WAYNE CHRISTIAN, *CHAIRMAN* CHRISTI CRADDICK, *COMMISSIONER* RYAN SITTON, *COMMISSIONER*



RAILROAD COMMISSION OF TEXAS HEARINGS DIVISION

OIL & GAS DOCKET NO. 08-0317121

APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC (609265) PURSUANT TO STATEWIDE RULE 46 FOR A COMMERCIAL PERMIT TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF OIL OR GAS FOR THE RAMSEY 12A (43725) LEASE, WELL NO. 2, FORD (4,000 DELAWARE) FIELD, REEVES COUNTY, TEXAS

AMENDED PROPOSAL FOR DECISION

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

PROCEDURAL HISTORY:

Application Filed:	May 21, 2018
Notice of Pre-Hearing Issued:	February 14, 2019
Pre-Hearing Conference:	March 13, 2019
Hearing Date:	April 24, 2019
Late-Filed Exhibits:	April 29, 2019
Hearing Transcript Received:	May 8, 2019
Close of Record:	June 14, 2019
Proposal for Decision Issued:	August 6, 2019
Amended Proposal for Decision Issued:	August 29, 2019

APPEARANCES:

For Applicant:

NGL Water Solutions Permian, LLC:

George C. Neale (Attorney) – Austin, Texas Christopher S. Hotchkiss (Attorney) – Austin, Texas Tim Jurco (Vice President) Rick Johnston (Professional Engineer) Todd Reynolds (Petroleum Geologist) Mitchell "Bo" Stinson (Injectivity Testing Supervisor) Oil & Gas Docket No. 08-0317121 Proposal for Decision Page 2 of 26

For Protestant:

Ring Energy, Incorporated:

Kelli Tieken Kenney (Attorney) – McElroy, Sullivan, Miller & Weber L.L.P. Hollie Lamb (Engineering)

ConocoPhillips Company:

Jamie Nielson (Attorney) – Austin, Texas Adam Samale (Geologist) Todd Reynolds (Petroleum Geologist)

This Amended Proposal for Decision amends the initial Proposal for Decision in order to correctly state that the date the application was filed is May 21, 2018, that the date of the initial Proposal for Decision was August 6, 2019, and that the hearing on the merits was April 24, 2019 (corrected in Finding of Fact 1.I. only). There are no other changes.

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CASE SUMMARY¹

NGL Water Solutions Permian, LLC (609265) ("NGL" or "Applicant") filed an application ("Application") requesting to amend the existing injection permit conditions for the Ramsey 12A (43725) Lease (referred to as the "Ramsey Lease" or "Lease"), Well No. 2 ("Ramsey Well No. 2"), in the Ford (4,000 Delaware) Field (Field No. 31907666), in Reeves County, Texas, pursuant to 16 Tex. Admin. Code ("TAC") § 3.46. The current permit, issued in 2012, authorizes a maximum injection volume of 20,000 barrels per day ("bpd") of saltwater and non-hazardous oil and gas waste into the Delaware Sands, composed of the Bell Canyon and Cherry Canyon formations in the Ford (4,000 Delaware) Field. The permitted injection interval for the Ramsey Well No. 2 is from 3,000 feet to 4,950 feet deep.²

NGL submitted a completed revised application ("Application") dated December 28, 2018, to amend the existing injection permit conditions for the Ramsey Well No. 2. NGL seeks authority to increase the maximum injection volume to 33,800 bpd from the current permitted volume of 20,000 bpd. NGL asserts that there is a need for disposal capacity in the vicinity.

The Application is protested by Ring Energy, Incorporated ("Ring") and ConocoPhillips Company ("ConocoPhillips"). Ring asserts that the additional disposal capacity is not needed in the area; and NGL's injection of saltwater and non-hazardous oil and gas waste will negatively impact Ring's hydrocarbon production in the Matthews (Brushy Canyon) Field (Field No. 58327075) located about a mile from the Ramsey Well No. 2.³ Also, Ring asserts the injection formations cannot accept the 33,800 bpd of liquid as represented by NGL.⁴ The second protestant, ConocoPhillips, has oil production activities within a ¼-mile radius of the Ramsey Well No. 2 and asserts that completing wells through the permitted injection zone for the Ramsey Well No. 2 will adversely impact ConocoPhillips. ConocoPhillips opposes the Application because of the increase in cost and risk associated with drilling and completing wells through the injection interval to the Ford, West (Wolfcamp) Field (Field No. 31913800) with a correlative interval at 8,230 feet to 10,637 feet.⁵

¹ The transcript for the pre-hearing conference held on March 13, 2019, is referred to as "PHC Audio. [minute: second(s)]." and the transcript for the hearing held on April 24, 2019, is referred to as "Hearing Tr. [pg:ln(s)]". Applicant's exhibits are referred to as "PHC NGL Ex. [exhibit no]." or "Hearing NGL Ex. [exhibit no]."; and the protestant's exhibits are referred to as "PHC Ring Ex. [exhibit no]." or "Hearing Ring Ex. [exhibit no]; or "PHC ConocoPhillips Ex. [exhibit no]." or "Hearing ConocoPhillips Ex. [exhibit no]."

² Hearing NGL Ex. 1.

³. Hearing Tr. Pg. 121, Lns. 6-10; and Pg. 123-124, Lns 1-25.

⁴ Hearing Tr. Pg. 11, Lns. 21-25; and Pg. 12, Lns 1-11.

⁵ Hearing Tr. Pg. 12, Lns. 1-11; Hearing NGL Ex. 12; Ford, West (Wolfcamp) Field Rules.

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Based on the evidence presented at the hearing, the Technical Examiner and Administrative Law Judge (collectively, "Examiners") recommend approval of the Application to amend the maximum injection volume from 20,000 bpd to 33,800 bpd.

NOTICE AND JURISDICTION

On February 21, 2019, the Hearings Division of the Commission sent a Notice of Prehearing Conference ("Notice") via first-class mail to Applicant and all affected persons setting a pre-hearing conference date of March 13, 2019.⁶ The Notice contains (1) a statement of the time, place, and nature of the pre-hearing conference; (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.⁷ The pre-hearing conference was held on March 13, 2019. Applicant and both Protestants appeared and participated.⁸ At the pre-hearing conference, the parties agreed to commence the hearing on the merits on April 24, 2019. The hearing on the merits was held on March 28, 2019. Applicant and Protestants attended and participated in the hearing on the merits. Consequently, all parties received more than 10 days' notice of the hearing and an opportunity for hearing.

APPLICABLE LAW

Tex. Water Code § 27.031 states:

PERMIT FROM RAILROAD COMMISSION. 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 railroad commission.

