



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL & GAS DOCKET NO. 06-0295419

THE APPLICATION OF ROLLO, PERRY & SHOFNER INVST LLC PURSUANT TO 16 TEX. ADMIN. CODE §3.9 FOR A COMMERCIAL PERMIT TO INJECT FLUID INTO A RESERVOIR NOT PRODUCTIVE OF OIL OR GAS, CROCKETT SWD LEASE, WELL NUMBER 1, AUSTONIO, N.E. (GLENROSE) FIELD, HOUSTON COUNTY, TEXAS

HEARD BY: Brian Fancher, P.G. – Technical Examiner
John Dodson - Administrative Law Judge

REVIEWED BY: Marshall F. Enquist – Administrative Law Judge

APPEARANCES:

APPLICANT:

Stephen Fenoglio
Sonny Rollo
Lee Shofner
David Perry
Richard Atkins
Krystal Eversdyk

REPRESENTING:

Rollo, Perry & Shofner Invst, LLC

PROTESTANTS:

James & Linda Mahaffey
Charlana Kelly
Larry & Donna Kaspar
R. Terry Oates

REPRESENTING:

Selves
Self
Selves
Self

PROCEDURAL HISTORY

Application Published:	November 6, 2014
Application Filed:	December 1, 2014
Protest Received:	December 18, 2014
Request for Hearing:	January 8, 2015

Notice of Hearing:	May 1, 2015
Hearing Held:	August 10, 2015
Transcript Received:	August 28, 2015
Proposal for Decision Issued:	March 8, 2016

STATEMENT OF THE CASE

Rollo, Perry & Shofner Invst, LLC (“RPS” or “Applicant”) seeks authority to commercially inject produced water into its Crockett SWD Lease (the “Subject Lease”), Well No. 1 (the “Subject Well”), pursuant to Statewide Rule 46 [16 Tex. Admin. Code §3.46]. The Subject Lease is composed of 5.017-acres. RPS proposes a maximum injection volume of 25,000 barrels per day (“bpd”) of salt water and RCRA-exempt¹ fluids into the Woodbine and Edwards Formations from 7,550 to 8,950 feet. RPS proposes a maximum surface injection pressure of 3,775 pounds per square inch gauge (“psig”) (collectively “Subject Application”).

The Subject Application is protested by several persons that consist of adjacent landowners to the Subject Lease. Generally, the Protestants’ collective reasons for opposing the Subject Application include the following: (1) the proximity of the Subject Well to nearby homes and businesses; (2) whether Applicant has sufficient financial resources in the instant the Subject Well experiences a catastrophic failure; (3) whether the Subject Well is in the public’s interest; (4) whether the Subject Well is at a reasonable location; (5) increased truck traffic; (6) degradation to the quality of life due to truck-noise; (7) property devaluation; and (8) an indication of concern that rainwater runoff from the Subject Lease may carry contaminants to Crockett’s water supply.

On January 6, 2015, State Senator Robert Nichols submitted a letter to the Commission, with regard to the Subject Application. Senator Nichols’s January 6th letter describes concerns expressed to him by Ms. Kelly about the Subject Well’s proposed location against its proximity to Crockett, as well as more than 100 homes within a one-mile radius of the well. In conclusion, Senator Nichols requests that the Commission reconsider granting the Subject Application at its proposed location and instead grant a permit at a site with less impact to area homeowners.

Based on the record in this case, the Administrative Law Judge and Technical Examiner (collectively “Examiners”) conclude that the Subject Well’s proposed injection interval may endanger productive oil or gas formations. Accordingly, the Examiners recommend that the application be denied.

DISCUSSION OF THE EVIDENCE

Tex. Water Code §27.051

- (b) The Railroad Commission may grant an application for a permit under Subchapter C 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;

¹ Resource Conservation and Recovery Act

- (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 27.073.

Tex. Water Code §27.073

- (a) A person to whom an injection well permit is issued may be required by the commission or Railroad Commission to maintain a performance bond or other form of financial security to ensure that:

- (1) an abandoned injection well is properly plugged;

Statewide Rule 9 (“SWR 9”)

- (1) General. Saltwater or other oil and gas waste, as that term is defined in the Texas Water Code, Chapter 27, may be disposed of, upon application to and approval by the Commission, by injection into nonproducing zones of oil, gas or geothermal resources bearing formations that contain water mineralized by processes of nature to such a degree that the water is unfit for domestic, stock, irrigation, or other general uses. Every applicant who proposes to dispose of saltwater or other oil and gas waste into a formation not productive of oil, gas, or geothermal resources must obtain a permit from the Commission authorizing the disposal in accordance with this section [...]

Applicant’s Evidence (RPS)

Perry’s Supporting Testimony

David Perry, a partner at RPS, testified on behalf of RPS. Mr. Perry’s current job is with Farm Bureau Insurance (“FBI”). Since 1980, however, he has also performed oil field-related duties that include hydrostatic pipe testing and rig-site safety.

The Subject Lease was originally composed of lands that totaled 78-acres. RPS purchased that 78-acres roughly five years ago from the family of one of Mr. Perry’s former colleagues at FBI. A portion of that 78-acres was subsequently sold by RPS. Today, the Subject Lease totals nine acres, of which 5.017-acres is dedicated to the Subject Well. RPS owns the Subject Lease.² The southern end of the Subject Lease adjoins State Highway 21, and is situated at roughly one and a half miles southwest of Crockett, Texas.

² Tr., Pgs. 13 - 17.

RPS submitted an aerial map to distinguish the Subject Well's proposed location from a proposed hydrocarbon separation facility located roughly one mile east of the well.³ Mr. Perry testified that he is unaware of who owns that separation facility. He testified, nonetheless, that separation facility will produce oil and gas waste that will require disposition, and that's one of the reasons RPS chose the Subject Well's proposed location.⁴ Mr. Perry offered no further testimony with regard to that separation facility. Mr. Perry testified that he expects roughly 50 to 60 trucks per day to utilize the Subject Well's facility.⁵ However, he offered no explicit basis for that conclusion.

