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RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 08-0321172

APPLICATION OF COPPER RIDGE RESOURCES, LLC (177030) PURSUANT TO STATEWIDE RULE 46 FOR A PERMIT TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF OIL OR GAS FOR THE BUTLER -A- LEASE, WELL NO. 1, GLASCO (DEVONIAN) FIELD, ANDREWS COUNTY, TEXAS

PROPOSAL FOR DECISION

HEARD BY: Robert Musick, P.G. – Technical Examiner
Jennifer N. Cook – Administrative Law Judge

PROCEDURAL HISTORY:

Notice of Prehearing Conference:	August 7, 2019
Prehearing Conference:	August 29, 2019
Hearing Dates:	September 27, 2019, February 19, 2020
Final Transcript Received:	March 2, 2020
Initial Written Closings Filed:	March 25, 2020
Record Close:	April 8, 2020
Proposal for Decision Issued:	September 15, 2020

APPEARANCES:

For Applicant, Copper Ridge Resources, LLC -

Robert G. Hargrove, attorney, Osborn, Marsland & Hargrove
Mark Burkett, P.E., President

For Protestants, Cross Timbers Energy, LLC and Morningstar Partners, L.P. -

David Gross, attorney, Gross & Nelson
Rick Johnston, P.E.
Law Armstrong, Area Land Manager
Kerry Sczech, Senior Reservoir Engineer

For Protestant, Frontier Supply Inc. –

Kelly Herring, President

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I. Statement of the Case

Copper Ridge Resources, LLC (Operator ID No.177030) ("Copper Ridge" or "Applicant") submitted to the Railroad Commission of Texas ("Commission") an application ("Application") pursuant to Statewide Rule 46 for a permit to inject fluid into a reservoir productive of oil or gas for the Butler -A- Lease, Well No. 1 ("Proposed Disposal Well"), in the Glasco (Devonian) Field (Field No. 35197333), in Andrews County, Texas. Copper Ridge asserted in the hearing that the Proposed Disposal Well complies with Statewide Rule 46¹ as well as the requirements in the Texas Water Code.

Cross Timbers Energy, LLC and Morningstar Partners, L.P. ("Cross Timbers") jointly protest granting of the Application. Frontier Supply Inc. ("Frontier") independently protests the Application. Cross Timbers and Frontier request that the Application not be granted.

Cross Timbers claimed its oil and gas interests in one of its wells, the LL Butler Well No. 1, will be damaged if the Proposed Disposal Well is permitted for injection of water into the Glasco (Devonian) Field. Cross Timbers also asserted that the Proposed Disposal Well is unnecessary because adequate disposal capacity already exists for the disposal needs of Copper Ridge's leases. Cross Timbers argued that the Maria Well No. 2, a Copper Ridge permitted disposal well, has ample disposal capacity to address Copper Ridge's current and planned water disposal needs for their leases completed in the Glasco (Devonian) Field.

Frontier maintained that there is adequate existing disposal capacity in Copper Ridge's Maria Well No. 2 disposal well, therefore the Proposed Disposal Well is unnecessary. Frontier asserted that the Applicant does not comply with Commission rules and misrepresented facts on the Application. Frontier argued in the hearing that Copper Ridge does not have the legal right to the surface estate where the Proposed Disposal Well is to be located.

The Technical Examiner and Administrative Law Judge (collectively "Examiners") respectfully submit this Proposal for Decision ("PFD") and recommend the Commission deny the Application.

II. Jurisdiction and Notice²

Sections 81.051 and 81.052 of the Texas Natural Resources Code provide the Commission with jurisdiction over all persons owning or engaged in drilling or operating oil or gas wells in Texas and the authority to adopt all necessary rules for governing and regulating persons and their operations under the jurisdiction of the Commission. The

¹ 16 Tex. Admin. Code § 3.46.

² The hearing transcript in this case is referred to as "Vol. [number], Tr. pg(s) [pages], Ln(s). [lines]." Copper Ridge's exhibits are referred to as "Copper Ridge Ex. [exhibit no(s)]." Cross Timber's exhibits are referred to as "Cross Timber Ex. [exhibit no(s)]." Frontier's exhibits are referred to as "Frontier Ex. [exhibit no(s)]."

Commission expressly has jurisdiction over permitting injection wells for the disposal of oil and gas waste.³

On March 24, 2019 notice of the Application was published in the *Andrews County News*, a newspaper of general circulation in Andrews County, Texas.

On March 27, 2019, Applicant mailed notice of the Application to the owner of record of the surface tracts on which the Well is located; each commission-designated operator of any well located within one half mile of the Proposed Disposal Well; and the county clerk of the county in which the Well is located. Thereafter, Cross Timbers and Frontier filed protests of the Application.

On August 7, 2019, the Hearings Division of the Commission sent a Notice of Prehearing Conference (“NOPHC”) on the Application setting a prehearing conference date of August 29, 2019. The NOPHC contains (1) a statement of the time, place, and nature of the hearing; (2) a statement of the legal authority and jurisdiction under which the hearing is to be held; (3) a reference to the particular sections of the statutes and rules involved; and (4) a short and plain statement of the matters asserted.⁴ The NOPHC was sent to the Applicant, Cross Timbers and Frontier. Consequently, the parties received more than 10 days’ notice.

The prehearing conference was held on August 29, 2019, as noticed. Applicant, Cross Timbers and Frontier appeared and participated.

The hearing on the merits was set for September 27, 2019, as agreed to by the parties. Applicant, Cross Timbers and Frontier appeared and participated at the hearing on September 27. The hearing was not completed on that date. The hearing resumed on February 19, 2020, as agreed to by the parties and the Applicant, Cross Timbers and Frontier appeared and participated at the hearing on February 19.

III. Applicable Law

Section 27.031 of the Texas Water Code states that no person may continue using a disposal well or begin drilling a disposal well or converting an existing well into a disposal well to dispose of oil and gas waste without first obtaining a permit from the Commission.

The Commission may grant an application for a disposal well permit under Texas Water Code § 27.051(b) and may issue a permit if it finds:

1. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation;

³ See, e.g., Tex. Water Code §§ 27.031, 27.051(b).

⁴ See Tex. Gov’t Code §§ 2001.051, 052; 16 Tex. Admin. Code §§ 1.42, 1.45.

2. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution;
3. The use or installation of the injection well is in the public interest; and
4. The Applicant has made a satisfactory showing of financial responsibility as required by section 27.073.

Additionally, the Applicant must comply with the Commission's Statewide Rule 46, which governs applications for injection wells into productive reservoirs.⁵

IV. Discussion of the Evidence

Copper Ridge asserted in the hearing that the Proposed Disposal Well complies with Statewide Rule 46⁶ as well as the requirements in the Texas Water Code. Cross Timbers claimed the Proposed Disposal Well would damage its oil and gas interests in one of its wells. Frontier contended in the hearing that Copper Ridge does not comply with Commission rules and does not have the right to the surface tract as required to drill the Well. Cross Timbers and Frontier requests that the Application not be granted.

