

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

In the matter of the application of Merit) Docket No. 23-CONS-3080-CUIC
Energy Company, LLC (Operator) for a)
permit to authorize the injection of saltwater) CONSERVATION DIVISION
into the Morrow formation at the WMSU)
#1602 well in Section 32, Township 34 South,) License No. 32446
Range 41 West, Morton County, Kansas.)

PRE-FILED TESTIMONY OF

TODD BRYANT

ON BEHALF OF COMMISSION STAFF

FEBRUARY 24, 2023

1 **Q. What is your name and business address?**

2 A. Todd Bryant, 266 N. Main St. Wichita, KS 67202.

3 **Q. By whom are you employed and in what capacity?**

4 A. I am employed by the Conservation Division of the Kansas Corporation Commission (KCC
5 or Commission), as Supervisor of the Production and Underground Injection Control (UIC)
6 Departments.

7 **Q. Would you please briefly describe your educational background and work experience?**

8 A. I received my Bachelors of Science in Geology through Wichita State University (WSU) in
9 May 2017. Prior to that, I began working at the KCC on March 5, 2012 as a Geology Intern
10 while I was completing my studies at WSU. I was promoted to a Research Analyst on
11 September 28, 2014. I was again promoted to Geologist Specialist on September 10, 2017,
12 and most recently promoted to Supervisor of the Production and UIC Departments on July
13 24, 2022.

14 **Q. Have you previously provided expert testimony before the Commission?**

15 A. Yes.

16 **Q. What duties does your position with the Conservation Division involve?**

17 A. I manage the Conservation Division's UIC and Production Departments. This includes
18 providing technical support concerning various applications involving UIC wells. I enforce
19 the Commission's UIC regulations through injection permitting, I perform file reviews of
20 active injection wells, and I monitor daily injection volumes which are reported monthly
21 from Harper and Sumner Counties.

1 **Q. What is the purpose of your testimony in this matter?**

2 A. The purpose of my testimony is to inform the Commission about my review of the
3 application for injection filed by Merit Energy Company, LLC (Operator), and to support
4 my recommendation that the Commission deny Operator's application to add the Pearson
5 C #2 well (Subject Well), API #15-129-20675 to permit E-12,571.¹

6 **Q. What is Operator requesting in these dockets?**

7 A. Operator has applied for authorization to dually complete the Subject Well by producing gas
8 from the Topeka and Wabaunsee formations while simultaneously injecting produced water
9 from its Wilburton Morrow Sand Unit into the Morrow formation at a maximum rate of
10 3500 barrels of water per day and maximum surface pressure of 1500 pounds per square
11 inch (PSI).

12 **Q. What are the issues that cause Staff to recommend denial of Operator's application?**

13 A. In my opinion, the application should be denied for a number of reasons. First, it does not
14 appear that the well is continuously cemented across the injection and producing intervals.
15 Second, Operator is requesting a pressure greater than the fracture gradient for the Morrow
16 formation. Third, Operator has not conducted a mechanical integrity test (MIT) of the
17 Subject Well. Fourth, Operator has not provided sufficient notice of its application. Fifth,
18 the proposed well construction is susceptible to issues given the corrosive water from the
19 Topeka formation. Lastly, granting the application will likely cause waste and does not
20 protect correlative rights.

¹ In its Application, Operator calls the Subject Well the WMSU #1602, but the API number and location listed in the Application describe what is known in Commission databases as the Pearson C #2.

1 **Q. Please explain the steps you took to determine whether Operator’s application should**
2 **be approved.**

3 A. The KCC requirements for any injection well are listed in K.A.R 82-3-401 though K.A.R.
4 82-3-412. I will go into more depth regarding each of these steps below; however, I will first
5 generally discuss the steps I took in reviewing the Operator’s application to see whether or
6 not amending permit E-12,571 to add the Subject Well would be appropriate. First, I
7 reviewed whether the Subject Well met all KCC well construction requirements for this
8 area.² Second, I reviewed the valid completion documentation for the Subject Well to ensure
9 the well was completed in accordance with KCC regulations. Third, I reviewed the proposed
10 zone of injection for the Subject Well to ensure that it was compatible with the proposed
11 injection operation for the area. Fourth, I conducted an Area of Review (AOR) to check for
12 possible environmental concerns due to nearby wells. An AOR is a review of known wells
13 within a quarter mile of a proposed injection well to see if any threat to fresh and usable
14 water is present once an operator’s proposed injection of fluids is introduced. Fifth, I
15 reviewed the application to determine whether proper notice of the application was given.