Mr. Perry testified that there are three existing private disposal facilities in the area surrounding the Subject Well, and that those existing disposal facilities are situated between 8 to 15 miles north of Austonio, Texas (*i.e.* roughly half the distance between Crockett and Austonio on Highway 21). He testified that no commercial disposal facility (well) exists within 20 miles of the Subject Well's proposed location.⁶

Atkins' Supporting Testimony

Richard Atkins, consulting Petroleum Engineer, testified on behalf of RPS as an expert in Petroleum Engineering, as well as the drilling, design, and completion of disposal facilities.

Areas of Review (AOR)

RPS performed the requisite review for any Commission-regulated wells (*e.g.* production wells) located within the ¼-mile and ½-mile radii of the Subject Well's proposed surface location. Mr. Atkins testified that no oil and gas wells are located within those areas of review.⁷

Publication

A copy of the Subject Application was published on November 6, 2014, in the *Houston County Courier*, a newspaper of general circulation in Houston County.⁸

The Subject Well (Casing, Cementing and Completion)

The Subject Well has yet to be drilled. Mr. Atkins testified that the Subject Well is proposed to be drilled, cased and cemented as follows:

- 9-5/8" 36# surface casing set at a depth of 4,150 feet and cemented to surface with 1,065 sacks of cement;
- 7" 26# long-string casing set at 9,050 feet and cemented to a depth of 6,950 feet below;

³ RPS Exh. No. 2A.

⁴ Tr., Pg. 21

⁵ Tr., Pg. 24, L. 17.

⁶ Tr., Pg. 25, L. 24 - Pg. 26, L. 1 - 7.

⁷ Tr., Pgs. 66 - 67.

⁸ RPS Exh. No. 14

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- 4-1/2" tubing and packer set at 7,500 feet;
- The proposed injection will be at a maximum rate of 25,000 bpd with a surface injection pressure of 3,775 psig.

Based on the Subject Well's proposed casing, cementing and completion program, as previously mentioned, Mr. Atkins testified that the Subject Well will protect fresh groundwater from harm.⁹

Usable Quality Water

The Commission's Groundwater Advisory Unit ("GAU") determined that the base of usable quality water ("BUQW") occurs at 3,950 feet below the surface location of the Subject Well. Moreover, the interval from the land surface to a depth of 100 feet and the fresh water contained in the Carrizo Aquifer from a depth of 1,300 feet to 1,650 feet must be isolated from water in underlying and overlying beds. The base of underground sources of drinking water ("USDW") is estimated to occur at a depth of 4,250 feet.¹⁰

Furthermore, the GAU concluded, upon review of the data in the Subject Application and of other available geologic data, that use of the Subject Well for disposal from 7,550 to 8,950 feet will not endanger the freshwater strata in the area. The GAU also concluded that geologic isolation (from PSA's proposed injection interval) occurs at a depth of roughly 5,150 feet.¹¹

Geology

RPS submitted a structural cross-section based on two wells that are separated by roughly eight miles and references the top of the Austin Chalk Formation as its datum ("Cross Section").¹² Of those two wells on the Cross Section, the Westland Oil Development's 1C Richard's Estate (API No. 255-30596) ("1C Well") is nearest the Subject Well's proposed location. The 1C Well is situated roughly 2.2 miles from the Subject Well.

The Cross Section shows that the Austin Chalk, Woodbine, and Edwards Formations sequentially occur beneath the Subject Lease. The Cross Section shows that the tops of those formations occur as follows: (1) between 7,180 to 7,280 feet; (2) 7,600 to 7,650 feet; and (3) 8,500 to 8,560 feet, respectively. It does not, however, show the complete range of depths for the base of the Edwards Formation (*i.e.*, the base of the proposed injection interval).

The Subject Application seeks to limit commercial disposal to the Woodbine and Edwards Formations through the interval from 7,550 to 8,950 feet. However, the Cross-Section indicates that the top of the Woodbine Formation occurs between 7,600 and 7,650 feet at the Subject Well's proposed location. In other words, the Cross Section indicates that the Subject Well's proposed injection interval includes up to 100 feet of the lower Austin Chalk Formation.

⁹ Tr., Pg. 61.

¹⁰ RPS Exh. No. 7.

¹¹ RPS Exh. No. 8.

¹² RPS Exh. No. 16.

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When asked, “are there formations that act to separate the formations by impervious beds,” Mr. Atkins testified, “Yes. Obviously, the Austin Chalk is dense...limestone is nonproductive in the area. It’s 3- or 400-feet thick...and then you move into just a – kind of a shaly area that’s almost a thousand feet thick on the top.”¹³ He also testified that disposal fluids will be confined at the base of the proposed injection interval due to the lower Edwards Formation’s high-shale content.¹⁴ The Subject Application indicates the Glen Rose Formation begins at approximately 10,200 feet. Mr. Atkins testified that most of the area production originates from the Glen Rose Formation.¹⁵

Lastly, RPS performed the requisite review to determine whether any recorded earthquakes have been identified by the United States Geological Society (“USGS”). Mr. Atkins testified that no earthquakes of any magnitude were reported within 100 square miles of the Subject Well’s proposed location between January 1, 1950 through August 9, 2015.¹⁶

Public Interest

RPS submitted a 20-mile radial map centered on the Subject Well’s proposed location with four concentric circles in 5-mile increments.¹⁷ The purpose of that map is to show the locations of existing production and disposal wells that surround the Subject Well’s proposed location. Specifically, Mr. Atkins identified three disposal wells – (1) Smith SWD, No. 1 (API No. 42-225-31283) (“HOU-2”); (2) Adams-Shawver Unit 2, Well No. 1D (API No. 42-225-00678) (“HOU-3”); and (3) Candler, W.H., Jr. SWD Lease, Well No. 1 (API No. 42-289-31040) (“LEO-1”).

Mr. Atkins testified that HOU-2 and HOU-3 are private disposal wells.¹⁸ In other words, he testified that HOU-2 and HOU-3 are not permitted for commercial disposal. He testified that while the LEO-1 is permitted as a commercial disposal well, he believes it is operated as a private well. RPS offered nothing to substantiate how it concluded the LEO-1 is a private disposal well. HOU-2 is located roughly 8 miles, while HOU-3 is located roughly 12 miles from the Subject Well’s proposed location, respectively. LEO-1 is located roughly 20 miles from the Subject Well.