A. Summary of Applicant's Evidence and Argument

The Application:

Copper Ridge asserted in the hearing that the Proposed Disposal Well complies with Statewide Rule 46⁷ as well as the requirements in the Texas Water Code. The Application is for a noncommercial permit to inject saltwater produced from the Butler -A- (31613) Lease (also referred to as the "Lease"; identified as the Butler -A- (51570) Lease on the oil proration schedule).⁸ The Application requests authority to inject 2,000 barrels of saltwater per day ("bwpd") into the Glasco (Devonian) Field in Andrews County, Texas.⁹ Copper Ridge contends it needs the additional disposal capacity because it plans on drilling another well on the same lease and needs to dispose of the produced water from the Devonian formation, a water drive reservoir.¹⁰

The Application (Form H-1 and Form H1A) was filed on March 27, 2019 with amendments to the Application dated April 25, 2019 and September 29, 2019.

1. The Application dated March 27, 2019 request to inject 10,000 bwpd from 3,600 feet to 13,996 feet measured depth ("MD").

⁵ 16 Tex. Admin. Code § 3.46.

⁶ *Id.*

⁷ *Id.*

⁸ Vol. 1, Tr. pg. 8, Lns. 16-25; It is noted in testimony that the Butler -A- 31613 Lease was assigned a new lease number, 51570.

⁹ Vol. 1, Tr. pgs. 8-9.

¹⁰ Vol. 1, Tr. pg. 9, Lns. 14-25.

2. The amendment to the Application dated April 25, 2019, changed the water injection volume and the injection interval. Copper Ridge proposed to inject 2,000 bwpd with an injection interval from 10,500 feet MD to 13,996 MD/12,626 feet total vertical depth (“TVD”).¹¹
3. The amendment to the Application dated September 29, 2019, changed the Application to reflect modifications from the first day of hearing held on September 27, 2019. The changes to the Application are injection zone permeability; the projected daily injection average; and the injection interval. The Applicant proposed to change the permeability of the injection zone from 100 to 500 millidarcies to better reflect the permeability of the horizontal drainhole “lateral” portion of the well.¹² Also, the amendment modified the daily average injection from 2000 bwpd to 1,000 bwpd. In addition, the amendment modified the bottom boundary of the injection interval to 13,996 MD / 13,650 feet TVD, so the injection interval would be the entire Devonian formation and be capped by shale to inhibit migration of injected fluids beyond the permitted injection interval.¹³ The hearing record indicates an impermeable shale bounds the top (e.g., Strawn Shale) and bottom (e.g., Sylvan Shale) of the Devonian reservoir’s injection interval.¹⁴

The amendment to the Application dated April 25, 2019 was administratively approved by the Commission’s Underground Injection Control (“UIC”) staff on May 21, 2019, as Tracking No. 50567, but a protest to the Application required it be sent to the Hearings Division for further consideration.¹⁵ The amendment to the Application dated September 29, 2019, was not administratively approved by the Commission’s technical staff, because the Application had already been referred to the Hearings Division.¹⁶ The notice of the final version of the Application was published in the Andrews County News on October 21, 2019.¹⁷

Mr. Mark Burkett, a registered Professional Engineer, representing Copper Ridge, contended that the injection of 2,000 bwpd will be accomplished using a natural vacuum (negative pressure) caused by the depleted Devonian reservoir. Mr. Burkett, maintained that the distance between the Proposed Disposal Well and Cross Timbers well, the LL Butler Well No. 1, is 933 feet.¹⁸ He indicated in his testimony that the nearest injection point on the lateral portion of the Proposed Disposal Well (Perforation No. 8) is 560 feet in the opposite direction to Cross Timbers’ well.¹⁹ In the final amended Application, eight perforation points along the lateral portion of the Proposed Disposal Well will dispense the injected saltwater into the Devonian formation.²⁰

¹¹ Vol. 1, Tr. pg. 37.

¹² Vol. 2, Tr. pgs.109-110.

¹³ Vol. 2, Tr. pgs.16-17, 19.

¹⁴ Vol. 2, Tr. pgs. 29-30, 35.

¹⁵ Vol. 1, Tr. pg. 42, Lns. 3-6; Copper Ridge Ex. 4.

¹⁶ Copper Ridge’s Written Closing Statement dated March 25, 2020.

¹⁷ Vol. 2, Tr. pg.112, Lns. 1-18.

¹⁸ Vol. 1, Tr. pg. 57, Lns. 1-13.

¹⁹ Vol. 1, Tr. pgs. 25, 40, 57; Copper Ridge Ex. 2.

²⁰ Vol. 2, Tr. pg. 2, Lns. 13-18.

Mr. Burkett, indicated in his testimony that a packer would be placed 50 feet above the upper boundary of the injection interval at approximately 10,450 feet MD.²¹

Mr. Burkett testified that the Proposed Disposal Well is an existing well that was installed and completed in the Ellenburger formation by Tamarack Petroleum ("Tamarack"). His testimony indicated that the Tamarack well produced about three barrels of oil per day ("bopd") and was uneconomic.²² His testimony indicated that the existing well log for the Proposed Disposal Well was dated 1988 and illustrates the top of various formations, with numerous impermeable confining zones such as the Strawn, Mississippian and the Woodford with low permeability.²³

Mr. Burkett, maintained that no earthquake activity has been observed in this area.²⁴

The Proposed Disposal Well:

Copper Ridge proposes to use the existing well to inject fluids into the Devonian formation from which nearby operators are producing hydrocarbons.²⁵ Copper Ridge indicated in the hearing that the Proposed Disposal Well is an old oil well on the Butler - A- Lease that has already been drilled but failed to produce oil or gas in commercially feasible quantities.²⁶ Mr. Burkett, presented testimony that the original oil well was completed in the Ellenburger (at 13,000 feet plus) and the Devonian reservoirs and possibly several other target reservoirs.²⁷

Mr. Burkett maintained that in late-2018, Copper Ridge drilled a lateral off of the Tamarack oil well at approximately 11,803 feet MD into the Devonian and abandoned the casing below 11,803 feet MD with a bridge plug. He contended the horizontal well's depth is 12,626 feet TVD with the drainhole's lateral piping extending 1,744 feet from the vertical portion of the well.²⁸

Mr. Burkett contended the surface location of the Proposed Disposal Well is approximately 1,100 feet from the surface location of the LL Butler Well No. 1 (the Cross Timbers' well). Mr. Burkett testified the closest perforation in the lateral segment of the Proposed Disposal Well is an additional 560 feet away, or an estimated total distance of 1,660 feet (also identified as 1,707 feet²⁹) from the LL Butler Well No. 1.³⁰ Mr. Burkett maintained Copper Ridge has an oil well north of the Proposed Disposal Well that also produces from the Devonian and produces about 100 bopd compared to the LL Butler

²¹ Vol. 1, Tr. pg. 41, Lns. 1-7.

²² Vol. 1, Tr. pg. 89; Vol. 2, pg. 21, Lns. 1-12.

²³ Vol. 1, Tr. pgs.128-129.

²⁴ Copper Ridge Ex. 3.

²⁵ Vol. 1, Tr. pg. 9, Lns. 6-9.

²⁶ Vol. 1, Tr. pg. 9, Lns. 3-5.

²⁷ Vol. 1, Tr. pg. 24, Lns. 6-16.

²⁸ Vol. 1, Tr. pg. 25, Lns. 1-16.

²⁹ Cross Timbers, Written Closings, dated March 25, 2020.

