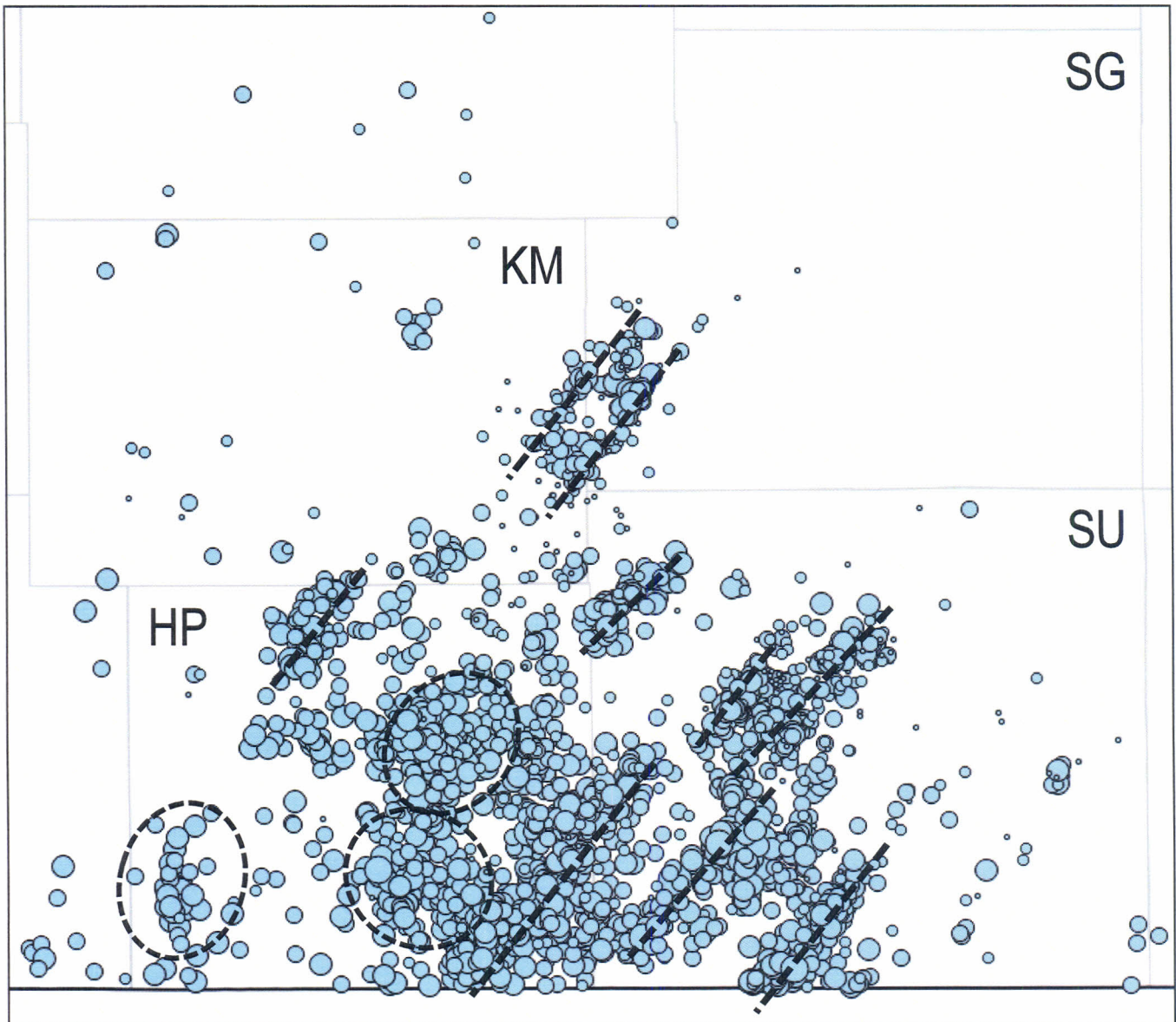
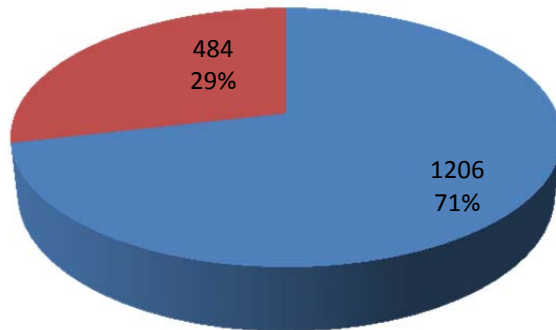


Figure 10. Earthquakes recorded south-central Kansas from July to December 2015. Patterns of earthquake epicenters are generally a combination of cloud-like (dashed circles) and linear (dashed lines), typically but not always with a northeast-southwest trend.