RPS submitted a table entitled “Activated CDW Permits” made of several aspects that only correspond to HOU-2, HOU-3, and LEO-1.¹⁹ That table indicates that those three wells are permitted to dispose of 20,000 bpd, 15,000 bpd, and 5,000 bpd, respectively. It also indicates the HOU-2 and HOU-3 are actively utilized for disposal, while LEO-1 remains inactive. RPS based its opinion on whether those disposal wells are active through correlating those wells’ monthly reports of fluids disposed to the respective disposal well. In other words, if monthly disposal volumes consecutively depict “No Report”, then RPS designated the associated disposal well as inactive.

¹³ Tr., Pg. 72, L. 23.

¹⁴ Tr., Pg. 73, L. 14.

¹⁵ Tr., Pg. 57, L. 10.

¹⁶ Tr., Pg. 70.

¹⁷ RPS Exh. No. 17.

¹⁸ Tr., Pg. 75, L. 15-18 and Pg. 76, L. 1-4.

¹⁹ RPS Exh. No. 18.

With regard to the 20-mile radial map, Mr. Atkins testified that 53 production wells were completed in 2013, 62 wells were completed in 2014, and 14 wells were completed through June 2015. Furthermore, 71 drilling permits were issued in 2013, 127 drilling permits were issued in 2014, and 30 drilling permits were issued through June 2015.²⁰ Based on the 20-mile radial map, Mr. Atkins believes that additional development activity seems to be moving in the direction of the Subject Well.²¹

RPS submitted letters of support from Bayou Well Services, LLC (“Bayou”), Diamond JK Construction, LLC (“Diamond”), and Common Disposal, LLC (“Common”).²² With regard to Bayou’s letter, Mr. Atkins testified that he spoke with Bayou’s manager, Stan Wages. In short, Bayou supports the Subject Application because it is a water-hauler in the area and indicated it would benefit from the application’s approval. With regard to Diamond’s letter, it supports the Subject Application because it believes the Subject Well would enable it to become more cost efficient. Mr. Atkins testified that Diamond is a contract operator that would recommend use of the Subject Well to its employers.²³ With regard to Common’s letter, it supports the Subject Application because it believes the Subject Well would provide a disposal need in the area, which would result in new business opportunities and growth in the local market. Common also indicated that it believes there is a disposal need in Houston County and its immediate surrounding counties. Mr. Atkins testified that Common is a saltwater hauling company that operates 20 disposal trucks. He testified that Common currently drives over 20 miles to the nearest commercial disposal facility, where they have experienced four to five hour wait times because those facilities were loaded.²⁴ The Examiners note that Mr. Atkins focused on two commercial disposal wells that he identified as being over 20-miles away from the Subject Well’s proposed location.²⁵ The record, however, does not reveal the names of those two disposal wells located over 20-miles away.

In conclusion, Mr. Atkins believes that there is a need for the Subject Well because RPS received the mentioned letters of support, and that it will save wait times at existing facilities and truck time on the road.²⁶ Furthermore, he asserted that the Subject Well would lower disposal costs because approval of the Subject Application would save truck time on the road. The Examiners note that Mr. Atkins provided no evidence to substantiate that assertion.

Shofner’s Supporting Testimony

Lee Shofner, a partner at RPS, testified on behalf of RPS. Mr. Shofner is employed with EOG Resources (“EOG”) as a Field Supervisor, and has performed duties for other operating companies in the capacities of a Roustabout Pusher and Relief Pumper since September 2006. Mr. Shofner stated that his role in the proposed facility will be to supervise whomever operates that facility.²⁷

²⁰ Tr., Pg. 84, L. 9 – 21.

²¹ Tr., Pg. 85, L. 3 – 5.

²² RPS Exh. Nos. 19 – 21.

²³ Tr., Pg. 81, L. 13 – 15.

²⁴ Tr., Pg. 83, L. 7 – 15.

²⁵ Tr., Pg. 78, L. 12 – 15.

²⁶ Tr., Pg. 85 – 86, L. 2.

²⁷ Tr., Pg. 118, L. 4.

RPS indicated that EOG has a drilling location situated within five miles of the Subject Well's proposed location ("EOG Well"). Mr. Shofner testified that in general, EOG utilizes Pinnergy, Texas Energy, and Midway for disposal of its produced water, where it is disposed of into private disposal wells. He testified that in months past, EOG experienced wait times that were "unbelievable."²⁸ He offered no further specificity about those wait times. He testified that EOG has leased about a million acres for development in the general area, and that Burk Royalty had roughly 200,000-acres leased at the time he parted ways as an employee with it.²⁹

Protestant's Arguments

Kaspars' Supporting Testimony

The Kaspars are adjacent surface owners of land that immediately offsets the Subject Lease's southernmost lease line. The Kaspars' northwestern property line parallels Highway 21, which transects their property and the Subject Lease. Mr. and Mrs. Kaspar oppose the Subject Application due to the following: (1) proximity of the Subject Well's proposed location compared to surrounding homes and businesses; (2) potential inherent problems that may occur in the Subject Well and its surface facilities; (3) lack of public interest; (4) traffic safety concerns; and (5) inadequate placement of the Subject Well's proposed location.

Ms. Kaspar expressed her concern with a separate RPS disposal application that was later withdrawn by RPS due to that well's proximity to a school. That application was later determined by RPS to be associated with Lovelady, TX, located roughly 25 miles south of the Subject Well's proposed location.³⁰ She conveyed her worry that if RPS chose to withdraw that previous disposal well application due to its proximity to a school, then RPS should be dually concerned with the Subject Well's proposed location being located near existing homes and businesses.³¹ Ms. Kaspar stated that she believes RPS is required to prove need for the Subject Well, and in her view it has not sufficiently done so.

In addition, Mr. Kaspar believes that the proposed facility's entrance is at a location of poor visibility on Highway 21, due to it being at a low point of a more or less slow rolling hill and the highway's expression of a curve, or bend, in the road. He also alleges that the Subject Well would be better suited at a location further away from its proposed location to a more rural area in Houston County that does not include nearby homes.