Tex. Water Code § 27.051(b) states:

- (b) The railroad commission may grant an application for a permit under Subchapter C⁹ in whole or part and may issue the permit if it finds:
 - (1) that the use or installation of the injection well is in the public interest;

⁶ See Notice of Pre-Hearing Conference issued February 21, 2019.

⁷ See Tex. Gov't Code §§ 2001.051, .052; 16 Tex. Admin. Code §§ 1.41, 1.42, 1.45, 3.46.

⁸ PHC Audio, 10 seconds. to 2 minutes, 30 seconds.

⁹ Subchapter C of the Texas Water Code authorizes the Commission to issue permits for injection wells used to dispose of oil and gas waste. See, e.g., Tex. Water Code § 27.031.

- (2) that the use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation;
- (3) that, with proper safeguards, both ground and surface fresh water can be adequately protected from pollution; and
- (4) that the applicant has made a satisfactory showing of financial responsibility if required by Section 27.073¹⁰.

Consistent with the Texas Water Code, Statewide Rule 46 (16 Tex. Admin. Code § 3.46(a)) states the following:

Any person who engages in fluid injection operations in reservoirs productive of oil, gas or geothermal resources must obtain a permit from the Commission. Permits may be issued when the injection will not endanger oil, gas or geothermal resources or cause pollution of freshwater strata unproductive of oil, gas or geothermal resources.

In accordance with the Texas Water Code and Statewide Rule 46, the Examiners evaluate the Application using the four following criteria:

- (1) That the use of the injection well is in the public interest;
- (2) That the use of the injection well will not endanger or injure any oil, gas, or other mineral formation;
- (3) That both ground and surface fresh water can be adequately protected from pollution; and
- (4) That Applicant has made a satisfactory showing of financial responsibility.

¹⁰ Section 27.073 of the Texas Water Code authorized the Commission to require financial assurance in order to issue an injection well permit. Statewide Rule 78 does require financial assurance for operators of disposal wells. See, e.g., Tex. Admin. Code § 3.78(a)(6), (d), (g).

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DISCUSSION OF THE EVIDENCE

Applicant's Evidence

NGL requests to amend the existing injection permit conditions for the Ramsey Well No. 2. NGL seeks authority to increase the maximum injection volume for the Ramsey Well No. 2 to 33,800 bpd from the current permitted volume of 20,000 bpd.

The current permit for the Ramsey Well No. 2 was issued on June 6, 2012, under Project Number F-19010. The 2012 permit is for two injection wells, Well Nos. 2 and 3, but the hearing is specific to the Ramsey Well No. 2 (API No. 389-33507). The 2012 permit authorizes the Ramsey Well No. 2 to have a maximum daily injection volume of 20,000 bpd of saltwater and non-hazardous oil and gas waste with a maximum surface injection pressure of 1,500 pounds per square inch, gauge ("psig"). Also, the Ramsey Well No. 2 has a permitted injection interval that consists of the Delaware Sands formations, located from an interval of 3,000 feet to 4,950 feet.¹¹ The 2012 permit has one special permit condition for the Ramsey Well No. 2, requiring cement behind the 7-inch casing, which is from the surface to 5,048 feet deep.¹²

NGL submitted a completed Form H-1 (*Application to Inject Fluid into a Reservoir Productive of Oil and Gas*) and Form H-1A (Injection *Well Data*), dated May 10, 2018. In the May 10, 2018 Application, NGL requested to change the maximum daily injection volume for the Ramsey Well No. 2 from 20,000 bpd to 45,000 bpd.¹³ In response to a letter dated September 13, 2018 from Commission staff ("Staff"), NGL performed an injectivity test and amended their Application in January 2019, requesting the maximum daily injection volume of 33,800 bpd.¹⁴ The last revised Application is dated December 28, 2018 (tracking no. 48666). The revised injection volume is based on the results of an injectivity test performed on the Ramsey Well No. 2.

Notice of Revised Application and Public Hearing

Notice of the revised Application was provided to operators within a one half-mile of the Ramsey Well No. 2, which included the two protestants, Ring and ConocoPhillips.¹⁵ On December 20, 2018, the Commission's Oil and Gas Division issued a memo to the

¹¹ Hearing Tr. Pg. 14, Lns.8-21.

¹² Hearing NGL Ex. 1 and 10.

¹³ Hearing Tr. Pg. 15, Lns.9-18; Hearing NGL Ex. 2.

¹⁴ Hearing NGL Ex. 4.

¹⁵ Hearing Tr. Pg. 18, Lns.1-25.

Hearings Division requesting a public hearing to address the protests received from Ring and ConocoPhillips.¹⁶

Mr. Johnston, a petroleum engineer representing NGL, testified that notice was provided to operators of wells within a half mile radius. NGL provided notice to all operators, including those with only a drilling permit within a half mile radius. As an example, Mr. Johnston indicated that Ring was provided notice although it only had a drilling permit at the time notice was sent out.¹⁷

Permitted Injection Well

The Ramsey Lease consists of approximately 664 acres and is located 15 miles south of Orla, Texas.¹⁸ NGL asserts the permitted injection zone for the Ramsey Well No. 2 is the Ford (4000 Delaware) Field, consisting predominantly of the Bell Canyon and Cherry Canyon formations.¹⁹ The Ramsey No. 2 Well was initially completed in 2012 by Mesquite SWD Inc. (Operator No. 561951) ("Mesquite"). The well was permitted under Project No. F-19010 in 2012, for the injection of saltwater and nonhazardous waste liquids.²⁰ Mr. Johnston testified that NGL purchased the Ramsey Well No. 2 from Mesquite in June 2018.²¹

The injection well's surface casing is installed from the surface to 503 feet deep to protect fresh water. In addition, a 7-inch diameter string casing is installed from the surface to 5,048 feet, with a differential valve ("DV") tool used to cement behind casing at 1,510 feet deep. Also, a 4.5-inch size tubing was installed from the surface to approximately 2,900 feet with a packer set at 2,952 feet. The actual perforated interval associated with the Ramsey Well No. 2 is from 3,000 feet to 4,920 feet, a 1,920-foot thick injection zone ²²

¹⁶ Hearing NGL Ex. 6.

¹⁷ Hearing Tr. Pg. 63, Lns.1-25.

¹⁸ Hearing NGL Ex. 7.

¹⁹ Hearing Tr. Pg. 14, Lns.8-21.

²⁰ Hearing NGL Ex. 7.

²¹ Hearing Tr. Pg. 82 and 89, Lns.1-25.

²² Hearing Tr. Pg. 27, Lns. 1-10; Hearing NGL Ex. 10.