Exhibit B

KCC/KGS Network Earthquakes 1/1/15-6/30/15

■ Inside Zones ■ Outside Zones



KCC/KGS Network Earthquakes 7/1/15-12/31/15

■ Inside Zones ■ Outside Zones

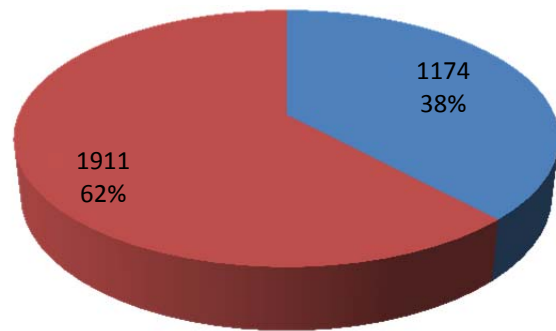
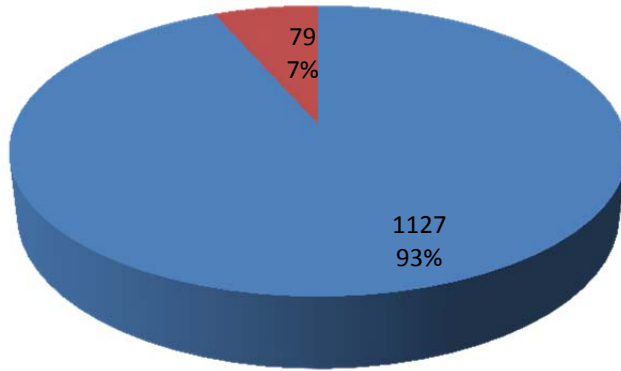


Exhibit C

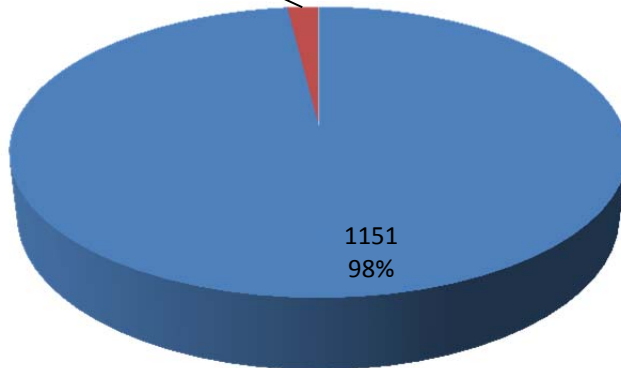
KCC/KGS Network Earthquakes Inside Zones 1/1/15-6/30/15