Mahaffey's Supporting Testimony

Mr. and Mrs. Mahaffey are adjacent surface owners of land located near the southeast corner of the Subject Well's original 78-acre expanse. The Mahaffey's oppose the Subject Application due to potential spills at the proposed facility entering a nearby creek on the Subject Lease and traveling through the Mahaffey's land surface. Mr. Mahaffey indicated that creek

²⁸ Tr., Pg. 127, L. 14.

²⁹ Tr., Pg. 127, L. 23 – Pg. 128.

³⁰ Tr., Pg. 48, L. 8 – 11.

³¹ Tr., Pg. 145 – 147, L. 8.

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ultimately flows through their property and into a nearby lake used by Crockett for its public water supply.³²

Mr. Mahaffey indicated that he owns mineral rights of property located about ½-mile from the EOG Well and that his lease for those mineral rights expired in July. He indicated that Chesapeake was the lessee to those mineral rights and that it no longer wants them. He stated that to his knowledge the EOG Well is the only well being drilled in that part of Houston County. He further indicated that he also owns mineral rights of property near Austonio, Texas, and that industry activity has ceased in that area. He concluded that if leasing and drilling has more or less stopped, then he does not believe that there is a need for the Subject Well.³³

Kelly's Supporting Testimony

Ms. Kelly indicated that she and her husband are nearby land owners to the Subject Lease. The record does not clearly indicate where exactly that Kelly property is situated from the Subject Lease. Ms. Kelly opposes the Subject Application due to the following: (1) truck noise; (2) truck traffic; (3) degradation of quality of life; (4) reduction of property value; and, (5) proximity of the Subject Well's proposed location compared to area homes.

Ms. Kelly stated that they purchased their nearby property in 2011 with a desire for quality of life. She established that she and her husband own a trucking company in Florida, and that she has personal experience with the loudness of a truck's "jake brake." She stated that the proposed facility would create additional truck traffic and noise that will reduce her's and others' quality of life. She believes that approval of the Subject Application will result in the reduction of her property value. Lastly, she indicated that the increase in truck traffic through approval of the application may endanger the safety of occupants residing in surrounding rental properties, as well as multiple school properties located on the the loop [presumably Highway 21] near Crockett located roughly 1.5 miles away.³⁴

Oates' Supporting Testimony

Mr. Oates's family owns the surface property that immediately offsets the Subject Lease's western boundary. He chose not to offer any direct testimony.³⁵

EXAMINERS' DISCUSSION

On March 11, 2011, the Texas Supreme Court held the Railroad Commission's construction of the term "public interest," as used in §27.051(b) of the Texas Water Code, did not include a subsidiary issue like traffic safety but was limited to matters related to oil and gas production.³⁶ Accordingly, any evidence presented in this case, with regard to traffic safety and its tie to public interest, was not used in the Examiners' proposal for decision.

³² Tr., Pg. 159 – 158.

³³ Tr., Pg. 133, L. 11 – 8.

³⁴ Tr., Pg. 156 – 158.

³⁵ Tr., Pg. 163, L. 11.

³⁶ See RRC v. Texas Citizens For A Safe Future And Clean Water, 336 S.W. 3d 619.

With regard to oil and gas activity, the Texas Commission on Environmental Quality (“TCEQ”) is the authoritative state agency that regulates air quality.³⁷ Accordingly, any evidence presented in this case, with regard to air quality concerns, was not used in the Examiners’ proposal for decision.

Based on a review of the record evidence, the Examiners believe that RPS has failed to meet its burden of proof for grant of the Subject Application. Specifically, the Examiners believe that RPS lacks sufficient probative evidence to conclude that the Subject Well’s proposed injection interval will not endanger any oil, gas or other mineral formation. Additionally, the Examiners believe that RPS’s evidence indicates that disposal fluids will not remain confined to the proposed injection interval due to the lack of an adequate impervious zone immediately above the top of the Woodbine Formation. Accordingly, the Examiners recommend that the application be denied.

Potential Harm to Oil or Gas Bearing Formations

As noticed, the Subject Application lists only the Woodbine and Edwards Formations within its proposed injection interval, which spans 7,550 to 8,950 feet. The Examiners believe that RPS has not met its burden of proof to show that its proposed injection interval will not potentially harm oil or gas bearing formations. Accordingly, the Examiners recommend that the Subject Application be denied.

Statewide Rule 9 begins as follows:

Any person who disposes of saltwater or other oil and gas waste by injection into a porous formation not productive of oil, gas, or geothermal resources shall be responsible for complying with this section, Texas Water Code, Chapter 27, and Title 3 of the Natural Resources Code.

Texas Water Code, Chapter 27.051(b), in part, states:

The railroad commission may grant an application for a permit under Subchapter C in whole or part and may issue the permit if it finds...(2) that the use or installation of the injection well will not endanger or injure any oil, gas or other mineral formation;

To the Examiners’ knowledge, applicant’s seeking a commercial disposal permit under Statewide Rule 9 typically submit evidence to show that their requested injection interval is not productive of oil or gas, and that communication between the injection interval and productive intervals will not occur.³⁸

³⁷ See 30 Tex. Admin. Code §116.

³⁸ See Commission’s publication entitled “Discussions of Law, Practice and Procedure,” Part IX (Underground Injection Control), Section E (Protection of Existing Rights), ¶ 1 – For wells disposing into a non-productive zone, the issue of whether or not existing rights will be impaired will typically be a question of whether there may be communication between the disposal zone and a productive zone, and if so, whether such communication will harm oil, gas, or geothermal resources. Proof that communication will or will not occur should consist of evidence similar to that outlined in the previous section, concerning the possibility of communication between the disposal zone and fresh water strata.