A bond log was run on December 14, 2012 on the Ramsey Well No. 2. The bond log indicates cement is behind the casing from the surface to at least 5,000 feet deep.²³ Mr. Johnston, asserts,

...the bond log shows that this well has a very good cement job, and it does have cement all the way up to the surface, so it's well cemented. The injected fluids, based on this bond log, will be confined to the injection interval.²⁴

Injection Strata and Porosity

The Application for the Ramsey Well No. 2 states the permitted injection interval consists of the Bell Canyon and Cherry Canyon formations.²⁵ Mr. Johnston testified that the lithology of the injection interval identified rock with 12 percent porosity or more.²⁶ He claimed that the neutron log was used to determine the injection interval lithology and thickness.²⁷

Mr. Todd Reynolds, a geologist for NGL, presented a structure map of the Bell Canyon formation in the vicinity of the Ramsey Well No. 2 and asserts that the formation is very uniform with minimal dipping and no observed faulting.²⁸ He testified that the stratigraphy across the area is consistent and does not pinch out.²⁹ Mr. Reynolds testified that the Bell Canyon formation is below the Lamar Lime and anhydrites and states:

There's an excellent top seal on the sequence. We're not dealing with anything that pinches out locally. As you go from one well to the next, we see, you know, correlatable sands over the length of this cross section. Although the quality of those sands may change somewhat, there's, you know, considerable thickness of sand in the Bell Canyon and the Cherry Canyon that is widespread.³⁰

Mr. Johnston testified that he did not assess the geologic variability across the Delaware Mountain Group, but limited the characterization to the area near the Ramsey

³⁰ Hearing Tr. Pg. 187, Lns. 19-25.

²³ Hearing Tr. Pg. 27, Lns. 19-25.

²⁴ Hearing Tr. Pg. 28, Lns. 1-15.

²⁵ Hearing NGL Ex. 1.

²⁶ Hearing Tr. Pg. 31, Lns. 1-10; Hearing NGL Ex. 9.

²⁷ Hearing Tr. Pg. 59 and 60, Lns.1-25.

²⁸ Hearing Tr. Pg. 185, Lns. 1-10.

²⁹ Hearing Tr. Pg. 187, Lns. 19-25.

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Well No. 2.³¹ He also testified that the gamma ray log shows salt and anhydrite from about 800 feet to 2,570 feet, which is an upper confining interval to the injection interval near the Ramsey Well No. 2 to protect fresh water.³²

Injectivity Test

The request to inject a maximum of 33,800 bpd as proposed in the revised Application, dated January 2019, is based on the results of an injectivity test performed on the Ramsey Well No. 2 on November 7, 2018. Mr. Mitchell "Bo" Stinson, injectivity testing supervisor, testified that the injectivity test indicates the injection interval will take approximately 23.5 barrels per minute or an equivalent 33,800 bpd at 1,460 psig surface pressure.³³ During cross-examination, Mr. Stinson testified that an acid job was performed prior to the injectivity test as routine maintenance to remove scaling. He addressed Ring's assertion that the acid was to expand the injection interval's porosity to improve the well's injection performance. He testified that to improve the injectivity of a well it would take about 20 to 40 thousand gallons with a 21 percent hydrochloric acid concentration, or about four to eight times the volume that was injected prior to the injectivity test with 15 percent hydrochloric acid concentration.³⁴

During cross-examination, Mr. Johnston asserted that the injectivity test is used to assess the injection capability and is not equivalent to a step rate test because the stages are not of equal duration.³⁵ Mr. Johnston also asserts that the Commission has procedures in place for a step rate test to establish valid testing.³⁶ He indicated the injectivity test is intended to see how much water the well would take and not exceed the permitted maximum pressure; and the step rate test is to determine the fracture gradient.³⁷ Mr. Johnston testified that 5,000 gallons of acid was utilized during the testing to increase the permeability in the injection formation and then run the injectivity test.³⁸

Pressure Front Calculations

Mr. Reynolds testified about pressure front calculations associated with the injection interval. He testified that the disposal water will be injected into a 2,000-foot

³¹ Hearing Tr. Pg. 62, Lns.1-25.

³² Hearing Tr. Pg. 81, Lns. 1-25.

³³ Hearing Tr. Pg. 17, Lns.9-25.

³⁴ Hearing Tr. Pg. 179, Lns. 1-25.

³⁵ Hearing Tr. Pg. 56, Lns.1-12.

³⁶ Hearing Tr. Pg. 56, Lns.13-25.

³⁷ Hearing Tr. Pg. 57, Lns.1-25.

³⁸ Hearing Tr. Pg. 59, Lns.1-25.

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interval with over 800 feet of net injectable sand, with the lithology corroborated by nearby logs along with the Ramsey Well No. 2 logs.³⁹

NGL calculated pressure front calculations to assess the influence of the injected liquid on ConocoPhillips' 1201 H Well located 425 feet from the Ramsey Well No. 2. Mr. Johnston testified that the permeability was established in the pressure front calculations at 75 millidarcies and the value was from a technical paper that plotted porosity versus permeability for core data using a porosity of 15 percent.⁴⁰ Mr. Johnston testified that he read in various oil and gas journals that for every barrel of oil produced, about three to four barrels of water are generally produced.⁴¹

Using the established permeability and porosity, NGL determined the pressure front calculations based on a 10-year period injecting the 20,000-bpd current permitted injection volume. The results established an increase in the injection zone reservoir pressure at ConocoPhillips' 1201 H Well by about 188 pounds per square inch, absolute ("psia"), referencing the pressure is relative to a vacuum rather than the ambient atmospheric pressure. With NGL increasing the injection volume from 20,000 bpd to a volume of 33,800 bpd, the pressure at ConocoPhillips' 1201 H Well will increase to 318 psia in 10 years, an estimated pressure front differential of 130 psia.⁴²

Area Injection Wells

NGL presented Exhibit 16 (a map of active commercial disposal wells) which is a map showing active commercial disposal wells within 10 miles of the Ramsey Well No. 2; and Exhibit 17, (a table) showing active commercial disposal wells in Reeves County.⁴³ Based on this evidence, approximately 190 saltwater disposal wells are available in these counties to dispose of approximately 8 to 12 million bpd of water from the Delaware Basin.⁴⁴ The commercial saltwater disposal wells are generally clustered immediately to the south and east of the Ramsey Well No. 2, with about 50 commercial injection wells identified on maps within about four miles immediately to the south and east of the Ramsey Well No. 2, with about 50 commercial injection wells in the vicinity of the Ramsey Well No. 2 typically inject into the Delaware Mountain Group fields.

³⁹ Hearing Tr. Pg. 186, Lns. 19-23; Pg. 188, Lns. 1-15.

⁴⁰ Hearing NGL Ex. 27.