³⁰ Vol. 1, Tr. pgs. 25, 88; Copper Ridge Ex. 2.

Well No. 1, which produces a volume of 20 bopd from the same interval.³¹ Therefore, one of Copper Ridge's wells is located closer to the Proposed Disposal Well, than one of the Cross Timber's wells and Copper Ridge is not concerned about their own well watering out.

Mr. Burkett testified that the Proposed Disposal Well was completed to produce from the Devonian formation, but only made a lot of water with no oil.³² He maintained that since the reservoir is mostly watered-out because of the long history of oil production, the Proposed Disposal Well's re-injection of fluids from the same interval (the Devonian formation) back into the Devonian reservoir is a good use, resulting in a closed loop system with no water from other sources being added.³³

Mr. Burkett presented testimony that the Proposed Disposal Well's 13-3/8-inch surface casing is set to 400 feet MD³⁴ and is cemented to the surface. He also indicated in his testimony that a string of 9-5/8-inch intermediate casing goes from the surface to approximately 6,001 feet MD³⁵ and is cemented from the bottom of the intermediate casing to the surface.³⁶ In addition, a 5-1/2-inch long-string casing runs the entire length of the original well installed by Tamarack to approximately 13,771 feet MD³⁷ with the upper limits of the cement calculated at 2,422 feet.³⁸ In addition, the Proposed Disposal Well has a 2-7/8-inch liner.³⁹

Devonian Reservoir and Field:

Copper Ridge indicated in the hearing that the Devonian water drive reservoir has produced for many years and the reservoir's pore space, which once contained oil, currently contains water that has been replaced by water after the oil was recovered.⁴⁰ Mr. Burkett testified the Devonian reservoir has vugular porosity and permeability streaks with impermeable layers, which make it a very complex reservoir.⁴¹ The reservoir is the Glasco Devonian Field, located on the Gaines/Andrews County Line.⁴²

Land Ownership and Operator:

Copper Ridge is the current operator of the Maria (36083) Lease and the Butler - A- Lease.⁴³ Mr. Burkett testified that the Proposed Disposal Well is on the Butler -A- Lease and is subject to a joint operating agreement where the working interest owners

³¹ Vol. 1, Tr. pg. 27.

³² Vol. 1, Tr. pgs. 26, Lns. 5-9.

³³ Vol. 1, Tr. pgs. 12, 67.

³⁴ Vol. 2. Tr. pg. 20-21. Copper Ridge Ex. 2.

³⁵ Vol. 1. Tr. pg. 23; Copper Ridge Ex. 2.

³⁶ id.

³⁷ Vol. 1, Tr. pg. 24; Copper Ridge Ex. 2.

³⁸ Vol. 1, Tr. pg. 24.

³⁹ Vol. 1, Tr. pg. 41, Lns. 8-11.

⁴⁰ Vol. 1, Tr. pg. 11, Lns. 1-6.

⁴¹ Vol. 1, Tr. pgs. 105-107.

⁴² Vol. 1, Tr. pg. 46; Copper Ridge Ex. 6.

⁴³ Vol. 1, Tr. pg. 120.

select their managing operator. Copper Ridge was selected as the operator for the Lease and consequently for the Proposed Disposal Well and does not have an assignment from a prior operator.⁴⁴ Mr. Kelly Herring, President of Frontier Supply Inc., one of the protestants in this case, is the surface owner of the approximately six acres where the Proposed Disposal Well is located.⁴⁵

Groundwater:

Mr. Burkett presented testimony that groundwater is located about 300 feet beneath the surface in the area. He contended that the approximate 100 wells in the field have surface casing at similar depths to protect shallow groundwater. Mr. Burkett indicated that current groundwater protection requirements extend down 2,000 feet below the surface to protect the Santa Rosa aquifer.⁴⁶

Mr. Burkett testified that a Groundwater Advisory Unit assessment dated March 25, 2019, included as part of the Application showed the usable quality water (UQGW) at 1,700 feet and the USDW at 2,075 feet.⁴⁷ Mr. Burkett contended the groundwater would be protected with injections occurring at 12,600 feet. In addition, the annular space outside the intermediate casing in the Proposed Disposal Well was cemented to protect fresh groundwater.

Financial Assurance:

Mr. Burkett testified that Copper Ridge has financial assurance in the amount of \$50,000.⁴⁸

Wells and Production:

A Devonian formation structure map was introduced as evidence which illustrated the top of the Glasco (Devonian) Field.⁴⁹ On the map, the oil/water contact boundary from 1953 data was utilized to establish a reference point for discussions and testimony by Mr. Burkett. He testified that 22 million barrels ("MMbbls") of oil has been recovered from the wells in the field since the discovery date on October 15, 1953. Mr. Burkett indicated that the oil/water contact boundary on the structure map has significantly changed since 1953 since most of the oil has been recovered and replaced with water resulting in about 90 percent water in the pay zone where oil was once located. Mr. Burkett indicated based on the density log, the pay thickness for the Devonian formation is about 100 feet, with vertical fractures.⁵⁰

⁴⁴ id.

⁴⁵ Vol. 1, Tr. pgs. 7, 8.

⁴⁶ Vol. 1, Tr. pgs. 21-22.

⁴⁷ Vol. 1, Tr. pg. 32; Copper Ridge Ex. 3.

⁴⁸ Vol. 1, Tr. pg. 44, Lns. 12-16; Copper Ridge Ex. 5.

⁴⁹ Vol. 1, Tr. pg. 47, Copper Ridge Ex. 6.

⁵⁰ Vol. 2, Tr. pg. 227, Lns. 7-25.

Using the structure map, Mr. Burkett summarized the current well status for the Copper Ridge leases: the Butler -A- Lease and the Maria Lease. He indicated that the Butler -A- Lease, Well No. 2 is currently plugged awaiting approval from the Commission to re-complete the well in the Glasco (Devonian) Field. Mr. Burkett testified that the Butler -A- Lease, Well No. 3 has been re-completed as a horizontal well in the Glasco (Devonian) Field and produces about 90 bopd.⁵¹ Mr. Burkett represented the Maria Lease includes the Maria Well No. 1X which recovers approximately 100 bopd and 1,500 bwpd and also a Maria Well No. 1, on the proration schedule but apparently not producing.

In addition to the oil wells, Copper Ridge operates an active saltwater disposal well on the Maria Lease, the Maria Well No. 2. This disposal well is used for disposal of water from both the Copper Ridge's Butler -A- Lease and the Maria Lease.⁵² Mr. Burkett testified that the Maria Well No. 2 is permitted for 10,000 bwpd, however, it will only take 3,000 bwpd on a vacuum.⁵³ He maintained that Copper Ridge utilizes the vacuum from the depleted Devonian reservoir to re-inject the saltwater back into the field with no pumps. In his testimony, Mr. Burkett indicated that with a pump and a triplex, the well would handle 2,500 psig surface injection pressure which would make it comparable to other disposal wells in area,⁵⁴ however, he only operates with vacuum because the propensity for downhole damage goes away.⁵⁵ Mr. Burkett maintained that Copper Ridge wants to stay in the Devonian (the depleted reservoir) where Copper Ridge can keep the pressure low and minimize leaks.⁵⁶

Mr. Burkett presented evidence which illustrated that the Proposed Disposal Well is -9,539 feet below sea level ("bsl") and the protestant's well, the LL Butler Well No. 1, is at -9,520 feet bsl, which makes the Proposed Disposal Well 19 feet deeper.⁵⁷ He contended that the Cross Timbers well will not be damaged because the direction of flow would be toward the Maria Lease and the fluid will not travel up-dip to Cross Timber's well.⁵⁸

Copper Ridge identified a listing of 15 disposal wells that have been permitted in the area with 6 of the wells permitted within the proposed injection interval.⁵⁹ Four of the wells completed in the Devonian, are located in the vicinity of the Cross Timbers' LL Butler Lease, Well No. 1, with two injection wells located to the east of the LL Butler Well No. 1 and two injection wells located to the west of the LL Butler Well No. 1.⁶⁰ Mr. Burkett stated,

Obviously it didn't hurt their wells because as mentioned earlier they are making—you know, it's dependable, it's producing, and these wells have

⁵¹ Vol. 2, Tr. pg. 225, Lns. 15-20.