First, the Examiners note that, in part, East Texas' stratigraphic column commonly occurs in the following sequential order: Woodbine; Buda; Georgetown; and Edwards Formations. Below the Edwards Formation lies the Glen Rose Formation. RPS only identified the Woodbine and Edwards Formations within its proposed injection interval. RPS did not clarify whether or not the Buda and Georgetown Formations exist within its proposed injection interval. RPS alleged that the Woodbine and Edwards Formations are not productive within two miles of the Subject Well's proposed location. Mr. Atkins testified that "most of the development in this area is in the Glen Rose Formation."³⁹ Nonetheless, RPS lists only the Glen Rose Formation as the nearest productive interval within two miles of the Subject Well.⁴⁰ The Examiners, however, find that RPS evidenced that no wells exist within two miles of the Subject Well.⁴¹ Therefore, it is unclear as to how RPS concluded that the Glen Rose Formation, as opposed to the Woodbine, Buda, Georgetown and Edwards Formations, is the only productive interval within that areal expanse because the record shows there are no existing wells, including plugged and abandoned wellbores, within two miles of the Subject Well. In other words, RPS concluded that its proposed injection interval (7,550 to 8,950 feet), which is 1,400 feet thick (0.26 miles thick), is not productive within two miles of the Subject Well's proposed location because there are no wells within two miles of the Subject Well. Yet, RPS claims it chose the Subject Well's proposed location, in part, to get ahead of the Eaglebind Trend. The Examiners believe that the record does not contain sufficient probative evidence to support that conclusion.

The closest existing production well from the Subject Well is EOG's Maples Lease, Well No. 1 (API No. 225-31372) ("Maples Well") being about 2.5 miles southwest of the Subject Well. Commission records indicate the Maples Well is completed in the Fort Trinidad (James Lime) Field. However, the Maples Well's completion report shows that it is a service well only, which indicates that it is not a producing well. Moving outward from the Maples Well, the nearest active Glen Rose-producing well is approximately 6.5 miles southwest from the Subject Well's proposed location.⁴² Once more, Mr. Atkins testified that most of the area production originates from the Glen Rose Formation, and that the reason, in part, RPS chose the Subject Well's proposed location was to get ahead of the Eaglebine Trend.⁴³ He did not, however, clarify what geologic formations constitute that trend. RPS listed the Austonio, N.E. (Glenrose) Field as the Subject Application's corresponding field. The Examiners note, however, that field is made of one production well located approximately five miles east of the Subject Well. Therefore, based on the record evidence and RPS's unclear logic, the Examiners are not convinced RPS determined that only the Glen Rose Formation is productive within two miles of the Subject Well, as opposed to the Woodbine, Buda, Georgetown, and Edwards Formations. The Examiners opine that if RPS made that determination by looking at active Glen Rose-producing wells in the general area around the Subject Well (*i.e.* wells located more than two miles away from the Subject Well), then it should have also determined whether the Woodbine, Buda, Georgetown, and Edwards Formations are productive as well because the Buda and Georgetown Formations likely exist within in its proposed injection interval. The Examiners presume those formations are continuous in the area surrounding the Subject Field because Mr.

³⁹ Tr., Pg. 57, L. 10.

⁴⁰ RPS's Form W-14, Item No. 35.

⁴¹ RPS Exh. No. 17.

⁴² Compare RPS Exh. No. 17 with EOG Resources, Inc.'s Frank Smith Lease, Well No. 1 (API No. 225-31230); Fort Trinidad, (Glen Rose, Upper) Field.

⁴³ Tr.,Pg. 57, L. 7 -14; Pg. 108, L. 5.

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Atkins testified that area is not faulted.⁴⁴ The Examiners note that Commission records indicate that the Buda, Georgetown, and Edwards Formations are perforated in existing, active production wells located roughly six miles south of the Subject Well's proposed location.⁴⁵ Therefore, for those reasons above, the Examiners believe that RPS lacks sufficient probative evidence to reasonably determine whether or not the Buda, Georgetown, and Edwards Formations are productive within two miles of the Subject Well's proposed location.

Lack of Confinement

Again, the notice of application, notice of hearing, and publication for the Subject Application shows that RPS seeks an injection interval to commercially dispose only into the Woodbine and Edwards Formations. RPS's Cross Section only identifies the Austin Chalk, Woodbine, and Edwards Formations beneath the Subject Lease. Based on the Cross Section, however, RPS evidenced that its proposed injection interval includes 50 to 100 feet of the Austin Chalk Formation, which immediately overlies the Woodbine Formation (*i.e.* the top of the proposed injection interval). Furthermore, based on a review of the Cross Section, the Examiners believe that lower section of the Austin Chalk Formation contains multiple zones of moderate permeability. As a result, the Examiners believe that the proposed injection interval lacks adequate geologic confinement to prevent disposal fluids from escaping its proposed injection interval.

Commission practice requires that the proposed injection interval be adequately isolated by relatively impermeable strata to confine injection fluids to that interval. In order to establish what constitutes adequate geologic isolation, the Examiners turn to Statewide Rule 9(2), which states:

Before such formations are approved for disposal use, the applicant shall show that the formations are separated from freshwater by *impervious* beds which will give adequate protection to such freshwater...(emphasis added)

Statewide Rule 9 does not define impervious beds or relatively impermeable strata. In order to meet that rule requirement, however, Commission practice requires that an authorized injection or disposal strata be isolated from overlying usable quality water by a sufficient thickness of relatively impermeable strata, which is generally considered to be an accumulative total of at least 250 feet of clay or shale.⁴⁶ The Examiners are not suggesting that accumulative total of clay or shale is necessary to confine disposal fluids to an injection interval. Instead, the Examiners believe it provides direction as to how the Commission determines what creates adequate geologic confinement in the absence of compelling evidence to determine whether an overlying formation contains relatively impermeable strata to confine fluids to an injection interval. Importantly, RPS's own evidence shows that the base of the Edwards Formation

⁴⁴ Tr., Pg. 90, L. 8 – 11.

⁴⁵ Compare RPS Exh. No. 17 with EOG Resources, Inc.'s Jim Bowie Lease, Well No. 1H (API No. 225-31353); Ft. Trinidad, E. (Edwards) Field, and EOG Resources, Inc.'s Patrick A Lease, Well No. 2 (API No. 225-31257); Fort Trinidad, East (Buda) Field.

⁴⁶ See Section titled "Technical Review. Geological Requirements" in the Commission's publication entitled, "Injection/Disposal Well Permitting, Testing, and Monitoring Manual."