⁴¹ Hearing Tr. Pg. 65, Lns. 1-25

⁴² Hearing Tr. Pg. 39, Lns. 1-25; Hearing NGL Ex.13.

⁴³ Hearing Tr. Pg. 42, Lns. 15-25; Pg. 44, Lns 12-25

⁴⁴ Hearing Tr. Pg. 46 and 76, Lns. 1-25; Hearing NGL Ex. 16 and 17.

⁴⁵ Hearing Tr. Pg. 185, Lns. 6-25; Hearing NGL Ex.21 and 23.

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Nearest Production Wells

Wells operating nearest the Ramsey Well No. 2 are operated by the two protestants, ConocoPhillips and Ring. The ConocoPhillips well is identified as the 1201 H Well (API No. 42-389-33664) and is about 425 feet from the Ramsey Well No. 2. The well was designed with surface casing to 2,640 feet with cement circulated to the surface. The 1201 H Well has a 7-inch casing to 9,597 feet with a DV tool at 6,025 feet with cement circulated to surface. NGL asserts the ConocoPhillips well crosses the disposal interval at 3,000 to 4,950 feet deep and is cemented across the disposal interval.⁴⁶ In addition to the ConocoPhillips well, Ring operates one well, the 2H Well (API No. 42-389-33383), located less than 2,000 feet from the Ramsey Well No. 2. Ring's 2H Well penetrates the permitted injection interval at 3,000 feet to 4950 feet at about one mile from the surface location of the Ramsey Well No. 2 and is in the Matthews (Brushy Canyon) Field, with the correlative interval for the Field being 4,569 feet to 6,096 feet.⁴⁷ The Ring well is cemented across the disposal interval.

Protection of Useable Quality Water Aquifers

A letter dated June 1, 2012, from the Commission's Groundwater Advisory Unit, estimates the base of usable-quality water ("BUQW") is at 425 feet, which correlates to the base of the Rustler formation.⁴⁸ Mr. Johnston testified that the surface casing is 75 feet below the BUQW.⁴⁹

Rule Requirements

NGL provided Commission records showing their active P-5 status required by Statewide Rule 80, along with a financial assurance amount of \$50,000 required by Statewide Rule 78.⁵⁰ NGL also asserts that proper safeguards have been put in place and will not endanger oil and gas or mineral formations associated with the injection interval.⁵¹

Mr. Tim Jurco, vice president for NGL, testified letters were received from Chevron and Concho that supported the proposed increased disposal capacity for Well No. 2. Mr. Jurco testified that NGL has a total of four injection wells at its disposal facility and water

⁴⁶ Hearing Tr. Pg. 38, Lns. 1-25; Hearing NGL Ex. 12.

⁴⁷ Hearing Tr. Pg. 33, Lns. 1-25; Hearing NGL Ex. 11; Matthews (Brushy Canyon) Field Rules.

⁴⁸ Hearing NGL Ex. 7.

⁴⁹ Hearing Tr. Pg. 72, Lns. 1-25.

⁵⁰ Hearing Tr. Pg. 41, Lns. 1-25; Hearing NGL Ex. 15.

⁵¹ Hearing Tr. Pg. 53, Lns. 8-15.

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can be disposed of in any of the four wells⁵² Also, Mr. Jurco testified the additional capacity should help with Concho's disposal needs.

Protestant's Evidence (Ring Energy, Inc.)

The Application is protested by Ring Energy, Inc. Ring operates about 780 wells with about 60 of those wells currently in Reeves County, Texas in the Delaware, Permian, and Central Basin platforms.⁵³ Ring asserts that additional disposal capacity is not needed in the area; the injection into the Bell Canyon and the Cherry Canyon will negatively impact the Brushy Canyon hydrocarbon production area where Ring operates wells; and the proposed injection volume of 33,800 bpd requested by NGL exceeds the Ramsey Well No. 2's capability to take the volume of liquids.⁵⁴

Ms. Hollie Lamb, Vice President of Engineering at Ring, testified that Ring has working interest, revenue interest or leasehold assets in about 20,000 acres throughout Texas, but much of their interest is in the Delaware Basin. Ms. Lamb testified that Ring has one vertical existing well and two horizontal wells within the vicinity of the Ramsey Well No. 2, with the vertical well completed in the Cherry Canyon and the Upper Brushy Canyon formations, and the two horizontal wells completed in the Brushy Canyon formation. All Ring wells proximal to the injection well are completed in the Delaware Mountain Group, in the Matthews (Brushy Canyon) Field with a correlative interval established at 4,569 feet to 6,096 feet.⁵⁵ During cross-examination by NGL, Ms. Lamb, testified that Ring has two distinct lease areas in the vicinity of the Ramsey Well No. 2. Ms. Lamb testified that their leases were acquired in 2013 or 2014, and are depth severed with Ring having the Delaware Mountain Group as an oil production zone and ConocoPhillips and Anadarko having the mineral interest at depth, including the Ford, West (Wolfcamp) Field at about 8,230 feet deep.⁵⁶

Ms. Lamb testified about the wells in vicinity of the Ramsey Well No. 2. The hearing record indicates numerous Delaware Mountain Group wells are located within three miles of the Ramsey Well No. 2, with most of the vertical wells being plugged and abandoned. Ring presented maps in the hearing indicating six active commercial disposal sites in proximity to the Ramsey Well No. 2.⁵⁷

⁵² Hearing Tr. Pg. 84, Lns.1-25.

⁵³ Hearing Tr. Pg. 11, Lns. 9-20.

⁵⁴ Hearing Tr. Pg. 12, Lns. 1-12.

⁵⁵ Hearing Tr. Pg. 101 and 102, Lns.1-25; Matthews (Brushy Canyon) Field Rules.

⁵⁶ Hearing Tr. Pg. 130, Lns. 1-25.

⁵⁷ Hearing Tr. Pg. 117, Lns.1-6.