⁵² Vol. 1, Tr. pgs. 49, 52.

⁵³ Vol. 1, Tr. pg. 52, Ln. 16-25.

⁵⁴ Vol. 1, Tr. pg. 99.

⁵⁵ Vol. 1, Tr. pg. 53.

⁵⁶ Vol. 2, Tr. pg. 83, Ln. 1-11.

⁵⁷ Vol. 1, Tr. pg. 55; Copper Ridge Ex. 6.

⁵⁸ Vol. 1, Tr. pgs. 55-56; Copper Ridge Ex. 6.

⁵⁹ Vol. 1, Tr. pg. 60; Copper Ridge Ex. 9; Cross Timbers Ex. 12.

⁶⁰ Vol. 1, Tr. pgs. 60, 115; Tr. Vol. 2, pgs. 45-47.

been around a long time and I think if it was going to damage their well it would have done it a long time ago. Therefore, it has not hurt their well, but may have helped.⁶¹

In addition, the most recent Commission Form H-10 test for the LL Butler, Well No. 1, indicated that the well produced 28 bopd with 243 bwpd being produced which equates to approximately 10 percent oil and 90 percent water. Also, on the lease are the LL Butler Well Nos. 1, 2 and 4, which produce 99 percent water and less than one percent oil. Mr. Burkett testified that the LL Butler, Well No. 1, is already watered out, and their results show that.⁶² He stated,

I mean, everything is watered out, out here, and the ocean has moved in and we have found it in our well and we'd like to put some more water back – put the water back into the ocean on our Lease, not their lease but on our Lease.⁶³

Mr. Burkett indicated that the Cross Timbers well is a typical Devonian well and has a life cycle of flowing 100 percent oil initially, and then it will start to make some water. He testified at some point they get up to 90 percent water. Eventually it will be 95 percent water, and Cross Timbers will either plug it or move more (water) volume and the typical Devonian well is abandoned at around 99 percent water.⁶⁴

B. Summary of Cross Timber's Evidence and Argument

Cross Timbers maintained that the Proposed Disposal Well operations would damage one of its wells, the LL Butler, Well No. 1, located 1,147 feet from the Proposed Disposal Well and produces from the same reservoir/proposed injection interval, the Devonian formation, a dolomitized carbonate.⁶⁵ The LL Butler, Well No. 1, produces approximately 220 bwpd and 28 bopd, or less than 10 percent oil versus water (approximately 90 percent).⁶⁶ Cross Timbers indicated in the hearing that it has produced since 1958 and has recovered about 90 percent of its estimated ultimate recovery ("EUR") with 1.49 million bbls/oil cumulative recovery. Cross Timbers asserted the oil recovery for the LL Butler, Well No. 1, is stable and the kind of production you can "bank on," therefore why send water to it.⁶⁷ Cross Timbers request that the Application be denied because the oil and gas productive resource, will be endangered by the disposal authority that Copper Ridge seeks in the Application; and that the well is unnecessary. Copper Ridge already has an existing operating disposal well in the Devonian on their lease, the Maria Well No. 2, that will manage the disposal volumes that Copper Ridge needs if it drills the additional producing well.⁶⁸

⁶¹ Vol. 1, Tr. pgs. 60-61.

⁶² Vol. 1, Tr. pg. 63, Lns. 17-25.

⁶³ Vol. 1, Tr. pg. 66, Lns. 4-12

⁶⁴ Vol. 2, Tr. pg. 60, Lns. 9-16.

⁶⁵ Vol. 1, Tr. pg. 13, Lns. 9-13; Tr. Vol. 2, pg. 162, Lns. 10-15; Copper Ridge Ex. 3.

⁶⁶ Vol. 1, Tr. pg. 14, Lns. 3-6.

⁶⁷ Vol. 1, Tr. pg. 14, Lns. 10-19.

⁶⁸ Vol. 1, Tr. pgs. 14-15.

In the hearing, Mr. Rick Johnston, P.E., a consultant for Cross Timbers, performed an assessment on the Proposed Disposal Well (i.e., Butler -A- (51570) Lease, Well No. 1) to determine any adverse impacts to Cross Timbers' LL Butler (01979) Lease, Well No. 1.⁶⁹ He maintained that Cross Timbers is worried because the Proposed Disposal Well is designed to inject fluids into the same producing interval that Cross Timber's well is producing.⁷⁰ As part of the assessment, Mr. Johnston evaluated the Commission's proration schedule dated February 1, 2020 for the field and identified several leases producing from the Glasco (Devonian) Field which are proximal to the Proposed Disposal Well. He testified the Commission's oil proration schedule identifies:

1. Copper Ridge's Maria (36083) Lease with three wells (Well Nos. 1, 1X and 2), with Well No. 1X identified as a producing well; Well No. 2, an injection well; and Well No. 1, as currently not producing;
2. Copper Ridge's Butler -A- (51570) Lease with two wells (Well Nos. 1 and 3), with the No. 1 being the subject Proposed Disposal Well and Well No. 3, a producing well. It is noted that the oil proration schedule does not refer to the Butler -A- (31613) Lease which apparently was the former lease number. The current lease number is 51570.
3. Cross Timber's LL Butler (01979) Lease with one well the LL Butler, Well No. 1, identified as the oil well that is the protestants subject well; and
4. Oxy's Butler (01978) Lease with three wells (Well Nos. 2, 5 and 7), located about 2,000 feet west of the Proposed Disposal Well.⁷¹

Mr. Johnston testified that Cross Timber's LL Butler, Well No. 1, has a current potential (Commission Form W-10 Test) production that indicates it will produce about 14 bopd.⁷² He maintained that the Oxy wells are good producing wells, with two of the three wells having a potential of 31 bopd and the third well producing 41 bopd.⁷³ In addition, Mr. Johnston indicated that the Maria Lease and the Butler -A- Lease wells have a current initial potential test on file that indicate the potential may be as high as 86 bopd for some of their wells.⁷⁴

Mr. Johnston evaluated cross-sections between the Cross Timbers' LL Butler (01979) Lease, Well No. 1, and the Proposed Disposal Well and determined the top of the Devonian formation at the protestants well, the LL Butler Well No. 1, was stratigraphically higher by about 30 feet when compared to the top of the Devonian formation at the Proposed Disposal Well.⁷⁵ Mr. Johnston contended the injection fluids from the Proposed Disposal Well will be injecting fluids in the same stratigraphic section

⁶⁹ Vol. 2, Tr. pg. 138, Lns. 1-8.

