THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

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

In the matter of the application of Quail Oil & Gas, LC to authorize injection of saltwater into the Arbuckle formation at the Sly 2-6 SWD well, located in the NE NE SE of Section 6, Township 17S, Range 6E in Morris County, Kansas. Docket No: 17-CONS-3484-CUIC

ORDER GRANTING QUAIL OIL & GAS, LC AUTHORITY TO INJECT SALTWATER AT THE SLY 2-6 SWD WELL IN MORRIS COUNTY, KANSAS

This matter comes before the State Corporation Commission of the State of Kansas (Commission). Having examined its files and records, and being fully advised in the premises, the Commission makes the following findings and conclusions:

I. Background

1. On January 12, 2017, Quail Oil & Gas, LC (Quail) filed an Application seeking a permit to authorize the injection of saltwater into the Sly 2-6 SWD well, located in the NE/4 NE/4 SE/4 of Section 6, Township 17S, Range 6E in Morris County, Kansas. The Application requested a maximum liquid injection rate of 5,000 barrels per-day and a maximum injection pressure of 650 psi. Notice of the Application was published in the Council Grove Republican newspaper on January 31, 2017.

2. Beginning on or about January 24, 2017, and running through April 10, 2017, Commission Conservation Staff (Staff) received letters protesting Quail’s Application. The vast majority of these were form letters expressing general concerns about alleged potential for injection

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2 Application, p. 1.
wells to cause earthquakes and endanger water sources.\textsuperscript{4} These letters were filed in the docket, along with letters from Staff acknowledging receipt of the protest letters. Additionally, requests for hearing were filed by various persons\textsuperscript{5} who became the Protestant party in this proceeding.

3. On March 2, 2017, the Commission issued its \textit{Order Designating Prehearing Officer and Setting Prehearing Conference}, scheduling a Prehearing Conference for March 23, 2017.\textsuperscript{6}

4. On March 30, 2017, the Commission issued a procedural schedule, setting an evidentiary hearing for June 15, 2017, at the Commission’s Wichita office.\textsuperscript{7}

5. On April 21, 2017, Robert V. Eye entered his appearance on behalf of the Protestants,\textsuperscript{8} who subsequently filed a Motion requesting an evidentiary hearing date of no sooner than September, 2017.\textsuperscript{9} Quail opposed the Protestants’ Motion.\textsuperscript{10}

6. On May 18, 2017, the Commission issued an \textit{Order Amending Procedural Schedule}, adopting a new evidentiary hearing date of June 29, 2017.\textsuperscript{11}

7. On May 22, 2017, the Protestants filed an \textit{Objection to Quail’s Notice of Application}, arguing that Quail’s January 31, 2017, publication notice of its Application specified the Application was seeking a maximum injection pressure of 500 psi, while the Application itself sought a maximum injection pressure of 650 psi.\textsuperscript{12} The Protestants argued this discrepancy

\textsuperscript{4} See e.g., Protest letter from Kevin Ireland to Commission UIC Director, Rene Stucky, stating that “[m]ost induced earthquakes in the United States are a result of the deep disposal of fluids (wastewater) related to oil and gas production. It is possible for toxins in these fluids to leech into ground water and drinking water sources . . . Without our water, we have nothing. Water is the source of all life.” (Jan. 25, 2017).
\textsuperscript{5} See Katherine Kelly, Request for Hearing (Feb. 8, 2017); Elexa Dawson, Request for Hearing (Feb. 8, 2017); Regina Compernolle, Request for Hearing (Feb. 15, 2017); Cindy Hoedel, Request for Hearing (Feb. 21, 2017); and Karla Jo Grimmett, Request for Hearing (Feb. 24, 2017).
\textsuperscript{7} \textit{Order Setting Procedural Schedule}, ¶ 2 (Mar. 30, 2017).
\textsuperscript{8} See Entry of Appearance on behalf of Cindy Hoe del, Elexa Dawson, Regina Compernolle, Katherine Kelly and Karla Jo Grimmett (Apr. 21, 2017).
\textsuperscript{9} See Motion of Protestants to Amend Order Setting Procedural Schedule, ¶ 3 (Apr. 21, 2017).
\textsuperscript{10} See Response to Motion of Protestants to Amend Order Setting Procedural Schedule, p. 3 (May 2, 2017).
\textsuperscript{11} \textit{Order Amending Procedural Schedule}, ¶ 11 (May 18, 2017).
\textsuperscript{12} Objection by Protestants to Notice of Application, ¶¶ 2-3 (May 22, 2017) (Objection). See ¶ 1 of this Order, \textit{supra}. 
constituted "materially defective" notice and asked the Commission to dismiss the docket.\textsuperscript{13} Quail responded by stipulating that "it is seeking approval for a 'maximum injection pressure of 500 psi' as set forth in the subject Notice," and thus, the initial discrepancy did not prejudice the Protestants.\textsuperscript{14} The Commission agreed with Quail and dismissed the Protestants' Objection.\textsuperscript{15}