Ms. Lamb testified that the surface location of the ConocoPhillips' Ramsey Lease, 1201 H Well, is 425 feet from the Ramsey Well No. 2. The 1201 H Well has an "open hole log" that can be used to assess and interpret the stratigraphy in the vicinity.⁵⁸ Ms. Lamb asserts the injection interval is composed of sequences of interbedded sands with shale and limestone. Each of these stratigraphic layers can be correlated throughout the northern basin area.⁵⁹ Ms. Lamb claims that the injection interval for the Ramsey Well No. 2 is composed of the lower portion of the Bell Canyon formation, all of the Cherry Canyon formation and the upper 600 feet of the Brushy Canyon formation.⁶⁰ Ms. Lamb states,

...so, this kind of demonstrates the interbedded qualities, but it's a very complex reservoir. It's not homogeneous. You're not looking at a big sand package that you're injecting into and the parameters across this interval are very complex. And to understand our acreage in these shallow formations, we run complex logging suites so that we can accurately attain permeability, porosity, all of that.⁶¹

Ms. Lamb argues that the injectivity test performed by NGL may show incorrect ability to inject into the permitted injection zone. She argues that 5,000 gallons of hydrochloric acid was used during the injectivity test to enhance porosity. Ms. Lamb testified that the acid would flow through the perforations into the formation and react to the limestone breaking down cementation creating porosity and higher permeabilities.⁶² Injecting the acid before the injectivity test could have impacted the results of the test.⁶³ Ms. Lamb testified that a step rate test may have been warranted instead of an injectivity test. Ms. Lamb testified that the objective of a step rate test is to determine a fracture gradient; and an injectivity test is the ability to accept fluids.⁶⁴

Ring provided seven injection well permits, including the injection permit for the Ramsey Well No. 2, that are operated by NGL in the Ford (4000 Delaware) Field and/or the Sandbar (Bone Spring) Field, Reeves County, Texas. Ms. Lamb testified about each injection permit, specifically acknowledging the permitted injection volume compared with Commission records of the actual volume of liquid injected during specific time periods.

61 Hearing Tr. Pg. 105, Lns.14-21.

⁵⁸ Hearing Tr. Pg. 106, Lns.1-25.

⁵⁹ Hearing Tr. Pg. 105, Lns.1-13; Hearing Ring Ex.3.

⁶⁰ Hearing Tr. Pg. 106, Lns.1-25.

⁶² Hearing Tr. Pg. 127, Lns.1-25.

⁶³ Hearing Tr. Pg. 128, Lns.7-10.

⁶⁴ Hearing Tr. Pg. 146, Lns. 1-25.

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Ms. Lamb testified that there is excess injection volume capacity in the area. She stated,

As we went through the permits you could see the issuance dates and the volumes associated with it. And you can see that increase right there of permitted volume. And then the actual volume that was put into the wells were in blue. And then capacity of utilization as a percentage is in black.⁶⁵

Ms. Lamb testified that based on the permitted volumes, NGL is currently using about 40 percent of their disposal volume.⁶⁶ This percentage does not take into account periods of inactivity or the one well that was permitted but not drilled.⁶⁷ She testified the injection volume is an arbitrary value that is part of the application and agreed that the proposed value is theoretical and there is really no technical analysis of the volume that the well could actually take.⁶⁸

Ms. Lamb asserts that the Delaware Mountain Group extends into New Mexico and is also identified as the Bell Canyon and Cherry Canyon formations in New Mexico. These formations correlate to the injection formations that the Ramsey Well No. 2 is injecting liquids into as authorized by their injection permit.⁶⁹ Ring asserts that the State of New Mexico's Energy, Minerals and Natural Resources Department, reviewed and made decisions related to disposal wells in the Bell Canyon and Cherry Canyon as it impacts Brushy Canyon production in New Mexico.⁷⁰ Ms. Lamb asserts that New Mexico assessed the commercial saltwater disposal well owned by Mesquite and determined through an order of the New Mexico's, Oil and Gas Division that the Mesquite saltwater disposal well was affecting wells completed in a lower interval in the Brushy Canyon formation, located in Eddy County, New Mexico. The order concluded that the operation of two commercial disposal wells have impacted hydrocarbon production, thereby causing waste and impairing correlative rights.⁷¹

Ms. Lamb testified that Ring has scheduled future drilling of wells into the Matthews (Brushy Canyon) Field and provided the Form W-1's (*Application for Permit to Drill, Recomplete, or Re-Enter*). She asserts that three wells have been scheduled to be drilled and one well, the Hippogriff 4H Well, has been completed into the Matthews (Brushy Canyon) Field. She testified that the Hippogriff 4H Well is located about two miles west of the Ramsey Well No. 2 and substantial water flow was observed near the toe of the

⁶⁵ Hearing Tr. Pg. 115, Lns.1-25.

⁶⁶ Hearing Tr. Pg. 138, Lns. 1-25.

⁶⁷ Hearing Tr. Pg. 138, Lns. 12-16.

⁶⁸ Hearing Tr. Pg. 139 and 141, Lns. 1-25.

⁶⁹ Hearing Tr. Pg. 118, Lns.1-25.

⁷⁰ Hearing Tr. Pg. 118, Lns.15-25.

⁷¹ Hearing Ring Ex.12.

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horizontal drainhole in the Brushy Canyon formation, therefore Ring completed the Hippogriff 4H Well approximately 830 feet shorter than the planned one-mile length.⁷²

In conclusion, Ms. Lamb contends that the proposed application to increase the injection volume for NGL's Ramsey Well No. 2 should be denied.⁷³

Protestant's Evidence (ConocoPhillips Company)

The Application is protested by ConocoPhillips Company. ConocoPhillips operates on the tract where the existing disposal well is located and has several planned or current wells in the vicinity.⁷⁴ ConocoPhillips opposes the Application because of the increased cost and risks associate with the drilling through, setting and cementing casing through the injection zone.⁷⁵

Mr. Adam Samale, a geologist for ConocoPhillips, testified that four wells are scheduled to be installed in the vicinity of the Ramsey Well No. 2. ConocoPhillips plans to complete the four wells into the Wolfcamp A, which is part of the Ford, West (Wolfcamp) Field at about 8,230 feet deep.⁷⁶ These four wells are all scheduled to be located within 1,000 feet of the surface location of the Ramsey Well No. 2. Currently, ConocoPhillips has one existing well identified as the Roulette 1201 H Well, completed in October 2015, located about 500 feet southwest of the Ramsey Well No. 2. She indicated in testimony,

The surface hole locations and the depth of penetration through the Delaware Mountain Group will be within a thousand feet [of ConocoPhillips' proposed and existing wells] -- drilled from a common surface pad.⁷⁷

Mr. Samale testified that the Roulette 1201 H Well was completed with three strings of casing. The surface casing is set below the Rustler Salado which is primarily salt; and a second casing runs from the surface through the injection well target zones (Bell Canyon, Cherry Canyon, Brushy Canyon); and the third casing is in the Wolfcamp A formation.⁷⁸ Mr. Samale discusses the four-string well contingency design and states,

⁷² Hearing Tr. Pg. 122, Lns.5-11.

⁷³ Hearing Tr. Pg. 120, Lns.15-19.

⁷⁴ Hearing Tr. Pg. 12, Lns. 14-22.

⁷⁵ Hearing Tr. Pg. 12, Lns. 14-22.

⁷⁶ Hearing Tr. Pg. 130, Lns. 1-25.

⁷⁷ Hearing Tr. Pg. 157, Lns. 18-25; Hearing ConocoPhillips Ex.2.