⁷⁰ Vol. 2, Tr. pgs. 140-142; Cross Timbers Ex. 4.

⁷¹ id.

⁷² Vol. 2, Tr. pg. 142, Lns. 1-8.

⁷³ Tr. Vol. 2, pgs. 142-143.

⁷⁴ Tr. Vol. 2, pgs. 143-144.

⁷⁵ Vol. 2, Tr. pgs. 145-146.

where Cross Timber's well is producing hydrocarbons.⁷⁶ He asserted due to the vertical fracturing and the good porosity⁷⁷ in the Devonian formation, Cross Timbers will observe adverse impacts to the production of the LL Butler (01970) Lease, Well No. 1.⁷⁸ Mr. Johnston also maintained that while the Proposed Disposal Well is stratigraphically deeper than the Cross Timbers well, the dolomitized carbonates of the Devonian Formation have a propensity for vertical permeability due to "vugs".⁷⁹ He testified that the vugular porosity and high permeability of the Devonian formation may result in injected fluids adversely impacting the production of the Cross Timber's LL Butler Well No. 1.⁸⁰

Mr. Johnston indicated that a pressure front calculation was performed for the Proposed Disposal Well with an injection rate of 2,000 bwpd which is the maximum authorized rate being sought in the Application. In his calculations, Mr. Johnston utilized 15 percent porosity,⁸¹ with a 15-foot pay interval to calculate adverse effects of the Proposed Disposal Well on the LL Butler Well No. 1.⁸² During his testimony, he clarified that he used a 15-foot thick pay interval to calculate the adverse effects of the well which is more conservative than Mr. Burkett's interpretation of a 100-foot pay interval.⁸³ To accompany the pressure front calculations which simulated a one year (456.3 psia), two year (521.5 psia) and five year (607.8 psia) pressure,⁸⁴ Mr. Johnston also calculated a two year (1,204 feet) and three year (1,485 feet) plume radius or fluid front⁸⁵ radiating from the Proposed Disposal Well's first perforation point No. 8 located about 1,700 feet away from the LL Butler Well No. 1.⁸⁶ Mr. Johnston ultimately predicted an increase in pressure and concluded the pressure front and the plume radius calculations⁸⁷ illustrate an increasing potential adverse effect on the LL Butler Well No. 1.⁸⁸

Mr. Johnston developed a plot of the injection history of the Maria Well No. 2 that Copper Ridge is currently using for water disposal. The plot shows that the Maria Well No. 2, began operating in 2015 injecting at a rate of approximately 50,000 bbls/water per month. The well's injection history shows a two-year period of inactivity from mid-2016 through mid-2018, with the Maria Well No. 2 put back into service in 2018 injecting 30,000 bbls/water per month, or an equivalent volume of 1,000 bwpd. Mr. Johnston indicated that based on Mr. Burkett's testimony, the oil wells that utilize the Maria Well No. 2 to dispose of produced water are the Maria Well No. 1X and Butler -A- Lease, Well No. 2. He indicated that these oil wells produce about 60,000 bbls/water per month.⁸⁹ Taking into account the current level of production of 1,000 bbls/water per day for each of the

⁷⁶ Vol. 2, Tr. pg. 146, Lns. 4-10.

⁷⁷ Vol. 2, Tr. pgs. 162-163; Cross Timbers Exs. 11 and 13.

⁷⁸ Vol. 2, Tr. pg. 146, Lns. 17-25.

⁷⁹ Cross Timbers Ex. 11.

⁸⁰ Vol. 2, Tr. pgs. 158-159; Cross Timbers Ex. 11.

⁸¹ Vol. 2, Tr. pg. 162, Lns. 10-15; Cross Timbers Exh.13.

⁸² Cross Timbers Ex. 8.

⁸³ Vol. 2, Tr. pgs. 228-230.

⁸⁴ Cross Timbers Ex. 8.

⁸⁵ Cross Timbers Ex. 15.

⁸⁶ Vol. 2, Tr. pgs. 167-169; Cross Timbers Ex. 15.

⁸⁷ Cross Timbers Exs. 8 and 15.

⁸⁸ Vol. 2, Tr. pgs. 153-154.

⁸⁹ Vol. 2, Tr. pgs. 155-156.

two Copper Ridge producing wells and adding the two planned oil wells, Mr. Johnston calculated that Copper Ridge will need approximately 4,000 bwpd of disposal capacity to maintain their current production and accommodate the planned wells scheduled to be installed. Mr. Johnson contended that Copper Ridge has ample disposal capacity under the existing permit (Maria Well No. 2) which is authorized to dispose of 10,000 bwpd.⁹⁰

Mr. Johnston testified that he utilized the LL Butler, Well No. 1, production history for the last five years (2015 to 2020) to make future production performance estimates. He estimated that 137,810 bbls/oil will be available for recovery from the well based on his calculations and the well's production decline curve. He calibrated his estimates by looking at the last six months of oil production from the well and determined that 600 bbls/oil per month on average has been recovered. Therefore, Mr. Johnston estimated that about 130,000 bbls/oil is remaining to be recovered from the LL Butler, Well No. 1, which is about 10 percent of its estimated ultimate recovery remaining.⁹¹

Mr. Johnston evaluated producing wells within two miles of the Proposed Disposal Well for oil and gas production.⁹² His assessment determined that within two miles of the Proposed Disposal Well, oil wells are producing from the Wolfcamp; the Strawn, the Mississippian, the Devonian and the Fusselman, all partially or fully found within the proposed injection interval from 10,500 feet to 13,650 feet.⁹³

Mr. Johnston contended that the Maria Well No. 1X will not meet the oil recovery estimates of 200,000 bbls/oil indicated by Mr. Burkett in his testimony. Mr. Johnston argued that if the whole purpose of this Application is to allow Copper Ridge to do a closed-loop system to simply wash out the reservoir rock, it does not appear to be working. He argued the Cross Timbers' LL Butler, Well No. 1, should not be put at risk to further their program.⁹⁴ He maintained it would endanger an oil and gas productive resource and it is contrary to public interest and would cause waste.⁹⁵

C. Summary of Frontier's Evidence and Argument

Mr. Kelly Herring, President of Frontier is the current surface owner of the tract where the Proposed Disposal Well is located.⁹⁶ Frontier claimed Copper Ridge does not comply with Commission rules and does not have the right to the surface tract as required to drill the Well. Frontier argues the Application should be denied.

Mr. Kelly Herring testified that he owns the property where the Proposed Disposal Well is to be located. Mr. Herring indicated in his testimony that he and a partner purchased two sections (Sections 29 and 14) of land in the early 1980s (approximately 1982), primarily for farming. He testified he was aware of the mineral leases on the

⁹⁰ Vol. 2, Tr. pgs. 157, 168.

⁹¹ Vol. 2, Tr. pgs. 164-165; Cross Timbers Ex. 14.

⁹² Vol. 2, Tr. pg. 173; Cross Timbers Ex. 19.

⁹³ Vol. 2, Tr. pg. 174; Cross Timbers Ex. 19.