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contains a high shale content, which acts as the cap to the base of the proposed injection interval.⁴⁷

First, the Cross Section indicates that the top of the proposed injection interval is immediately overlain by the Austin Chalk Formation.⁴⁸ The Examiners note that the Austin Chalk Formation is commonly understood to primarily be a carbonate-based rock. When asked by RPS's counsel, "are there formations that act to separate the formations by impervious beds," Mr. Atkins testified, "yes...obviously, the Austin Chalk [Formation] is dense...its 3 – or 400 feet thick...and then you move into just a – kind of a shaly area that's almost a thousand feet thick on the top."⁴⁹ In other words, the Examiners understood Mr. Atkins' testimony to indicate that the Austin Chalk Formation transitions into a shaly rock-type above the Austin Chalk Formation. The Examiners believe that while RPS alluded that the Austin Chalk Formation is a suitable cap to the proposed injection interval due to the density of that formation's rock-matrix, it failed to establish whether that formation's density alone constitutes relatively impermeable strata. As a result, the Examiners are unclear as to how RPS concluded that the Austin Chalk Formation will act as relatively impermeable strata to confine fluids to the injection interval. Therefore, the Examiners respectfully disagree with Mr. Atkins' conclusion that the Austin Chalk Formation will act as a relatively impermeable cap to the top of the injection interval simply due to RPS's claim that it is a dense formation.

Second, the Cross Section includes two well logs taken from two wells that trend west to east. The Subject Well's proposed location resides between those two wells. The purpose of the Cross Section, in part, is to gain a general understanding of the petrophysical nature that lies below the Subject Lease. The 1C Well (API No. 42-225-30596), which is plugged and abandoned, is the closest well to the Subject Well's proposed location (*i.e.*, 2.2 miles southwest of the Subject Well). The Cross Section incorporates spontaneous potential ("SP") on each well log's left tract and varying intensities of resistivity on the right tract. SP more or less records the direct current, or potential, that naturally develops in the well. SP is commonly used to determine gross lithology by differentiating between permeable and non-permeable zones (*i.e.*, shales). That differentiation is commonly performed by establishing a "shale base-line" on the SP tract of a log.

RPS evidenced that a "shaley-type" lithology occurs above the the top of the Austin Chalk Formation, and that the Austin Chalk ranges about 300 to 400 feet in thickness above the top of the proposed injection interval (*i.e.*, 7,550 feet).⁵⁰ Using those SP log signatures above the Austin Chalk Formation, the Examiners presume that RPS established a shale base-line in the 1C Well from roughly 6,450 to 6,650 feet because the SP curve between those depths recorded the highest electrical potential in the shaley-zone above the Austin Chalk Formation. That shale-base line transpires along the -0.60 millivolt measurement unit on that log's SP scale. Based on that shale-base line, the Examiners observe that the Austin Chalk Formation's lower 100 feet, which immediately overlies the Woodbine Formation (*i.e.* the top of the proposed injection interval), contains multiple zones of moderate permeability. Therefore, based on the Cross Section, the Examiners conclude that the lower 100 feet of the Austin Chalk Formation

⁴⁷ Tr., Pg. 73, L. 14 – 17.

⁴⁸ RPS Exh. No. 16.

⁴⁹ Tr., Pg. 72, L. 23 – Pg. 73, L. 6.

⁵⁰ Tr., Pg. 73, L. 4.

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immediately above the Woodbine Formation does not contain adequate impervious beds to prevent the upward migration of fluids outside of the Woodbine Formation. Accordingly, the Examiners believe that RPS has failed to meet its burden of proof to show that disposal fluids will remain confined to the proposed injection interval, and recommend that the application be denied.

Public Interest

Members of the the community of Crockett, as well as State Senator Robert Nichols,⁵¹ while not opposed to an additional disposal facility in Houston County, are in unanimous agreement that the Subject Well's proposed location is contrary to public interest.

With regard to the the public interest component under §27.051(b) of the Texas Water Code, RPS argued the following: (1) that the purpose of the Subject Well's proposed location is to get ahead of the Eaglebine Trend; (2) that the Subject Well would lower disposal costs for area operators; and (3) that area commercial disposal wells are "loaded". In large, the types of evidence that RPS submitted in support of its overall claim that the Subject Well is in the public interest are commonly made by applicants seeking a commercial disposal permit under Statewide Rule 9. RPS did not present evidence in support of its public interest argument related to existing commercial disposal wells within 20 miles of the Subject Well's proposed location. Specifically, HOU-2 and HOU-3. As a result, the Examiners are not clear as to whether or not the Subject Well meets the public interest component of §27.051 Tex. Water Code because RPS excluded HOU-2 and HOU-3 from its public interest study.

However, RPS submitted other types of evidence in support of its position as to the public interest component, which included as follows that: (1) drilling permits and completion reports for wells that surround the Subject Well continue to be filed with the Commission; and (2) area operators (*i.e.*, Bayou, Diamond, and Common) are in support of the Subject Application. Therefore, based on those two types of evidence, the Examiners opine that RPS has met its burden of proof to show that the Subject Well meets the public interest component of §27.051 Tex. Water Code.

Heading Off The Eaglebine Trend

First, RPS identified permitting and completion activity from 2013 through June 2015 within 20 miles of the Subject Well's proposed location as evidence that existing and future production require additional disposal capacity. RPS's evidence showed that 71 drilling permits were issued in 2013, 127 permits were issued in 2014, and 30 drilling permits were issued through June 2015. RPS also showed that 53 completions were filed with the Commission in 2013, 62 completions were filed in 2014, and 14 completions were filed through June 2015. Although those drilling permits and completions suggest that development in the area surrounding the Subject Well is declining, RPS contends that there is still a need for the Subject Well based on that evidence. Again, the Examiners note those types of evidence are commonly presented by an applicant for a commercial disposal permit in support of its application.

⁵¹ See Senator Nichols' January 6, 2015 letter.

Proposal for DecisionLowering Disposal Costs

Second, RPS alleged that approval of the Subject Application would ultimately lower disposal costs for area operators. Mr. Atkins testified that based on his conversations with representatives of Bayou, Diamond, and Common, they are in support of the Subject Application. Furthermore, Common's letter stated that the Subject Well would provide savings on saltwater truck travel times, which Mr. Atkins believed would ultimately lead to lower disposal costs for area operators. Beyond that, the Examiners find no other evidence in the record to support RPS's claim that the Subject Well's operation will lower disposal costs to area operators.