⁷⁸ Hearing ConocoPhillips Ex. 3.

This has been created since we've encountered multiple issues drilling in close proximity to the saltwater wells. So, you can see we still have the 17-and-a-half-inch surface hole. And then once we drill into the Delaware Mountain Group if we encounter flow -- so it's a contingency. We won't necessarily set this unless we see flow in that zone. And then we have to set a string of casing to isolate that entire zone. Typically, we've been setting that somewhere in the Brushy Canyon, depending on perfed intervals of the injecting wells, we may need to set that slightly deeper. So that is the 12-and-a-quarter intermediate hole. Then we proceed to the second intermediate section, which is the nine-and-seven-eighths intermediate hole. And continue on down, and the four-string is the six-and-three-quarters intermediate hole.⁷⁹

The Ramsey Well No. 2 began injecting in February of 2013, with a volume of 2,200 barrels per month and current injections about 47,000 barrels per month. Mr. Samale, states,

So, we believe that any increase in the volume at this particular well will --will add to the risk for these planned wells.So, we've seen -- in other locations in close proximity to saltwater disposal wells we've seen increased flow in the Delaware Mountain Group, and it requires us to set a fourth string of casing.⁸⁰

Mr. Samale claims the first instance that ConocoPhillips experienced higher pressure was while installing Well No. 4, on the Big Kahuna Lease, located about two miles from the Ramsey Well No. 2, and about 1,650 feet west of the Ford West SWD 25 5 injection well.⁸¹ Well No. 4 was the first well in the area that encountered the issue of increased pressure and water flowing in the Delaware Mountain Group, which resulted in one of the five Big Kahuna wells being plugged and abandoned. In a similar scenario, the Lonestar and Battleship wells located about 950 feet from the Ford West SWD 25 4 injection well showed signs of increased pressure and water flowing in the Delaware Mountain Group, which resulted in ConocoPhillips utilizing a four-string casing design to control the pressure in the injection interval. Mr. Samale testified that the four-string design significantly increases the cost of the well completion. As a result, the Big Kahuna and Battleship had a total completion cost of \$1,800,000, which was an additional cost of \$953,000 to \$1.5 million for well completion with the fourth string casing.⁸² In cross-examination, Mr. Samale acknowledged it is not certain that denial of the Application to

⁷⁹ Hearing Tr. Pg. 161, Lns. 1-25; Hearing ConocoPhillips Ex.3.

⁸⁰ Hearing Tr. Pg. 159, Lns. 13-16.

⁸¹ Hearing Tr. Pg. 162, Lns. 1-25; Hearing ConocoPhillips Ex.4.

⁸² Hearing Tr. Pg. 166, Lns. 1-25. Hearing ConocoPhillips Ex.5.

increase the volume will eliminate the need to run a fourth string casing, but it is a possibility.⁸³ Mr. Samale stated,

ConocoPhillips is concerned that any increase in volume will increase the risk; that we will run into the pressure and the water and have to set the fourth string of intermediate casing.

So, when we experience the flow, it was mentioned before that it can be difficult to set cement. And so any time we're in abnormal situations, incidents can occur.

Mr. Samale testified about whether a prior waterflood in the Delaware Mountain Group contributed to the need for a fourth casing. Mr. Samale responded to a question under cross examination about the water flood causing the need for a fourth string. He responded,

I don't believe so, because the -- if we've drilled roughly 40 wells in the last couple of years, and the only wells that we've seen this issue on are within the close proximity to the saltwater wells. So, we have drilled through many of these other existing wells as part of that water and CO2 flood. So, we have only seen the issue within about 2,000 feet of an active injector into the Delaware Mountain Group.⁸⁴

EXAMINERS' ANALYSIS OF THE EVIDENCE

The Examiners' recommendation is to approve NGL's application to amend its commercial injection permit based on the evidence and testimony presented at the hearing. All statutory requirements under Statewide Rule 46 will be met for the Commission to amend the existing commercial injection permit for the Ramsey Well No. 2 saltwater disposal well to increase the maximum daily disposal volume to 33,800 bpd.

Prevent Pollution of Ground and Surface Water

Neither Ring nor ConocoPhillips provided evidence that fresh water was endangered from operational activities associated with the Ramsey Well No. 2. This is not a disputed issue. The Ramsey Well No. 2 has surface casing installed from the surface to 503 feet deep, which is about 78 feet deeper than the BUQW which is estimated to be about 425 feet deep as determined by the Commission's Groundwater Advisory Unit. In addition to the surface casing, a 7-inch diameter long-string casing is installed from the surface to about 5,048 feet deep. Injection fluids are transported from

⁸³ Hearing Tr. Pg. 170, Lns. 1-25;

⁸⁴ Hearing Tr. Pg. 174, Lns. 10-17; see also Hearing Tr. Pg. 173, Lns. 1-25.

the surface to the injection interval using a 4.5-inch size tubing installed from the surface to approximately 2,900 feet with a packer set at 2,952 feet. In December 2012, a bond log confirmed that cement is behind the casing from the surface to at least 5,000 feet deep. In addition, NGL's geologist, Mr. Reynolds, testified that the permitted injection interval consisting of the Bell Canyon and Cherry Canyon formations, from 3,000 feet to 4,950 feet deep, are below salts and anhydrite which establishes an upper confining interval that is an excellent top seal on the sequence and protective of freshwater. The Examiners are persuaded that the Ramsey Well No. 2 has been designed to be protective of freshwater.

Endanger or Injure Any Oil, Gas, or Other Mineral Formation

NGL contends that the proposed disposal well will not injure any oil, gas, or other mineral formations. NGL calculated pressure within the injection interval to determine the effects of the Ramsey Well No. 2 on the ConocoPhillips' 1201 H Well, the closest well located 425 feet away. Based on the calculations by NGL, an increased pressure of 130 psia will occur in the injection interval when calculating the injection of 20,000 bpd over 10 years and comparing the calculated pressure to the injection of 33,800 bpd over 10 years. Nether Ring nor ConocoPhillips provided injection pressure calculations, production data, well installation data, or produced water data to support their assertion that the Ramsey Well No. 2 is adversely impacting their production target zones or that the proposed amended increase in volume will have an adverse impact.