⁹⁴ Vol. 2, Tr. pgs. 176-177.

⁹⁵ Vol. 2, Tr. pgs. 177-178.

⁹⁶ Vol. 1, Tr. pgs. 7-8.

property at the time of purchase.⁹⁷ In the mid-90s, a portion of the property he referred to as the Florey Subdivision (located in Section No. 29) was platted and surveys and sold to Mr. Eldon Dyke, a local farmer, but he retained the tracts associated with the Butler - A- Lease (Tract 15) and the Maria Lease (Tract 16).⁹⁸ He testified that Tract 15 is the Tamarack tank battery, now the Butler -A- Well No. 1, the Proposed Disposal Well.⁹⁹

As part of his testimony, Mr. Herring presented a letter dated August 26, 2019, from his attorney to Copper Ridge outlining Frontier's position that Copper Ridge does not have permission from the land owner to have an injection well, even though Section 29 is covered by a lease.¹⁰⁰

Mr. Herring testified that he is concerned about Commission violations on the Copper Ridge lease. He maintained that there are some signage issues associated with the Copper Ridge leases that were identified in a recent Commission inspection.¹⁰¹ Mr. Herring also contended that there are two violations regarding some oil pits on Copper Ridge's leased property pending completion of an inspection being conducted by the Commission.¹⁰² Mr. Herring also alleged that a saltwater residue is on the ground near the Proposed Disposal Well and may be due to water being sent to the well prior to the permit being issued.¹⁰³ He indicated that a "fast line" was installed between Copper Ridge's Maria Lease and the Butler -A- Lease to transfer water between the two leases.¹⁰⁴

Mr. Herring asserted that the Application has several problems, whether it be the date, checked box on lease water, or injection interval. He maintained the Application on its face is not factually accurate and has too many problems and his conclusions are the Proposed Disposal Well should be denied.¹⁰⁵

V. Examiners' Analysis

The Examiners find that there is insufficient evidence that Copper Ridge meets all statutory requirements for the Commission to issue the permit for the proposed well. The Examiners recommend that the Commission deny the Application based on the evidence presented.

⁹⁷ Vol. 2, Tr. pgs. 204, 218-219.

⁹⁸ Vol. 2, Tr. pg. 204, Lns. 23-25.

⁹⁹ Vol. 2, Tr. pg. 206, Lns. 6-15.

¹⁰⁰ Vol. 2, Tr. pgs. 209, 221-222.

¹⁰¹ Vol. 2, Tr. pg. 207.

¹⁰² Vol. 2, Tr. pgs. 212, 215; Frontier Ex. 6.

¹⁰³ Vol. 2, Tr. pgs. 212-213.

¹⁰⁴ Vol. 2, Tr. pgs. 213-214, 217; Frontier Ex. 7.

¹⁰⁵ Vol. 2, Tr. pg. 217.

A. There is insufficient evidence that the Proposed Disposal Well will not endanger or injure oil, gas, or other mineral formations.

The Glasco (Devonian) Field is composed of a Devonian dolomitized carbonate¹⁰⁶ with a pay zone thickness up to 100 feet thick.¹⁰⁷ Copper Ridge provided evidence that approximately 90 percent of the oil from the Devonian reservoir has been recovered and replaced with water, arguably watering out many wells in the field. Cross Timbers maintained that the LL Butler Well No. 1 will be adversely affected if the Commission authorizes Copper Ridge to inject water into the Glasco (Devonian) Field in close proximity to Cross Timber's well.¹⁰⁸ Evidence indicates the surface location of the Cross Timbers' LL Butler, Well No. 1, is approximately 1,147 feet from the Proposed Disposal Well with the first injection point in the Devonian reservoir estimated to be 1,700 feet from the productive interval of the LL Butler, Well No. 1.¹⁰⁹

Copper Ridge presented evidence that 22 million barrels of oil have been recovered from the Glasco (Devonian) Field since 1953 and the reservoir is essentially watered out.¹¹⁰ Cross Timbers maintained that their LL Butler, Well No. 1, has produced since 1958 and has recovered about 90 percent of its EUR with 1.49 million bbls/oil to date. Cross Timbers contended that approximately 10 percent of its well's EUR, or approximately 130,000 bbls/oil, remain to be recovered by the well.¹¹¹ In addition, Cross Timbers claimed the LL Butler, Well No. 1, has an oil production curve that illustrates a steady slow decline based on the last five years of production history with the kind of stable production you can "bank on".¹¹²

Cross Timbers presented evidence showing a two-mile radius around the Proposed Disposal Well with historic production within the Devonian reservoir. Cross Timber's evidence established that oil wells within the two-mile radius are producing from the Wolfcamp; the Strawn, the Mississippian, the Devonian and the Fusselman, with the wells partially or fully completed within the proposed injection interval from 10,500 feet to 13,650 feet.¹¹³ Within a one-half mile radius of the Proposed Disposal Well, approximately seven active oil wells are currently producing oil on the following leases: the Maria (36083) Lease; the Butler -A- (51570) Lease; the LL Butler (01979) Lease; and the Oxy's Butler (01978) Lease. Also, the wells associated with the identified leases produce volumes ranging from 14 to 100 bbls/oil a day, depending on the well.

The Examiners have concerns with Cross Timber's pressure front and plume radius calculations.¹¹⁴ Both Copper Ridge and Cross Timbers testified regarding vugular porosity and high permeability in the upper portion (pay zone) of the 3,000-foot thick

¹⁰⁶ Vol. 1, Tr. pg. 13, Lns. 9-13; Vol. 2, Tr. pg. 162, Lns. 10-15.

¹⁰⁷ Vol. 2, Tr. pg. 227, Lns. 7-25.

¹⁰⁸ Vol. 1, Tr. pg. 13, Lns. 9-13; Vol. 2, Tr. pg. 162, Lns. 10-15.

¹⁰⁹ Cross Timber's Closing Statement dated March 25, 2020.

¹¹⁰ Vol. 2, Tr. pg. 227, Lns. 7-25.

¹¹¹ Vol. 2, Tr. pgs. 164-165; Cross Timbers Ex. 14.

¹¹² Vol. 1, Tr. pg. 14, Lns. 10-19.

¹¹³ Vol. 2, Tr. pg. 174; Cross Timbers Ex. 19.

¹¹⁴ Cross Timbers Exs. 8 and 15.

Devonian formation. Copper Ridge testified the pay zone was about 100 feet thick at the top of the reservoir compared to Cross Timber's testimony that limited the pay zone to 15 feet. Cross Timbers' pressure front and plume radius calculations exclude any other potential migration pathways beyond the top 15 feet of the Devonian, which is inconsistent with testimony about vugular porosity producing vertical channels and high permeability at the upper portion of the Devonian formation. Therefore it appears that Cross Timber's calculations are the worst-case scenario (most conservative values) based on the potential highly permeable layers testified to by Mr. Burkett. Although the Examiners observe that the calculations are a worst case scenario, the facts of the case suggest that the Proposed Disposal Well's injection fluids will generate a pressure front and plume radius that ultimately will migrate through highly permeable layers to lower pressure environs, which would include areas where oil is being recovered (e.g., the Cross Timber LL Butler, Well No. 1).