■ <M 2.5 ■ ≥ M 2.5

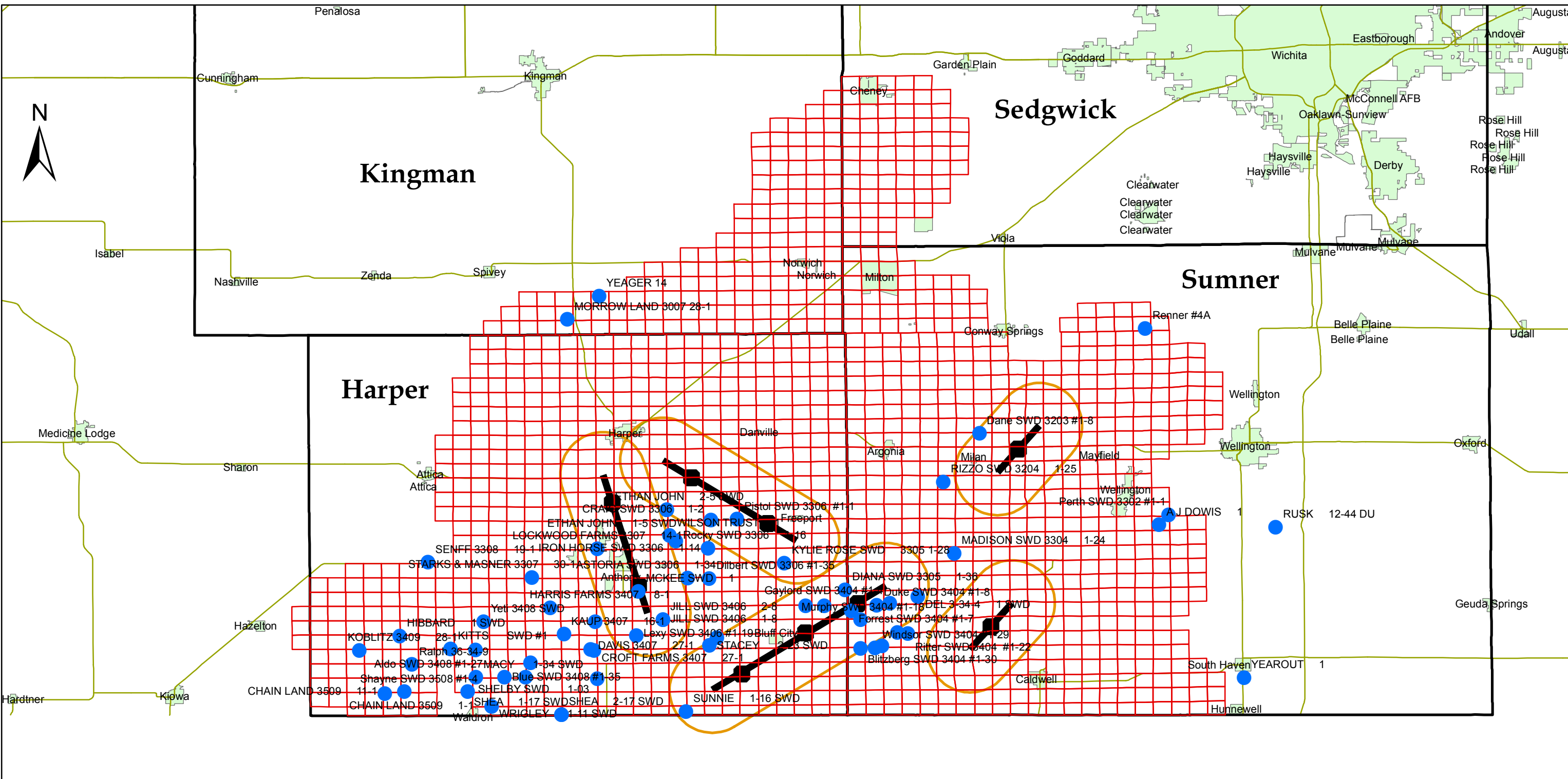


KCC/KGS Network Earthquakes Inside Zones 7/1/15-12/31/15

■ 23 2% ■ < M 2.5 ■ ≥ M 2.5



Large Volume Arbuckle Injection Wells



Arbuckle Disposal Wells

- Arbuckle Wells over 5000 Barrels
- Proposed Area of Reduction
- Area of Seismic Concern Boundary

Exhibit E

Section	Township	Range
19	28	3
30	28	3
31	28	3
2	28	4
3	28	4
4	28	4
5	28	4
6	28	4
7	28	4
8	28	4
9	28	4
10	28	4
11	28	4
12	28	4
13	28	4
14	28	4
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27	28	4
28	28	4
29	28	4
30	28	4
31	28	4
32	28	4

Section	Township	Range
33	28	4
34	28	4
35	28	4
36	28	4
12	28	5
13	28	5
14	28	5
21	28	5
22	28	5
23	28	5
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4	29	4
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7	29	4
8	29	4
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10	29	4
11	29	4
12	29	4

Section	Township	Range
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14	29	4
15	29	4
16	29	4
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19	29	4
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Section	Township	Range
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31	30	3
32	30	3

Exhibit E

Section	Township	Range
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5	30	4
6	30	4
7	30	4
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9	30	4
10	30	4
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32	30	4
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36	30	4
1	30	5
2	30	5
3	30	5

Section	Township	Range
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5	30	5
6	30	5
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1	30	6

Section	Township	Range
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3	30	6
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Section	Township	Range
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33	31	1
1	31	2
2	31	2
3	31	2

Exhibit E

Section	Township	Range
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34	31	2
35	31	2
36	31	2
4	31	3

Section	Township	Range
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6	31	3
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8	31	3
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5	31	4

Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit E

Section	Township	Range
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Section	Township	Range
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Section	Township	Range
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Exhibit F