Capacity of Area Commercial Disposal Wells

Third, RPS representatives provided inconsistent and confusing evidence as to the locations of surrounding commercial disposal wells compared to the Subject Well's proposed location. For example, when asked, "are there any other commercial disposal facilities," Mr. Perry testified, "not within 20 miles. Probably even further than that."⁵²

Subsequently, RPS submitted its Exhibit No. 18 entitled "Activated CDW," which is presumably short for "Activated Commercial Disposal Wells." That exhibit lists three disposal wells located within 20-miles of the Subject Well – (1) HOU-2; (2) HOU-3; and (3) LEO-1. The purpose of that exhibit, in part, is to show the locations of disposal wells surrounding the Subject Well. Mr. Atkins testified that HOU-2 and HOU-3, located roughly 8 and 12 miles from the Subject Well, are private disposal wells.⁵³ When asked, "and that is the commercial – true commercial disposal well (LEO-3)," Mr. Atkins testified, "well, I think it's really a private well...and you notice it has no report shown on the well, so it has not actively been taking any water since November of last year"⁵⁴ Based on the later part of that testimony, the Examiners are persuaded that the LEO-1 is not active. However, RPS offered no contradicting evidence to conclude the LEO-1 is a private disposal well, merely, a conjectural statement.

As a result of RPS's belief that HOU-2, HOU-3, and LEO-1 are private disposal wells, RPS focused on only two unnamed commercial disposal wells located outside the north part of its 20-mile area of review.⁵⁵ With regard to the disposal capacity of those unnamed commercial disposal wells, Mr. Atkins testified that Common experienced four to five hour wait times because those facilities were loaded.⁵⁶ RPS did not present evidence as to the surface injection pressures that those unnamed commercial disposal wells frequently encounter, which would indicate whether those wells are at or near capacity (*i.e.*, loaded). When asked on cross-examination, "which direction are they [Bayou, Diamond, and Common] coming from," Mr. Atkins testified, "I didn't find out exactly where they were coming from. I just talked to them to see if they thought there was a need in this area for an additional disposal facility."⁵⁷ Later, when asked, "well you're telling me you know they're over 20 miles away...which direction are

⁵² Tr., Pg. 26, L. 1 – 7

⁵³ Tr., Pg. 75, L. 8 – Pg. 76, L. 4.

⁵⁴ Tr., Pg. 77, L. 24 – Pg. 78, L. 1 - 5.

⁵⁵ Tr., Pg. 78, L. 12 – 15.

⁵⁶ Tr., Pg. 83, L. 7 – 15.

⁵⁷ Tr., Pg. 93, L. 5 – 25.

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they in over 20 miles away,” Mr. Atkins stated, “I have no idea. I did not ask them that.”⁵⁸ The Examiners note that while RPS evidenced that it spoke with Bayou, Diamond, and Common to support its claims that the Subject Well would lower disposal costs, and thereby support its position regarding the public interest component, it did not present evidence to show that it spoke with the operators of HOU-2, HOU-3, and LEO-1 to determine if those disposal wells are private wells. In fact, RPS presented no evidence to support how it determined that HOU-2, HOU-3, and LEO-1 are private disposal wells. Once more, RPS merely claimed HOU-2, HOU-3, and LEO-1 are private disposal wells.

After a review of commission records, the Examiners discovered that HOU-2 and HOU-3 are actually permitted, active commercial disposal wells. Yet, RPS did not present evidence related to those wells and whether they affect RPS’s public interest study made for the Subject Well. As a result, the Examiners give RPS’s evidence with regard to its third argument concerning public interest little weight because its review of active area commercial disposal wells within 20 miles of the Subject Well did not include HOU-2 and HOU-3. In fact, aside from general location, the record is unclear as to the explicit aspects of the two unnamed commercial disposal wells that Mr. Atkins utilized in his study related to public interest. Again, the Subject Application seeks a maximum disposal rate of up to 25,000 bpd. HOU-2 and HOU-3 are permitted for commercial disposal of up to 20,000 bpd, 15,000 bpd, respectively.

Finally, with regard to Mr. Shofner’s direct testimony, he indicated that his involvement in the Subject Application is due to his being an equal partner at RPS. His direct testimony alluded chiefly to the public interest component. In that sense, the Examiners gave his testimony little weight because he indicated that EOG operates one well in the area surrounding the Subject Well, and that EOG utilizes private disposal wells operated by Pinnergy, Texas Energy, and Midway for its disposal needs. The Examiners note that while Mr. Shofner is employed with EOG, the record does not include any indication that EOG either supports or opposes the Subject Application.

Protection of Fresh Water

The GAU determined that the BUQW occurs at 3,950 feet below the surface location of the Subject Well. The base of underground sources of drinking water (“USDW”) is estimated to occur at a depth of 4,250 feet.

The GAU concluded, upon review of the data in the Subject Application and of other available geologic data, that use of the Subject Well for disposal from 7,550 to 8,950 feet will not endanger the freshwater strata in the area. The GAU also concluded that geologic isolation (from PSA’s proposed injection interval) occurs at a depth of roughly 5,150 feet. RPS evidenced that the Subject Well will be constructed with surface casing set below the BUQW and cemented to surface. Furthermore, the production casing will be set inside the proposed injection interval and cemented in accordance with Statewide Rule 13. RPS evidenced that faulting does not occur beneath the Subject Lease. Therefore, the Examiners believe that RPS has demonstrated that fresh water will be adequately protected from pollution.

⁵⁸ Tr., Pg 94, L. 9 – 13.