8. On June 22, 2017, due to lack of publication notice of the June 29, 2017, evidentiary hearing, the Commission continued the hearing to August 16, 2017, at the Commission's Topeka office.\textsuperscript{16}

9. On April 24, 2017, Quail witnesses, Lee B. Shobe and Wray Valentine, pre-filed their direct testimony.


11. On May 31, 2017, Staff witness, Rene Stucky, pre-filed his direct testimony.

12. On June 7, 2017, Quail witnesses, Lee B. Shobe and Wray Valentine, pre-filed their rebuttal testimony.

13. Pursuant to the Kansas Administrative Procedure Act (KAPA), an evidentiary hearing was held in this proceeding on August 16, 2017, in the First Floor Hearing Room at the Commission's Topeka office. The Commission heard live testimony from a total of five witnesses, two on behalf of Quail, two on behalf of the Protestants, and one on behalf of Staff. The parties had the opportunity to cross-examine the witnesses, as well as redirect their own witnesses.

II. Legal Standards

14. K.A.R. 82-3-400(a) states that "[i]njection shall be permitted only after both of the following conditions are met: (1) The operator has filed an application for injection authority with
the conservation division in accordance with K.A.R. 82-3-401 and provided notice in accordance with K.A.R. 82-3-402. (2) The conservation division has issued a written permit granting the application."

15. K.A.R. 82-3-401(a) lists the information an Operator must provide the Conservation Division on an injection well application, and K.A.R. 82-3-402 provides notice requirements for such an application.

16. K.A.R. 82-3-403 states the factors the Conservation Division must consider when issuing a permit authorizing injection.

17. K.S.A. 77-536(b) provides that, under the use of emergency proceedings, the Commission “may take only such action as is necessary: (1) To prevent or avoid the immediate danger to the public health, safety or welfare that justifies use of emergency adjudication or (2) to remedy a situation for which use of emergency adjudication is otherwise provided by law.”

III. Findings and Conclusions

18. Pursuant to K.A.R. 82-3-400, the Commission finds that Quail’s Application for injection authority complies with K.A.R. 82-3-401 and the notice provisions of K.A.R. 82-3-402.17

19. The Commission finds proper record evidence that the various permitting factors provided in K.A.R. 82-3-403 were considered. Regarding the requested maximum injection rate of 5,000 barrels per-day, Staff testified this “can be handled safely with the construction of the well.”18 Regarding the requested maximum surface pressure of 500 psi, Staff testified that “[t]here is little threat to public safety at this pressure,” and “[t]he subject well meets all Commission regulations and will protect the fresh and useable waters by its construction.”19 Regarding Quail’s proposed

17 See Pre-filed Testimony of Rene Stucky, pp. 3-4 (May 31, 2017) (Stucky Direct). See also Application; Pre-filed Testimony of Lee B. Shobe on Behalf of Quail Oil & Gas, LC, pp. 2-3 and Exhibit A (Apr. 24, 2017) (Shobe Direct); Pre-filed Testimony of Wray Valentine on Behalf of Quail Oil & Gas, LC, pp. 2-3 (Apr. 24, 2017) (Valentine Direct); Affidavit of Publication, Craig A. McNeal, Publisher of the Council Grove Republican (Feb. 1, 2017).
18 Stucky Direct, p. 4, lines 7-8. See K.A.R. 82-3-403(a)(1).
19 Stucky Direct, p. 4, lines 6, 19-20. See K.A.R. 82-3-403(a)(2).
injection fluid, no evidence disputes Quail’s testimony that “[t]he chlorides from the water from [Quail’s production] wells are approximately 5000 ppm, which is very low for produced saltwater.”20 Regarding rock characteristics of the injection zone, the overlying strata, and the zones between the injection interval and the base of the lowest fresh and usable water, Staff testified that “the base of any potential fresh water” is “at 200 feet,” and “there are many confining shale layers in the 2,400 feet between the Arbuckle formation and any fresh water zone, which will contain any migration of the disposed water.”21 Regarding review of the construction of oil and gas wells within a ¼ mile radius of the proposed injection well to ensure that fluids from Quail’s injection zone will be confined to that zone, Staff again testified that Quail operated the only two wells within a ½ mile radius of the subject injection well, and “[t]hose wells are recently drilled and meet KCC regulations.”22