API Number	Injection Permit	Well Name	County	Operator
15-191-01384-00-02	D31324.0	A J DOWIS 1	Sumner	Stratex Oil & Gas
15-077-21768-00-00	D31025.0	ALBRIGHT CROFT 3407 15-1	Harper	Tapstone Energy, LLC
15-077-22037-00-00	D31895.0	Aldo SWD 3408 #1-27	Harper	SandRidge Exploration and Production LLC
15-077-21972-00-00	D31716.0	ASTORIA SWD 3306 1-34	Harper	SandRidge Exploration and Production LLC
15-191-22721-00-00	D31842.0	Blitzberg SWD 3404 #1-30	Sumner	SandRidge Exploration and Production LLC
15-077-22001-00-00	D31809.0	Blue SWD 3408 #1-35	Harper	SandRidge Exploration and Production LLC
15-077-21871-00-00	D31375.0	CHAIN LAND 3509 1-1	Harper	Tapstone Energy, LLC
15-077-21808-00-00	D31160.0	CHAIN LAND 3509 11-1	Harper	Tapstone Energy, LLC
15-077-21980-00-00	D31794.0	CRAIG SWD 3306 1-2	Harper	SandRidge Exploration and Production LLC
15-077-21842-00-00	D31392.0	CROFT FARMS 3407 27-1	Harper	Tapstone Energy, LLC
15-077-21807-00-00	D31197.0	CROFT FARMS 3407 30-1	Harper	Tapstone Energy, LLC
15-191-22726-00-00	D31889.0	Dane SWD 3203 #1-8	Sumner	SandRidge Exploration and Production LLC
15-077-21792-00-00	D31095.0	DAVIS 3407 27-1	Harper	Tapstone Energy, LLC
15-191-22625-00-00	D30899.0	DEL 3-34-4 1 SWD	Sumner	Chesapeake Operating, Inc.
15-077-21988-00-00	D31800.0	DIANA SWD 3305 1-36	Harper	SandRidge Exploration and Production LLC
15-077-22002-00-00	D31808.0	Dilbert SWD 3306 #1-35	Harper	SandRidge Exploration and Production LLC
15-191-22729-00-00	D31920.0	Duke SWD 3404 #1-8	Sumner	SandRidge Exploration and Production LLC
15-077-21798-00-00	D31069.0	ETHAN JOHN 1-5 SWD	Harper	SandRidge Exploration and Production LLC
15-077-21799-00-00	D31070.0	ETHAN JOHN 2-5 SWD	Harper	SandRidge Exploration and Production LLC
15-077-22016-00-00	D31850.0	Evan B SWD 3405 #1-11	Harper	SandRidge Exploration and Production LLC
15-191-22730-00-00	D31919.0	Forrest SWD 3404 #1-7	Sumner	SandRidge Exploration and Production LLC
15-191-22717-00-00	D31817.0	Gaylord SWD 3404 #1-4	Sumner	SandRidge Exploration and Production LLC
15-077-21845-00-00	D31290.0	HARRIS FARMS 3407 8-1	Harper	Tapstone Energy, LLC
15-077-21719-00-00	D30773.0	HIBBARD 1 SWD	Harper	Woolsey Operating Company, LLC
15-077-21973-00-00	D31711.0	IRON HORSE SWD 3306 1-14	Harper	SandRidge Exploration and Production LLC
15-077-21910-00-00	D31477.0	JILL SWD 3406 1-8	Harper	SandRidge Exploration and Production LLC
15-077-21926-00-00	D31580.0	JILL SWD 3406 2-8	Harper	SandRidge Exploration and Production LLC
15-191-22681-00-01	D31585.0	JUNEBUG SWD 3404 1-20	Sumner	SandRidge Exploration and Production LLC
15-077-21884-00-00	D31502.0	KAUP 3407 16-1	Harper	Tapstone Energy, LLC
15-191-22736-00-00	D31924.0	Kingston SWD 3404 #1-16	Sumner	SandRidge Exploration and Production LLC
15-077-21827-00-01	D31775.0	KITTS SWD #1	Harper	SandRidge Exploration and Production LLC
15-077-21854-00-00	D31414.0	KOBLITZ 3409 28-1	Harper	Tapstone Energy, LLC
15-077-21870-00-00	D31341.0	KYLIE ROSE SWD 3305 1-28	Harper	SandRidge Exploration and Production LLC
15-077-22034-00-00	D31890.0	Lexy SWD 3406 #1-19	Harper	SandRidge Exploration and Production LLC
15-077-21762-00-00	D30995.0	LOCKWOOD FARMS 3307 14-1	Harper	Tapstone Energy, LLC
15-077-21770-00-00	D31047.0	MACY 1-34 SWD	Harper	SandRidge Exploration and Production LLC
15-191-22686-00-00	D31586.0	MADISON SWD 3304 1-24	Sumner	SandRidge Exploration and Production LLC
15-077-01045-00-02	D28225.0	MCKEE SWD 1	Harper	SandRidge Exploration and Production LLC
15-095-22237-00-00	D31064.0	MORROW LAND 3007 28-1	Kingman	Tapstone Energy, LLC
15-191-22733-00-00	D31921.0	Murphy SWD 3404 #1-18	Sumner	SandRidge Exploration and Production LLC
15-191-22699-00-01	D31859.0	Perth SWD 3302 #1-1	Sumner	SandRidge Exploration and Production LLC
15-077-22044-00-00	D31944.0	Pistol SWD 3306 #1-1	Harper	SandRidge Exploration and Production LLC
15-077-22115-00-00	D27137.1	Ralph 36-34-9	Harper	Tapstone Energy, LLC
15-191-22754-00-00	D31902.0	Renner #4A	Sumner	Jolen Operating Company
15-191-22722-00-00	D31894.0	Ritter SWD 3404 #1-22	Sumner	SandRidge Exploration and Production LLC
15-191-22682-00-00	D31584.0	RIZZO SWD 3204 1-25	Sumner	SandRidge Exploration and Production LLC
15-077-21848-00-00	D31223.0	ROBIN 36-34-8 SWD 1	Harper	SandRidge Exploration and Production LLC
15-077-22086-00-00	D32007	Rocky SWD 3306 1-16	Harper	SandRidge Exploration and Production LLC
15-191-22646-00-00	D31147.0	RUSK 12-44 DU	Sumner	Source Energy MidCon LLC
15-077-22014-00-00	D31824.0	Saratoga SWD 3405 #1-10	Harper	SandRidge Exploration and Production LLC
15-077-21748-00-00	D30967.1	SEFFF 3308 19-1	Harper	Tapstone Energy, LLC
15-077-22015-00-00	D31834.0	Shayne SWD 3508 #1-4	Harper	SandRidge Exploration and Production LLC