Ring has one vertical existing well and two horizontal wells within the vicinity of the Ramsey Well No. 2, with the vertical well completed in the Cherry Canyon and the Upper Brushy Canyon formations, and the two horizontal wells completed in the Brushy Canyon formation. Although the Ring wells are completed in the Matthews (Brushy Canyon) Field with a correlative interval established at 4,569 feet to 6,096 feet, no data or geologic cross-sections were submitted into the hearing record that demonstrates the Matthews (Brushy Canyon) Field is in communication with the Bell Canyon and Cherry Canyon formations in the Ford (4,000 Delaware) Field. Also, no data was provided to show that their production interval had been adversely impacted by the Ramsey Well No. 2. While ConocoPhillips claims that drilling and well completions through NGL's permitted injection zone will adversely impact ConocoPhillips by causing an increase in costs, no evidence was presented to establish communication or injury to the Ford, West (Wolfcamp) Field, their target production zone. The Examiners were not persuaded that the mineral resources associated with the injection interval have been injured or endangered based on the evidence in the record.

Public Interest

NGL asserts that disposal capacity in the area is needed. In the hearing, NGL provided two letters from customers identified as Chevron and Concho who support their

request to increase injection capacity. Based on NGL's evidence, approximately 190 saltwater disposal wells are available in Reeves and nearby counties to dispose of approximately eight to 12 million bpd of liquid from the Delaware Basin, therefore a market is available for additional disposal volume.

Ring asserts that the additional disposal capacity requested by NGL is not needed in the area since the commercial saltwater disposal wells are generally clustered immediately to the south and east of the Ramsey Well No. 2, with about 50 commercial injection wells within a four-mile radius of the Ramsey Well No. 2, and with six active commercial disposal sites located within 3,500 feet of the Ramsey Well No. 2.

In addition, Ms. Lamb with Ring testified about each injection permit in the vicinity of the Ramsey Well No. 2 and compared the permitted injection volume with Commission records of the actual volume of liquid injected during specific time periods. Ms. Lamb testified that NGL is currently using about 40 percent of its disposal permitted volume, therefore additional capacity in not needed. In cross-examination, she acknowledged the injection volume is an arbitrary value that is part of the application and agreed that the proposed value is theoretical and may not be the volume that the well can inject into the permitted injection interval. Based on the evidence, the Examiners find the proposed saltwater disposal well in the public interest.

Financial Responsibility.

Statewide Rule 78 states that any person, including any firm, partnership, joint stock association, corporation, or other organization, is required to file an organization report and financial security with the Commission.

NGL has on file with the Commission \$50,000 of financial assurance along with an active Organization Report (Form P-5, Operator No. 609265). No testimony or evidence was presented in the hearing by the protestants regarding NGL's ability to meet its financial assurance obligations. The evidence in the record demonstrates the applicant has made a satisfactory showing of financial responsibility.

Additional Analyses

ConocoPhillips opposes the Application because of the increased cost and risk associate with drilling through, setting and cementing casing through the permitted injection zone. Mr. Samale, geologist for ConocoPhillips, claims that the first instance that ConocoPhillips experienced higher pressure within the permitted injection interval was while installing Well No. 4, on the Big Kahuna Lease, located about two miles from the Ramsey Well No. 2, and near the Ford West saltwater disposal wells identified as SWD 25 4 and SWD 25 5. Mr. Samale testified that a four-string well design that must be used in some cases to address the pressures in the injection interval may significantly increase

the cost of the well completion. No data was submitted into evidence, and the Examiners have no information to support a conclusion that the Ramsey Well No. 2, has adversely impacted the production wells being completed through the permitted injection interval located over a mile from the surface location of the Ramsey Well No. 2. Consequently, there is insufficient evidence that the proposed amendment to increase the permitted maximum daily volume will adversely impact production. In fact, the pressure head calculations presented by NGL establish that pressure a mile from the Ramsey Well No. 2 should be minimal. ConocoPhillips did not provide any data to counter the pressure head calculations presented by NGL.

NGL conducted an injectivity test to establish the volume to dispose of into the injection interval. Ring argues that the injectivity test performed by NGL may show incorrect ability to inject into the permitted injection zone by using 5,000 gallons of hydrochloric acid prior to performing the injectivity test. Use of the injectivity test that lead to the proposed injection volume of 33,800 bpd is a standard practice accepted by Staff when evaluating capacity. There is sufficient evidence that it is a reliably widely used methodology.

Examiners' Recommendation

Based on the evidence and testimony presented at the hearing, the Examiners recommend that the Commission approve NGL's application dated December 28, 2018, to amend commercial disposal permit No. 19010, pursuant to Statewide Rule 46, and adopt the following findings of fact and conclusions of law.

FINDINGS OF FACT

- 1. The following is the procedural history for the Docket:
 - a. NGL Water Solutions Permian, LLC (609265) ("NGL" or "Applicant") filed an application ("Application") consisting of Commission Forms H-1 and H-1A, to amend the existing permit conditions for the Ramsey 12A (43725) Lease (referred to as the "Ramsey Lease" or "Lease"), Well No. 2, in the Ford (4,000 Delaware) Field (Field No. 31907666), in Reeves County, Texas, pursuant to 16 Tex. Admin. Code § 3.46;
 - b. The current permit for the Ramsey Well No. 2 (API No. 389-33507) was issued on June 6, 2012, under Project Number F-19010 and authorizes an injection maximum volume of 20,000 barrels per day ("bpd") of saltwater and nonhazardous oil and gas waste with a maximum surface injection pressure of 1,500 pressure square inch, gauge ("psig");

- c. The 2012 permit for the Ramsey Well No.2 has an injection interval that is from 3,000 feet to 4,950 feet deep, which is in the Delaware Sands, composed of the Bell Canyon and Cherry Canyon formations;
- d. The Ramsey No. 2 Well was initially completed in 2012 by Mesquite SWD Inc. (Operator No. 561951) ("Mesquite");
- e. NGL purchased the Ramsey Well No. 2 from Mesquite in June 2018;
- f. NGL amended its Application in October 2018 and again in January 2019, requesting the maximum daily injection volume for the Ramsey Well No. 2 be modified to 33,800 bpd;
- g. Notice of the revised Application was provided to operators within a half-mile of the Ramsey Well No. 2;
- h. The Application is protested by Ring Energy, Incorporated ("Ring") and ConocoPhillips Company ("ConocoPhillips").
- i. On December 20, 2018, the Commission's Oil and Gas Division issued a memo to the Hearings Division requesting a public hearing to address the protests received from Ring and ConocoPhillips;
- j. On February 21, 2019, the Hearings Division of the Commission sent a Notice of Prehearing Conference ("Notice") via first-class mail to Applicant and all affected persons setting a pre-hearing conference date of March 13, 2019. The Notice contains (1) a statement of the time, place, and nature of the pre-hearing conference; (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.
- k. The pre-hearing conference was held on March 13, 2019. Applicant and both Protestants appeared and participated. At the pre-hearing conference, the parties agreed to commence the hearing on the merits on April 24, 2019.
- I. The hearing on the merits was held on April 24, 2019. Applicant and Protestants attended and participated in the hearing on the merits. Consequently, all parties received more than 10 days' notice of the hearing and an opportunity for hearing.
- 2. The Ramsey Lease consists of approximately 664 acres and is located 15 miles south of Orla, Texas.