20. The Commission finds Quail’s proposed use of the Arbuckle formation for its injection well gives adequate protection to fresh and usable water formations, pursuant to K.A.R. 82-3-403(c). Staff testified that the many shale layers between the Arbuckle injection zone and any fresh water zone “will contain any migration of the disposed water,” and “[t]he injection zone is adequately isolated and meets KCC regulations.”23

21. The Commission finds the protection of hydrocarbons, water resources, and safe depths for injection are properly accounted for in Quail’s Application, as evidenced by Staff’s testimony that “the application complies with KCC regulations,”24 “[t]he injection zone is adequately isolated and meets KCC regulations,”25 Quail’s production wells “are recently drilled

20 Valentine Direct, p. 3, lines 7-8. See K.A.R. 82-3-403(a)(3).
22 Stucky Direct, p. 3, lines 27-29. See K.A.R. 82-3-403(a)(5).
24 Stucky Direct, p. 3, line 2.
and meet KCC regulations,"26 and "[the protection of water resources] is the reason for many of our regulations regarding well construction, and the reason I analyzed the subject well’s construction, which is included in my testimony above. The subject well meets all Commission regulations and will protect the fresh and useable waters by its construction."27

22. At the evidentiary hearing, the Protestants urged the Commission “to invoke its powers under [K.S.A.] 77-536(b) and find that the proposed use of the well . . . represents an imminent threat to the public and find that damage may result from induced seismicity and prohibit use of this well.”28

23. The Commission finds K.S.A. 77-536 inapplicable to Quail’s Application because the Protestants have not demonstrated that Quail’s proposed injection well presents an immediate danger to public health, safety or welfare.29 Indeed, K.S.A. 77-536 contemplates situations where the Commission must act immediately to eradicate a threat before all required proceedings have been conducted, rather than situations like this where the proceedings have been completed over a period of months.30 Further, the Protestants did not invoke K.S.A. 77-536 until the hearing, thereby demonstrating they apparently did not discover the threat of immediate danger until the end of all the legal process in a months-long proceeding.

24. Addressing the merits of any potential danger to the public, the Protestant witnesses, James Aber and Cindy Hoedel, provided no evidence of any danger Quail’s injection well might pose to water supplies, nor did they provide any testimony on the structural reliability or integrity of Quail’s proposed well. Thus, there is no basis for emergency Commission action on these points.

26 Stucky Direct, p. 3, lines 28-29.
27 Stucky Direct, p. 4, lines 15-20.
28 Docket No. 17-CONS-3484-CUIC, Hearing Transcript, p. 16, lines 8-12. (Tr.).
29 See K.S.A. 77-536(b)(1).
30 See K.S.A. 77-536(e).
25. The Commission also finds the Protestants have not provided evidence that Quail’s proposed injection well presents an unreasonable or increased risk of inducing earthquakes.

26. Ms. Hoedel expressed her concern that earthquakes may bring negative financial/insurance consequences,\(^{31}\) deter tourism and threaten historical structures.\(^{32}\) While earthquakes may have such consequences, the only connections she makes between injection wells and induced earthquakes are her assertions that the relevant geography is “characterized by faults that represent increased risks for induced earthquakes when compared to areas without such faults”\(^{33}\) and her belief that “the earthquakes in the Cushing [Oklahoma] area are caused by the use of injection wells.”\(^{34}\) She provides no evidence that the faults underlying Morris County represent increased risks for induced earthquakes over areas with a lesser number or different kinds of faults. She also provides no evidence that an injection well in a fault zone, particularly a well with Quail’s requested specifications, creates a causal link to an increased risk of induced earthquakes. As Staff pointed out, “[T]here is no recent record of seismic activity in the area surrounding Operator’s well even though injection is occurring.”\(^{35}\) Further, earthquakes in Cushing, Oklahoma are irrelevant to Quail’s proposed well because Cushing and Morris County are nowhere near each other and have not been shown to be geologically similar. Thus, concerns that Quail’s proposed well will require the purchase of earthquake insurance, deter tourism and/or threaten historical structures are unfounded.

27. The Commission finds Dr. Aber also failed to provide evidence that Quail’s proposed injection well will create an increased risk of induced earthquakes. Dr. Aber asserted that the faults underlying the injection zone “have been active historically,” yet his only historical

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\(^{31}\) Testimony of Cindy Hoedel on Behalf of Protestants, pp. 1-3 (May 22, 2017) (Hoedel Direct).

\(^{32}\) Hoedel Direct, pp. 1, 3-5.