Exhibit F

API Number	Injection Permit	Well Name	County	Operator
15-077-21781-00-00	D31002.0	SHEA 1-17 SWD	Harper	SandRidge Exploration and Production LLC
15-077-21782-00-00	D31001.0	SHEA 2-17 SWD	Harper	SandRidge Exploration and Production LLC
15-077-21839-01-00	D31188.0	SHELBY SWD 1-03	Harper	SandRidge Exploration and Production LLC
15-077-21767-00-00	D31006.0	STACEY 1-23 SWD	Harper	SandRidge Exploration and Production LLC
15-077-21777-00-00	D31007.0	STACEY 2-23 SWD	Harper	SandRidge Exploration and Production LLC
15-077-21755-00-00	D30994.0	STARKS & MASNER 3307 30-1	Harper	Tapstone Energy, LLC
15-077-21779-00-00	D31010.0	SUNNIE 1-16 SWD	Harper	SandRidge Exploration and Production LLC
15-077-00146-00-01	D27884.0	WILSON TRUST 1	Harper	SandRidge Exploration and Production LLC
15-191-22739-00-00	D31943.0	Windsor SWD 3404 #1-29	Sumner	SandRidge Exploration and Production LLC
15-077-21849-00-00	D31059.0	WRIGLEY 1-11 SWD	Harper	SandRidge Exploration and Production LLC
15-095-21405-00-00	D22418.0	YEAGER 14	Kingman	Oil Producers, Inc. of Kansas
15-191-21531-00-01	D31483.0	YEAROUT 1	Sumner	Hewitt Energy Group, Inc.
15-077-22121-00-00	D27137.2	Yeti 3408 SWD	Harper	SandRidge Exploration and Production LLC

CERTIFICATE OF SERVICE

I certify that on 2/19/16, I caused a complete and accurate copy of this Motion to be served via United States mail, with the postage prepaid and properly addressed to the following:

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Legal Assistant
Kansas Corporation Commission