- 3. The request to inject 33,800 bpd as proposed in the revised Application date January 2019, is based in part on the results of an injectivity test performed on the Ramsey Well No. 2 on November 7, 2018 showing the Ramsey Well No. 2 has the capability of taking 33,800 bpd within required pressure limits.
- 4. The Ramsey Well No. 2 was constructed as follows, as described by the Application (Form H-1 and Form H-1A):
 - a. The surface casing is installed from the surface to 503 feet deep (determined by circulation);
 - b. A 7-inch diameter string casing is installed from the surface to 5,048 feet (determined by circulation);
 - c. A differential valve ("DV") tool was used to cement behind casing at 1,510 feet deep;
 - d. Tubing size is 4.5 inches in diameter and runs 2,900 feet deep;
 - e. Tubing packer is set at 2,952 feet;
 - f. The injection formation is the Delaware Sands composed of the Bell Canyon and Cherry Canyon formations; and
 - g. The injection interval is from 3,000 feet to 4,920 feet.
- 5. A bond log was run on December 14, 2012 on the Ramsey Well No. 2. The bond log shows cement is behind the casing from the surface to at least 5,000 feet deep.
- 6. Wells operating nearest the Ramsey Well No. 2 are operated by the two protestants, ConocoPhillips and Ring.
 - a. ConocoPhillips operates on the tract where the existing Ramsey Well No. 2 is located. The ConocoPhillips well is identified as the 1201 H Well (API No. 42-389-33664) and is about 425 feet from the Ramsey Well No. 2. The production zone for ConocoPhillips is the Ford, West (Wolfcamp) Field, which is deeper than the Ramsey No. 2 permitted injection interval. ConocoPhillips opposes the Application because of the increased cost and risks associate with the drilling through, setting and cementing casing through the injection zone; and
 - b. Ring operates about 780 wells with about 60 of those wells currently in Reeves County, Texas in the Delaware, Permian, and Central Basin platforms. All Ring wells proximal to the injection well are completed in the Delaware Mountain

Group, in the Matthews (Brushy Canyon) Field with a correlative interval established at 4,569 feet to 6,096 feet. Ring operates one well, the 2H Well, located less than 2,000 feet from the Ramsey Well No. 2. Ring opposes the Application and asserts that additional disposal capacity is not needed in the area; the injection into the Bell Canyon and the Cherry Canyon will negatively impact the Brushy Canyon hydrocarbon production area where they operate wells; and the proposed injection volume of 33,800 bpd requested by NGL exceeds the Ramsey Well No. 2's capability to take the volume of liquids.

- 7. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution.
 - a. A letter dated June 1, 2012, from the Commission's Groundwater Advisory Unit, estimates the base of usable-quality water ("BUQW") is at 425 feet, which correlates to the base of the Rustler formation. The Ramsey Well No. 2 has surface casing installed from the surface to 503 feet deep, which is about 78 feet deeper than the BUQW;
 - b. In addition to the surface casing, a 7-inch diameter long-string casing is installed from the surface to about 5,048 feet deep. Injection fluids are transported from the surface to the injection interval using a 4.5-inch size tubing installed from the surface to approximately 2,900 feet with a packer set at 2,952 feet;
 - c. In December 2012, a bond log confirmed that cement is behind the casing from the surface to at least 5,000 feet deep;
 - d. The permitted injection interval, consisting of the Bell Canyon and Cherry Canyon formations—from 3,000 feet to 4,950 feet deep—are below salts and anhydrite. The salts and anhydrite establish an upper confining interval that is a top seal on the sequence and protective of freshwater.
- 8. NGL has an active Commission Organization Report (Form P-5, Operator No. 609265), on file with \$ 50,000 as financial assurance.
- 9. The oil, gas or mineral formations in the area are not endangered and will not be endangered if the permit is amended as requested.
 - a. NGL calculated pressure within the injection interval to determine the effects of the Ramsey Well No. 2 on the ConocoPhillips' 1201 H Well, the closest well located 425 feet away. Based on the calculations, an increased pressure of 130 psia will occur in the injection interval when calculating the injection of 20,000 bpd over 10 years and comparing the calculated pressure to the injection of 33,800 bpd over 10 years.

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- b. A lack of substantial evidence was presented to establish communication or injury to the Ford, West (Wolfcamp) Field separated from the permitted injection interval by approximately 2,000 feet; and
- c. Ring wells are correlated to the Matthews (Brushy Canyon) Field with a correlative interval established at 4,569 feet to 6,096 feet. No data or geologic cross-sections were submitted into the record that demonstrate the Matthews (Brushy Canyon) Field is in communication with the Bell Canyon and Cherry Canyon formations in the Ford (4,000 Delaware) Field.
- 10. The Ramsey Well No. 2 is in the public interest.
 - a. NGL provided two letters from customers identified as Chevron and Concho who support their request to increase injection capacity; and
 - b. Approximately 190 saltwater disposal wells are available in Reeves and nearby counties to dispose of approximately eight to 12 million bpd of liquid from the Delaware Basin; therefore a market is available for additional disposal volume.

CONCLUSIONS OF LAW

- 1. Resolution of the Application is a matter committed to the jurisdiction of the Commission. Tex. Nat. Res. Code § 81.051.
- 2. All notice requirements have been satisfied. 16 Tex. Admin. Code § 3.46.
- 3. Both ground and surface fresh water can be adequately protected from pollution. Tex. Water Code §27.051(b).
- 4. NGL has made a satisfactory showing of financial responsibility. Texas Water Code § 27.051(b)(4) and required by Section 27.073.
- 5. NGL has demonstrated that the oil, gas or mineral formations are not endangered. Texas Water Code § 27.051(b).
- 6. NGL has demonstrated that the well is in the public interest. Texas Water Code § 27.051(b).
- 7. NGL met its burden of proof to satisfy the requirements of Chapter 27 of the Texas Water Code and the Commission's Statewide Rule 46.

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EXAMINERS' RECOMMENDATION

Based on the evidence presented at the hearing, the Technical Examiner and Administrative Law Judge (collectively, "Examiners") recommend approval of the Application to amend the maximum injection volume from 20,000 bpd to 33,800 bpd for the Ramsey Well No. 2, in the Ford (4,000 Delaware) Field, in Reeves County, Texas, pursuant to 16 Tex. Admin. Code § 3.46.

Respectfully,

Robert Musick, P.G. Technical Examiner

Jennifer N. Cook

Administrative Law Judge