\(^{33}\) Hoedel Direct, pp. 3, 5.

\(^{34}\) Hoedel Direct, p. 2.

\(^{35}\) Stucky Direct, p. 6, lines 10-11.
example of an earthquake in the area occurred in 1867, well before injection wells were used in the area. Moreover, both Mr. Valentine and Mr. Shobe testified that the United States’ Geological Survey (USGS) National Earthquake Information Center (NEIC) showed no evidence of an earthquake with an epicenter in Morris County since 1950, and the Protestants provided no evidence of an earthquake of any magnitude in Morris County since 1950. Thus, from a historical standpoint, the Commission finds no evidence of any danger of induced earthquakes from Quail’s proposed injection well.

28. Moreover, assertions by Dr. Aber that other geological characteristics “raise concerns about earthquakes,” that “this region is riddled with faults,” that “human activities . . . may cause the faults to slip again,” that “wastewater injection-well-caused earthquakes may occur as much as 10 miles or more from the well’s location,” and that “there is an increased risk for induced earthquakes in this situation” are speculative generalities when it comes to earthquake causation. None of these assertions constitute evidence that Quail’s proposed well is likely to induce earthquakes. Dr. Aber’s conclusion that “the area where the wastewater well in this docket is located is particularly vulnerable to interactions between numerous, nearby, known faults and fluids disposed of in wastewater injection wells” has no measurable or quantifiable basis. Dr. Aber gave no criteria for distinguishing between an area that is “particularly vulnerable” and one that is merely “vulnerable” or “not at all vulnerable.” Simply pointing to the existence of faults does not demonstrate their vulnerability-to-earthquake status.

37 Pre-filed Rebuttal Testimony of Lee B. Shobe on Behalf of Quail Oil & Gas, LC, p. 2, lines 10-13 (June 7, 2017) (Shobe Rebuttal).
39 Aber Direct, p. 4, line 5.
40 Aber Direct, p. 5, line 2.
41 Aber Direct, p. 5, line 7.
42 Aber Direct, p. 6, lines 16-17.
43 Tr., p. 53, lines 10-11.
29. The Commission finds that faults in the area are irrelevant to Quail’s Application unless there is demonstrable historical, statistical, or seismological evidence of a causal link showing that injection wells in Morris County, of the type Quail is proposing, will cause movement of faults underlying Morris County. Dr. Aber’s general concerns about what may happen provide no such evidence.

30. In addition, Dr. Aber’s statement that the USGS “has concluded that wastewater disposal is the primary source of the recent increase in earthquakes in the central United States” proves too much. Even if true, were this broad statement to drive Commission policy on injection wells in Kansas, it would require the unreasonable shuttering of all underground injection wells near any faults in the entire state.

31. Dr. Aber did not show that induced earthquakes in Sumner and Harper County somehow translate into a danger of induced earthquakes from Quail’s proposed well in Morris County. Staff’s testimony articulates the vast differences between injection well activities in Harper and Sumner Counties and such activities in Morris County. Further, the administratively noticed Orders from the 15-CONS-770-CMSC docket and testimony from Rex Buchanan do not advance the Protestants’ case. The two Orders do not address Morris County nor any of its surrounding counties, and for the seismically active areas they do address, they restrict saltwater injection to no more than 8,000 barrels per-well per-day, 3,000 more than Quail is requesting. Therefore, the Orders are irrelevant to Quail’s Application. The Commission finds Mr. Buchanan’s

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45 Aber Direct, p. 5, lines 18-19.
46 See Stucky Direct, pp. 4-6.
49 See Second Order Reducing Saltwater Injection Rates, ¶ 10 (discussing expansion of the relevant area to include Barber, Harper, Kingman, Sedgwick and Sumner Counties).
50 See Second Order Reducing Saltwater Injection Rates, ¶ 28.
testimony likewise inapplicable to Quail’s Application because, like the Orders, it does not address issues in Morris County nor injection wells of the type Quail is proposing.\textsuperscript{51}

32. The Protestants attempted to bolster their case by demonstrating that Quail’s witnesses had done no geologic analysis of the area surrounding the proposed injection well.\textsuperscript{52} However, lack of geologic or seismic analysis on Quail’s part does not transform Dr. Aber’s general, speculative, and undemonstrated concerns into evidence that Quail’s proposed injection well creates a risk or imminent danger of induced earthquakes in Morris County. The Commission agrees that “Dr. Abers has failed to show how the subject injection well would induce seismicity when there is no recent record of seismic activity in the area even though injection is occurring in such area.”\textsuperscript{53} In addition, Commission regulations do not require an injection well applicant such as Quail to perform geologic analysis demonstrating its well will fall below a certain risk threshold for induced earthquakes.