16 **Q. Please describe your review of the surface and production casing depth in the Subject**
17 **Well.**

18 A. The Subject Well is located in Morton County which, pursuant to Table I of the
19 Commission’s Order on general rules and regulations for the conservation of crude oil and
20 natural gas in Docket No. 34,780-C, requires injection wells to set surface casing 20 feet
21 into the Jurassic (where present) or Permian formations in all areas. In no circumstance shall
22 less than 300 feet of surface casing be set. In all instances, casing shall be set through all

² K.A.R. 82-3-405; K.A.R. 82-3-406; K.A.R. 82-3-407.

1 unconsolidated material plus 20 feet into the underlying formation. The Subject Well has
2 surface casing set to 1457 feet with 800 sacks of cement. The production casing is set at
3 5010 feet with 175 sacks of cement with the top of cement around 3754 feet. Additionally,
4 based upon a well completion form (ACO-1) submitted by OXY USA, Inc. in 1989, it looks
5 like a squeeze job was done through perforations at 3400 feet with 450 sacks of cement with
6 top of cement reaching around 700 feet.

7 The issue that has been created is that there is no indication the Subject Well has cement
8 behind the casing from 3400 feet to 3754 feet. K.A.R. 82-3-403(b) states that simultaneous
9 injection wells shall demonstrate all of the following: (1) the injection will not adversely
10 affect offsetting production or endanger fresh and usable groundwater; (2) injection pressure
11 is limited to less than the local injection formation fracture gradient; (3) the injection well is
12 continuously cemented across the injection and producing intervals; and (4) the well
13 demonstrates mechanical integrity as specified in K.A.R. 82-3-407. Here, the production
14 casing of the Subject Well fails to comply with K.A.R. 82-3-403(b)(3) because there is no
15 evidence the Subject Well is continuously cemented across the injection and producing
16 intervals.

17 **Q. Are there other reasons why the Subject Well's lack of cement continuously across the**
18 **injection and producing formations gives you concern?**

19 A. Yes. Operator's proposed well construction creates roughly a 1500 foot "dead zone" of fluid
20 between the end of the Topeka tubing at 3310 feet and the injection string packer set at 4818
21 feet. This dead zone will allow produced fluids to sit stagnant which promotes bacteria
22 growth and corrosion of the tubing, casing, and packer. The uncemented portion of casing

1 falls directly in line with the dead zone. Over time the corrosion caused by this dead zone
2 could lead to a spill, waste, or an impact to correlative rights.

3 Further, Operator still has not conducted a staff-witnessed MIT at the Subject Well.
4 Before any well can be permitted for injection, the well must have a satisfactory MIT
5 conducted. In this case, Operator would initially be required to conduct a conventional MIT
6 by setting a packer within 50 feet of the Wabaunsee perforations then pressure up the well to
7 750 PSI. Operator would also need to conduct an MIT between the Topeka and Morrow
8 perforations by setting a packer within 50 feet of the Topeka perforations and a retrievable
9 bridge plug within 50 feet of the Morrow perforations and pressure up the well to 750 PSI.
10 Operator has requested that it be allowed to test the integrity of the well via a radioactive
11 tracer survey. However, I would be opposed to that method for the same reasons as stated in
12 Mr. Kenny Sullivan's testimony.

13 **Q. Please describe the proposed zone of injection for the Subject Wells.**

14 A. Operator is proposing to use the Subject Well to inject produced water into the Morrow B
15 formation at a depth of 4828 feet to 4850 feet. Generally, the depth of the Morrow formation
16 in this area is 4700 feet to 5100 feet.

17 **Q. Please describe your review of the requested rate and pressure.**

18 A. The Operator has requested to inject 3500 barrels of produced water per day into the Upper
19 Morrow at a pressure of 1500 PSI. However, my calculations indicate the formation fracture
20 gradient for the perforations being requested is around 1438 PSI. While the requested
21 injection rate and pressure are consistent with the rate and pressure used in other
22 conventional enhanced oil recovery wells located in the surrounding area for this formation,
23 the other wells in the area are not dually completed and do not present the same risks.

1 Further, Operator is requesting a non-conventional completion which has additional
2 regulatory requirements when compared to a conventional injection well. K.A.R. 82-3-
3 403(b)(2) states the injection pressure for this type of injection well should be limited to less
4 than the local injection formation fracture gradient.

5 In my professional opinion, the injection pressure for the Subject Well should be no
6 greater than 1375 PSI. At that pressure, the dually completed well would be in compliance
7 with the Commission's rules and regulations. Injection at that reduced pressure would
8 reduce the threat to fresh and usable water resources. Additionally, there are multiple layers
9 of shale overlaying the Morrow which will prevent any injected water from reaching
10 formations of usable water from the Subject Well. A threat to proximal oil and gas
11 producing intervals would occur if the injection string that sits in the 1500 feet of stagnant
12 water zone below the perforations and above the injection packer starts to leak. Such a leak
13 could then flood out the producing Topeka and Wabaunsee formations.