The Examiners recognize the Glasco (Devonian) Field has been producing for over 60 years and is close to being watered out, but evidence indicates that oil is still available to be recovered within a one-half mile radius of the Proposed Disposal Well. The Examiners' primary concern is the Proposed Disposal Well is within an actively producing field with oil wells within one-half mile or less that are currently producing a small but stable volume of oil for the operators.

The Examiners conclude the Proposed Disposal Well may affect these producing wells and shorten a well's production life with injection water encroachment and thereby causing waste. Copper Ridge failed to demonstrate that the Proposed Disposal Well will not detrimentally impact the productive life of Cross Timers' LL Butler, Well No. 1. The Examiners find that the Proposed Disposal Well will endanger or injure oil, gas, or other mineral formations, but cannot predict the timeframe based on the evidence. For these reasons and the evidence entered into the record, the Examiners recommend the Commission find there is insufficient evidence that the Proposed Disposal Well will not endanger or injure oil, gas, or other mineral formations.

B. There is sufficient evidence that ground and surface water can be adequately protected from pollution.

The Examiners find there is sufficient evidence that the proposed Well will adequately protect ground and surface water. The amendment to the Application dated September 29, 2019, changed the injection interval to be the entire Devonian formation, which is capped by shale to inhibit migration beyond the proposed injection interval.¹¹⁵ The hearing record indicates an impermeable shale bounds the top and bottom of the Devonian reservoir's injection interval, therefore limiting migration of any injected fluids to useable groundwater or surface water.¹¹⁶ In addition, Mr. Burkett testified that the existing well log for the Proposed Disposal Well illustrates the top of various formations, with numerous impermeable confining zones such as the Strawn, Mississippian and the

¹¹⁵ Vol. 2, Tr. pgs.16-17, 19.

¹¹⁶ Vol. 2, Tr. pgs. 29-30 and 35.

Woodford with low permeability between the injection interval and the useable ground and surface water.¹¹⁷ No counter arguments were entered into the hearing record by the protestants to suggest the injected water would migrate beyond the proposed injected interval. For these reasons, the Examiners recommend the Commission find that there is sufficient evidence that the Proposed Disposal Well will adequately protect ground and surface water.

C. There is insufficient evidence that the Proposed Disposal Well is in the public interest.

The Examiners find there is insufficient evidence that the proposed Well is in the public interest.

Section 27.051 of the Texas Water Code requires that the use or installation of a proposed injection well or facility be in the “public interest.”¹¹⁸

In this case, evidence indicates the current disposal needs of Copper Ridge are currently being met with the one permitted saltwater disposal well on the Maria (36083) Lease identified as the Maria Well No. 2. The Maria Well No. 2 is currently authorized to dispose of 10,000 bwpd, but Copper Ridge limits the disposal to approximately 3,000 bwpd due the amount of water that the well will take under a negative pressure (“vacuum”) scenario.¹¹⁹ The Maria Well No. 2 has adequate disposal capacity under vacuum conditions to address Copper Ridge’s existing wells, but cannot support two new planned wells.¹²⁰ Therefore, Copper Ridge is seeking authority for the Proposed Disposal Well to increase disposal capacity. Copper Ridge indicated that they want to continue the same vacuum scenario observed at the Maria Well No. 2 at the Proposed Disposal Well.¹²¹

The Examiners take note that disposal capacity already exist for the Maria and Butler -A- leases. The Applicant did not provide evidence that the Maria Well No. 2’s permitted disposal volume of 10,000 bwpd could not be attainable with the installation of a pump, which is a typical industry practice. In addition, the Applicant failed to demonstrate that the Proposed Disposal Well is required to extend the economic life of the current producing wells or any planned wells. The Examiners were not compelled by the argument regarding limiting the Maria Well No. 2 to a “vacuum only” operation which is not a typical industry practice.

The Examiners find that sufficient capacity already exists for the current and two planned oil wells on the Maria and Butler -A- leases. For these reasons, the Examiners recommend the Commission find that there is insufficient evidence that the Proposed Disposal Well is in the public interest. Additionally, because Copper Ridge failed to

¹¹⁷ Vol. 1, Tr. pgs.128-129.

¹¹⁸ Tex. Water Code §27.051(b)(1).

¹¹⁹ Vol. 1, Tr. pg. 52, Lns. 16-25.

¹²⁰ Vol. 1, Tr. pgs. 49, 52.

¹²¹ Vol. 1, Tr. pgs. 49, 52.

demonstrate the Proposed Disposal Well will not endanger productive reservoirs, the Examiners find that the Proposed Well is not in the public interest.

D. Applicant has made a satisfactory showing of financial assurance.

Commission statutes and rules require that an Applicant have sufficient financial assurance before a permit can be granted.¹²² Copper Ridge meets this requirement.

Copper Ridge has \$50,000 of financial assurance on file with the Commission along with an active Organization Report (Commission Form P-5). No testimony or evidence was presented in the hearing by the protestants regarding Copper Ridge's ability to meet its financial assurance obligations. The evidence in the record demonstrates the applicant has made a satisfactory showing of financial responsibility.

E. Other Analysis.

According to Copper Ridge, they are the current managing operator of the Maria (36083) Lease and the Butler -A- Lease¹²³ in accordance with the provisions of a joint operating agreement with the working interest owners. The Proposed Disposal Well is identified as the Butler Well No. 1,¹²⁴ and is part of the property under the Butler -A- Lease identified as Tract 16.¹²⁵ Copper Ridge maintained it has a lease for Tract 16, on which the Proposed Disposal Well is to be located and has a good faith claim to its interest in the oil and gas lease.

Mr. Kelly Herring, President of Frontier Supply Inc. and a protestant in this case, is the current surface owner of the approximately six acres where the well is proposed to be located.¹²⁶ He argues that Copper Star does not have his permission to operate the Proposed Disposal Well.¹²⁷

No evidence was entered into the hearing record to demonstrate that Copper Ridge does not have a right to the minerals in the Devonian reservoir. The Examiners conclude that the property owner did not demonstrate through agreements and arguments that Copper Ridge does not have a right to the minerals of the Devonian formation.

VI. Examiners' Recommendation, Proposed Findings of Fact and Proposed Conclusions of Law

Based on the evidence, the Examiners recommend that the Commission deny the Application, and adopt the following findings of fact and conclusions of law.

¹²² See, e.g., Tex. Water Code §§ 27.051(b)(4), 27.073; Tex. Nat. Res. Code § 91.104; 16 Tex. Admin. Code § 3.78.

¹²³ Vol. 1, Tr. pg. 120.

¹²⁴ Vol. 1, Tr. pg. 160.

¹²⁵ Vol. 2, Tr. pg. 204, Lns. 23-25.

¹²⁶ Vol. 1, Tr. pgs. 7 and 8.

¹²⁷ Vol. 2, Tr. pgs. 209, 221-222.