Financial Assurance

The Texas Water Code prescribes that the Commission may grant an application for a permit in whole or in part and may issue the permit if it finds, among other things, that the applicant has made a satisfactory showing of financial responsibility. Representatives of RPS indicated that it has not filed any financial assurance with the Commission, as required by §27.051(b) of the Texas Water Code, because it has yet to obtain a permit for the Subject Well.⁵⁹ RPS alleges that it has \$3 to \$4 million to develop the proposed facility. The only evidence in the record to show whether RPS could meet that requirement of the Texas Water Code is Mr. Perry's testimony that RPS has adequate capital to develop the Subject Well and proposed facility.⁶⁰ In past cases, however, the Commission has allowed disposal well applicants to file the requisite financial assurance by prescribing a special condition on the disposal permit. Therefore, should the Commission grant the Subject Application, the Examiners recommend that it include a special permit condition that requires RPS to submit the appropriate financial assurance with the RRC prior to use of the Subject Well.

EXAMINERS' RECOMMENDATION

For those reasons, in reviewing the record in this case, the Examiners conclude that RPS has failed to meet its burden of proof in the Subject Application. Specifically, the Examiners believe that RPS has failed to show that the Subject Well's proposed location will not endanger productive oil or gas formations, and that the proposed injection interval lacks geologic confinement immediately above the Woodbine Formation, thus permitting disposal fluids to migrate outside the injection interval. Accordingly, the Examiners recommend that the application be denied and that the Commission adopt the following Findings of Fact and Conclusions of Law.

FINDINGS OF FACT

1. Oil & Gas Docket No. 06-0295419 is Rollo, Perry & Shofner Invst, LLC's ("RPS" or "Applicant") application for commercial authority to dispose of produced water into its Crockett SWD Lease (the "Subject Lease"), Well No. 1 (the "Subject Well"), pursuant to Statewide Rule 9 [16 Tex. Admin. Code §3.9] ("Subject Application").
2. Notices of the Subject Application and hearing were issued to all persons entitled to notice.
3. James and Linda Mahaffey, Charlana Kelly, Larry and Donna Kaspar, and R. Terry Oates protest the Subject Application.
4. Notice of the Subject Application was published November 6, 2014, in the *Houston County Courier*, a newspaper of general circulation in Houston County.
5. No operators of record exist within ½-mile of the Subject Well's proposed location.

⁵⁹ Tr., Pg. 172, L. 12 – 18.

⁶⁰ Tr., Pg. 23, L. 8.

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6. Notice of the Subject Application states that the Subject Well will be utilized for commercial disposal into the Woodbine and Edwards Formations and the Subject Well's proposed location.
7. RPS's requests an injection interval from 7,550 feet to 8,950 feet below the surface at the Subject Well's proposed location ("Proposed Injection Interval").
8. RPS failed to establish that disposal fluids will remain confined to the Proposed Injection Interval.
 - a. RPS evidenced that its Proposed Injection Interval includes 50 to 100 feet of the Austin Chalk Formation, which immediately overlies the Woodbine Formation;
 - b. The lower 50 to 100 feet of the Austin Chalk Formation contains several zones of moderate permeability.
9. The Subject Well will inject a maximum volume of 25,000 barrels per day ("bpd") and a maximum surface injection pressure of 3,775 pounds per square inch gauge ("psig").
10. The Smith SWD, No. 1 ("HOU-2"), Adams-Shawver Unit 2, Well No. 1D ("HOU-3"), and Candler, W.H., Jr. SWD Lease, Well No. 1 ("LEO-1") are permitted for commercial disposal.
11. The HOU-2, HOU-3, and LEO-1 are located approximately 8, 12, and 20 miles, respectively, from the Subject Well's proposed location.
12. RPS demonstrated that the Subject Well is in the public interest as required under Texas Water Code §27.051(b).
 - a. 71 drilling permits were issued in 2013, 127 permits were issued in 2014 and 30 drilling permits were issued through June 2015. 53 completions were filed with the Commission in 2013, 62 completions were filed in 2014 and 14 completions were filed through June 2015.
 - b. Representatives on behalf of Bayou Well Services, LLC ("Bayou"), Diamond JK Construction, LLC ("Diamond"), and Common Disposal, LLC ("Common") submitted letters in support of the Subject Application.
13. RPS failed to demonstrate that the Subject Well will not endanger or injure any oil, gas or other mineral formation under Texas Water Code §27.051(b).
 - a. The evidence in the record regarding the nearest productive reservoir within two miles of the Subject Well's proposed location lists only the Glen Rose Formation.
 - b. The evidence in the record indicates that most of the development in the area surrounding the Subject Well's proposed location is from the Glen Rose Formation.

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- c. The nearest active Glen Rose Formation-producing well's location is about 6.5 miles from the Subject Well's proposed location.
 - d. The nearest active Buda, Georgetown, and Edwards Formations-producing wells are about six miles south of the Subject Well's proposed location.
 - e. The evidence submitted is not sufficient to conclude whether the Buda or Georgetown Formations, which are included in the proposed injection interval, are not productive of oil or gas.
14. RPS has not filed any form of financial assurance with the Commission to operate the Subject Well.
15. RPS has not met its burden of proof for approval of the Subject Application.

CONCLUSIONS OF LAW

1. Proper notice was issued as applicable in all statutes and regulatory codes.
2. All things necessary have occurred and been accomplished to give the Commission jurisdiction in this matter.
3. RPS has not complied with the requirements for approval set forth in Tex. Admin. Code §3.9 and the provisions of §§27.051(b)(2) Tex. Water Code.
 - a. RPS failed to show that the Subject Well's proposed injection interval will confine disposal fluids – 16 Tex. Admin. Code §3.9(1).
 - b. RPS meet its burden of proof to establish that use or installation of the Subject Well is in the "public interest" – Tex. Water Code §27.051(b)(1).
 - c. RPS failed to meet its burden of proof to establish that use or installation of the Subject Well will not endanger or injure any oil, gas or other mineral formation – Tex. Water Code §27.051(b)(2).
 - d. RPS met its burden of proof to establish that, with proper safeguards, both ground and surface fresh water can be adequately protected from pollution – Tex. Water Code §27.051(c).
 - e. RPS has made a satisfactory showing of financial responsibility – Tex. Water Code §27.051(d).

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend that the application of Rollo, Perry, and Shofner Invst, LLC for commercial disposal authority pursuant to Statewide Rule 9 for the Subject Well at its proposed location be denied.

Respectfully,



Brian Fancher, P.G.
Technical Examiner



Marshall F. Enquist
Administrative Law Judge