14 **Q. Please walk us through the Area of Review (AOR) you conducted.**

15 A. I conducted an AOR of one-quarter mile around the Subject Well to check for possible
16 environmental concerns due to nearby wells. Within the one-quarter mile radius of the
17 Subject Well there are no plugged and abandoned wells, three producing oil wells, no
18 potentially unplugged wells, no temporarily abandoned wells, and no active saltwater
19 disposal wells.

20 My research of the AOR through the Kansas Geological Survey (KGS) and RBDMS
21 identified no wells that would allow the injected fluids to migrate outside of the injection
22 zone and negatively impact fresh or usable water resources in the area.

1 **Q. Did the Operator provide proper notice of the Application?**

2 A. No. Operator's application was received by Staff on June 17, 2022. That is evidenced by the
3 date stamp on each page of the application. However, the affidavit of publication from the
4 Elkhart Tri-State News is dated June 16, 2022. A copy of the affidavit of publication is
5 attached to Mr. Lahutsky's testimony as Exhibit M-5. Notice of an application must be
6 published after the application is received by Commission staff. That requirement exists so
7 Staff has a copy of the application to provide to any person who inquires about the
8 application. This requirement is reflected in Instruction #9 on page 3 of the Form U-1,
9 which states that after confirming the Conservation Division's receipt of this application,
10 Operator shall publish notice of the application in the official county newspaper of record
11 where the well is located. It does not appear that Operator followed this instruction. In my
12 opinion, Operator will need to republish notice in the Elkhart Tri-State News for notice to be
13 considered proper.

14 **Q. On page 5, lines 17 through 29 of his testimony, Mr. Lahutsky references another well,**
15 **the Gore #D-2, which had dual completion in Operator's Wilburton Morrow Sand**
16 **Unit. Do you have any comments regarding that well?**

17 A. Yes. After comparing the construction of the Gore #D-2 to the Subject Well, I do not
18 believe a well that was permitted in 1974 should be used to influence whether the
19 application for the Subject Well should be granted. The Gore #D-2 was permitted the same
20 year, 1974, that the Safe Drinking Water Act was first enacted. I would have the same
21 concerns about the construction of the Gore #D-2 as I have about the Subject Well and
22 would recommend denial of it being permitted as an injection well. My research of the Gore
23 #D-2 well through RBDMS and Walters Digital Library shows the well was dually

1 completed in 1974 and operated until 1989, producing gas from the Topeka formation and
2 injecting fluids into the Morrow C formation.

3 **Q. Based on your review of this Application, do you believe permitting the Subject Well**
4 **for the enhanced recovery of oil will potentially pollute the water resources of the State**
5 **of Kansas?**

6 A. The completion records for the Subject Well show that there is an adequate amount of
7 surface casing and cement to protect the fresh and usable water resources within the well
8 bore.

9 **Q. Based on your review of this Application, do you believe granting the Application will**
10 **cause waste?**

11 A. It depends on how long it takes the corrosive water in the dead/stagnant zone of water below
12 the perforations to corrode the injection string, causing a leak to flood the Topeka
13 production. If it takes a long time, Operator will be able to recover natural resources that
14 would have otherwise been left in the ground. If the injection string doesn't hold up for
15 long, natural resource production could be lost and waste will occur.

16 **Q. Based on your review of this Application, do you believe granting the Application will**
17 **violate anyone's correlative rights?**

18 A. It is only a matter of time after the Subject Well is completed before correlative rights would
19 be affected. The construction of the well creates a stagnant-corrosive water column and
20 increases the likelihood for a tubing or casing failure to occur and flood out the producing
21 zone.

1 **Q. Do you have a recommendation regarding whether the Commission should approve**
2 **the Operator's Application?**

3 A. Yes. Operator's application to dually complete the Subject Well should be denied, and
4 Commission Staff is opposed to this application being granted. Although the KCC's
5 regulations allow for wells to be dually completed, the producing and injection intervals are
6 generally much closer together, have a lower injection pressure, and have a smaller dead
7 zone in which water would sit stagnant and eat away at the casing.

8 Additionally, Operator needs to run a cement bond log verifying that cement is
9 continuous across production and injection interval, agree to inject at a lower pressure below
10 the formation fracture gradient, perform an initial MIT above the Wabaunsee perforations
11 and between the Topeka and Morrow perforations using conventional MIT methods at 750
12 PSI, and meet all requirements of the KCC's UIC regulations for the Subject Well. Even if
13 those actions are taken it does not take away from the poor well construction proposed by
14 Operator, which includes a 1500 foot dead area for the corrosive water from the Topeka to
15 erode the tubing and casing in an uncemented zone.

16 **Q. Does this conclude your testimony at this time?**

17 A. Yes.

CERTIFICATE OF SERVICE

23-CONS-3080-CUIC

I, the undersigned, certify that a true and correct copy of the attached Prefiled Testimony of Todd Bryant has been served to the following by means of electronic service on February 24, 2023.

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