Proposed Findings of Fact

1. Copper Ridge Resources, LLC (Operator ID No.177030) (“Copper Ridge” or “Applicant”) submitted to the Commission an application (“Application”) pursuant to Statewide Rule 46 for a noncommercial permit to inject fluid into a reservoir productive of oil or gas for the Butler -A- Lease, Well No. 1 (“Proposed Disposal Well”), in the Glasco (Devonian) Field (Field No. 35197333), in Andrews County, Texas.
2. Cross Timbers Energy, LLC and Morningstar Partners, L.P. (“Cross Timbers”) jointly protest granting of the Application.
3. Frontier Supply Inc. (“Frontier”) independently protests the Application.
4. On March 24, 2019, April 28, 2019, and again on October 20, 2019 (amended application), notice of the Application was published in the *Andrews County News*, a newspaper of general circulation in Andrews County, Texas.
5. On March 27, 2019, Applicant mailed notice of the Application to the owner of record of the surface tracts on which the Proposed Disposal Well is located; each commission-designated operator of any well located within one half mile of the Proposed Disposal Well; the county clerk of the county in which the Proposed Disposal Well is located;
6. On August 7, 2019, the Hearings Division of the Commission sent a Notice of Prehearing Conference (“NOPHC”) on the Application setting a prehearing conference date of August 29, 2019. The NOPHC contains (1) a statement of the time, place, and nature of the hearing; (2) a statement of the legal authority and jurisdiction under which the hearing is to be held; (3) a reference to the particular sections of the statutes and rules involved; and (4) a short and plain statement of the matters asserted.¹²⁸ The NOPHC was sent to the Applicant, Cross Timbers and Frontier. Consequently, the parties received more than 10 days’ notice. The prehearing conference was held on August 29, 2019, as noticed. Applicant, Cross Timbers and Frontier appeared and participated.
7. The hearing on the merits was set for September 27, 2019, as agreed to by the parties. Applicant, Cross Timbers and Frontier appeared and participated at the hearing on September 27, 2019. The hearing was not completed on that date. The hearing resumed on February 19, 2020, as agreed to by the parties. Applicant, Cross Timbers and Frontier appeared and participated at the hearing on February 19, 2020.

¹²⁸ See Tex. Gov’t Code §§ 2001.051, 052; 16 Tex. Admin. Code §§ 1.42, 1.45.

8. Copper Ridge proposes to use an existing oil well to inject fluids into the Devonian formation from which nearby producers are producing hydrocarbons from the Glasco (Devonian) Field.
9. The Application (Commission Form H-1 and Form H1A) was filed on March 27, 2019 with amendments to the Application dated April 25, 2019 and September 29, 2019. The Application established a daily average injection of 1,000 bwpd; an injection limit of 2,000 bwpd; and an injection interval from 10,500 feet MD to 13,996 feet MD / 13,650 feet TVD, into the Devonian formation. In correspondence dated May 21, 2019 (Tracking No. 50567), Commission staff approved the amendment to the Application dated April 25, 2019. The subsequent amendment dated September 29, 2019, was not reviewed by the Commission's UIC staff for an administrative complete determination since the Application had already been referred to the Commission's Hearing Division to proceed with the protested hearing.
10. Copper Ridge proposes to use an existing horizontal well to inject fluids into the Devonian formation from which nearby operators are producing hydrocarbons from the Glasco (Devonian) Field. The Proposed Disposal Well is drilled to a depth of approximately 12,626 feet TVD with the drainhole's lateral piping extending 1,744 feet from the vertical portion of the well. The Proposed Disposal Well is designed as follows:
 - a. Surface casing is 13-3/8-inches, 400 feet MD deep and cemented to the surface;
 - b. Intermediate string casing is 9-5/8-inches with the casing from the surface to approximately 6,001 feet MD and is cemented from the bottom of the intermediate casing to the surface;
 - c. Long-string casing is 5-1/2 inches and runs the entire length of the well to approximately 13,771 feet MD with the upper limits of the cement calculated at 2,422 feet; and
 - d. Liner is 2-7/8-inches.
11. The Proposed Disposal Well will endanger or injure oil, gas, or other mineral formations.
 - a. Oil wells within a two-mile radius of the Proposed Disposal Well are producing from the proposed injection interval from 10,500 feet to 13,650 feet. Within a one-half mile radius of the Proposed Disposal Well, approximately seven active oil wells are producing oil from the proposed injection interval. Oil is still available to be recovered within the proposed injection interval within a one-half mile radius of the Proposed Disposal Well.

- b. The Cross Timbers' LL Butler, Well No. 1, is approximately 1,147 feet from the Proposed Disposal Well with the first injection point in the Devonian reservoir estimated to be 1,700 feet from the productive interval of the LL Butler Well No. 1. The LL Butler, Well No. 1, has an oil production curve that illustrates a stable production record. Impacts to the LL Butler Well No. 1 may shorten the life of the well.
 - c. Pressure front and plume radius calculations suggest that the Proposed Disposal Well's injection fluids will generate a pressure front and plume radius that ultimately will migrate through highly permeable layers to lower pressure environs, which would include areas where oil is being recovered (e.g., LL Butler, Well No. 1).
12. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution.
 - a. The proposed injection interval in the Application is the entire Devonian formation, which is capped by numerous impermeable confining zones such as the Strawn, Mississippian and the Woodford. The hearing record indicates an impermeable shale bounds the top and bottom of the Devonian reservoir's injection interval, therefore inhibiting migration of any injected fluids beyond the proposed injection interval.
 - b. The Well Completion with a shallow, intermediate and long-string casing and associated cement will be protective of the water resources. Copper Ridge testified the annular space outside the intermediate casing in the Proposed Disposal Well will be protective of groundwater.
13. The Proposed Disposal Well is not in the public interest.
 - a. Copper Ridge already has a disposal well in the area that is not at capacity.
 - b. Copper Ridge failed to demonstrate the Proposed Disposal will not endanger reservoirs in the area currently productive of hydrocarbons.
14. The Applicant has made a satisfactory showing of financial responsibility.
 - a. Copper Ridge has an active Commission Organization Report (Form P-5) on file with \$ 50,000 as financial assurance.

Proposed Conclusions of Law

1. Proper notice of hearing was timely issued to persons entitled to notice. See, e.g., Tex. Gov't Code § 2001.051; 16 Tex. Admin. Code §§ 1.41, 1.42, 1.45, 3.46.

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2. The Commission has jurisdiction in this case. *See, e.g.*, Tex. Nat. Res. Code § 81.051; Tex. Water Code §§ 27.031, 27.051(b).
3. The Proposed Disposal Well is not in the public interest. Tex. Water Code § 27.051(b)(1).
4. The Proposed Disposal Well will endanger oil, gas, or geothermal resources. Tex. Water Code § 27.051(b)(2); 16 Tex. Admin. Code § 3.46(a).
5. Both ground and surface fresh water can be adequately protected from pollution, with proper safeguards. Tex. Water Code § 27.051(b)(3).
6. Copper Ridge has made a satisfactory showing of financial responsibility. *See, e.g.*, Tex. Water Code §§ 27.051(b)(4), 27.073; Tex. Nat. Res. Code § 91.104; 16 Tex. Admin. Code § 3.78.
7. Applicant failed to demonstrate the Proposed Disposal Well meets the requirements of chapter 27 of the Texas Water Code and the Railroad Commission's Statewide Rule 46.

Recommendations

The Examiners recommend that the Commission deny the Application and issue the enclosed proposed Final Order.

Respectfully submitted,

DocuSigned by:
Robert Musick
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Robert Musick, P.G.
Technical Examiner

DocuSigned by:
Jennifer Cook
C5ED86E8FF3C443...
Jennifer N. Cook
Administrative Law Judge