33. Dr. Aber’s contention that approval of Quail’s injection permit would amount to “an uncontrolled experiment”\textsuperscript{54} is also unpersuasive. While the Commission cannot be certain Quail’s injection well will not induce an earthquake, certainty is not the standard for approval of injection wells in Kansas. Moreover, the Commission exercises control over injection activities throughout the state and makes decisions regarding the environmental safety of those wells according to the standards provided by Kansas law. Such decisions are not experimental, but based on a long history of oil and gas conservation expertise.

34. Turning to Staff, Mr. Stucky’s pre-filed testimony recommended approval of Quail’s injection well permit at a maximum rate of 5,000 barrels of water per-day and a maximum pressure

\textsuperscript{51} See Buchanan Testimony, p. 1.
\textsuperscript{52} See e.g. Tr., p. 19, line 7 through p. 24, line 10. See also e.g., Tr., p. 39, line 13 through p. 44, line 2.
\textsuperscript{53} Shobe Rebuttal, p. 2, lines 1-3.
\textsuperscript{54} Tr., p. 53, line 1.
of 500 pounds per square inch (psi). However, at the hearing, Mr. Stucky stated he “would recommend we approve the Application at 2,000 barrels and 250 psi." When asked about the basis for his changed recommendation, Mr. Stucky stated: “I like to keep the permits within reason of what’s actually going to be used and that’s really my sole reasoning for dropping it down to 2,000 cause it doesn’t sound like they need it anywhere close to 5,000 at this time.” Mr. Stucky also stated that 500 psi was acceptable to him. Mr. Valentine acknowledged he “could actually just do a gravity flow for the indefinite future," but “if there’s no difference between 5,000 and 2,000 or 500 and 250 psi, why should I go through the process again of getting another application when they are fine with it now?"

35. The Commission agrees Staff did not properly justify its new recommendation. Mr. Stucky said he tries “to keep a permit within a reasonable range of what’s actually being disposed or injected in that particular well merely to just kind of keep a handle and . . . not just let anything go.” However, given Quail’s admission that it will use gravity pressure initially, Mr. Stucky provided no explanation as to how 2000 and 250 is within a reasonable range of gravity pressure, but 5,000 and 500 is not. The Commission finds both sets of numbers are far from zero. Without such an explanation or rationale, there is no basis to deny Quail its request for 5,000 barrels and 500 psi. Additionally, if Quail ultimately develops its field and needs the 5,000 and 500, Staff has provided no basis to justify requiring Quail to go through the time and expense of another application process to obtain those limits.

55 See Stucky Direct, p. 2, lines 22-31 and p. 6, line 14
56 Tr., p. 57, lines 3-4.
57 Tr., p. 65, lines 12-16.
58 Tr., p. 63, lines 19-21.
59 Tr., p. 73, lines 18-20. See Tr., p. 31, lines 1-8.
60 Tr., p. 74, lines 10-13.
61 See Tr., p. 80, lines 18-19.
62 Tr., p. 62, lines 1-5.
63 See Tr., p. 71, lines 11-16.
36. The Commission finds, and the Protestants do not dispute, that Quail's Application complies with Kansas law. The Protestants have failed to make a reasonable and supported case for denying Quail's Application based on immediate danger to public health, safety or welfare ostensibly posed by Quail's well. Further, Staff has failed to persuade the Commission to agree with its amended recommendation. Hence, the Commission approves Quail's Application with a 5,000 barrels per-day maximum injection rate and a 500 psi maximum injection pressure.

THEREFORE, THE COMMISSION ORDERS:

A. Quail's Application for injection authority at its Sly 2-6 SWD well, with a maximum injection rate of 5,000 barrels per-day and a maximum injection pressure of 500 psi, is approved.

B. The parties have fifteen (15) days from the date this Order was served by electronic mail in which to petition for reconsideration. 64

C. The Commission retains jurisdiction over the subject matter and parties for the purpose of entering such further orders as it deems necessary.

BY THE COMMISSION IT IS SO ORDERED.

Apple, Chairman; Albrecht, Commissioner; Emler, Commissioner

Dated: SEP 2·1 2017

Lynn M. Retz
Secretary to the Commission

MJD

64 K.S.A. 55-162; K.S.A. 55-606; K.S.A. 77-529(a)(1); see K.S.A. 66-118b.
CERTIFICATE OF SERVICE

I certify that on ______September 21, 2017______, I caused a complete and accurate copy of this Order to be served electronically and via United States mail, with the postage prepaid and properly addressed to the following:

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