



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

PROPOSAL FOR DECISION

OIL AND GAS DOCKET NO. 7C-0289088

THE APPLICATION OF V-F PETROLEUM, INC., PURSUANT TO STATEWIDE RULE 9 FOR A PERMIT TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A POROUS FORMATION NOT PRODUCTIVE OF OIL OR GAS, J. L. WATKINS LEASE, WELL NO. 3D, SPRABERRY (TREND AREA) FIELD, REAGAN COUNTY, TEXAS

HEARD BY: Paul Dubois – Technical Examiner
Laura Miles-Valdez – Hearings Examiner

APPEARANCES:

REPRESENTING:

APPLICANT:

George Neale
Jerry Gahr
Rick Johnston, P.E.

V-F Petroleum, Inc.

PROTESTANT:

John Hicks

Johnny Pat Watkins

PROCEDURAL HISTORY

Application Filed:	February 14, 2014
Protest Received:	March 4, 2014
Request for Hearing:	May 6, 2014
Notice of Hearing:	July 8, 2015
Date of Hearing:	July 28, 2015
Transcript Received:	August 13, 2015
Proposal For Decision Issued:	October 20, 2015

STATEMENT OF THE CASE

Pursuant to Statewide Rule 9 (16 Tex. Admin. Code §3.9) V-F Petroleum, Inc. (V-F) seeks Commission authority to dispose of oil and gas waste by injection into a porous formation not productive of oil or gas in the J. L. Watkins Lease, Well No. 3D, Spraberry (Trend Area) Field, Reagan County, Texas. V-F proposes to convert its existing J. L. Watkins Lease Well No. 3 to non-commercial disposal service, and rename it Well No. 3D.

The requested permit will authorize injection of salt water into the San Andres Formation in the subsurface interval from 3,200 feet to 4,000 feet. The injection well will be converted from a former producing oil well that has been plugged and abandoned.

Notice of the application was published on November 6, 2013, in the *San Angelo Standard-Times*, a newspaper of general circulation in Reagan County, Texas. On February 10, 2014, a copy of the application was mailed to the Reagan County Clerk in Big Lake, Texas, to the owners of record of the surface tract, and to several operators of wells within one-half mile of the proposed disposal well.

At the hearing, V-F indicated that two operators of wells within one-half mile of the proposed well—Rains Energy, LLC, and American Energy Permian Basin—were not given notice of the disposal application. Rains Energy, LLC, subsequently waived its right to notice of the application.¹ American Energy Permian Basin initially protested the application once it received belated notice, and began to explore resolving the matter with V-F. By letter dated August 6, 2015, American Energy Permian Basin withdrew its protest. The application remains protested by Johnny Pat Watkins, the surface owner of the disposal well tract.

The Examiners recommend the Commission enter an order granting the application.

APPLICABLE LAW

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

1. The use or installation of the injection well is in the public interest;
2. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation;
3. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution; and

¹

Exh. No. 3.

4. The applicant has made a satisfactory showing of financial responsibility as required by Section 27.073.

DISCUSSION OF EVIDENCE

Applicant's Evidence

V-F operates about 50 wells in West Texas. V-F purchased the mineral rights to the subject tract—the west half of Section 2, Henry Eicke Survey, Abstract A-22, Reagan County—in June 1989. V-F's mineral rights are limited to the subsurface interval from the surface to a depth of 8,000 feet.² Four wells have been drilled on this tract, and three of the wells have been plugged and abandoned. V-F operates its J. L. Watkins Lease (No. 06723) Well No. 1 (API No. 42-383-30616) on the lease. The well currently produces about 3 barrels of oil per day (bopd) and 20 barrels of water per day (bwpd). V-F proposes to convert another plugged well on the lease to injection service for disposal of saltwater produced on the lease.

The J. L. Watkins Lease Well No. 3 (API No. 42-383-30668) was completed on October 25, 1975, to a total depth of 7,900 feet and plugged back to 7,760 feet. The well was constructed with 8 5/8-inch surface casing set to a depth of 677 feet and cemented to the surface. The well's 4 1/2-inch production casing was set at a depth of 7,900 feet and cemented to a depth of 3,700 feet. The well produced from the Dean Formation within the Spraberry (Trend Area) Field in the depth interval from 7,594 feet to 7,726 feet. The well was plugged on March 14, 2015. During plugging, some of the production casing was removed from the well, from the surface to a depth of 3,677 feet, and five plugs were set in the well. Plugging reports indicate that a string of 2 3/8-inch tubing remains stuck in the hole, the top of which is at a depth of 5,893 feet. The deepest plug covers the top of the remaining tubing, and four plugs are present above that depth.

The proposed recompletion will include the following elements, as shown on Attachment A:³

- Drill through the upper four plugs placed in the well in 2005;
- Run 5 1/2-inch casing to a depth of about 3,700 feet, to the top of the 4 1/2-inch casing stub that remains in the hole, and cement the 5 1/2-inch casing to the surface;

² Exh. No. 1.

³ Exh. No. 6.

- Run 2 7/8-inch injection tubing to a depth of 3,100 feet and set with a packer; and
- Perforate the San Andres Formation injection interval between 3,200 feet and 4,000 feet.

As proposed, the well will inject a maximum of 3,000 bwpd (2,000 bwpd average) into the San Andres Formation with a maximum surface injection pressure of 400 pounds per square inch gauge (psig). V-F anticipates the average surface injection pressure to be about 200 psig. Injected waste fluid will be limited to salt water produced on the J. L. Watkins Lease.

The Commission's Groundwater Advisory Unit (GAU) indicates the base of usable quality water (BUQW) is at a depth of 375 feet. The base of the underground sources of drinking water (USDW) is at a depth of 875 feet. The GAU has reviewed the application and has determined that injection into the San Andres Formation as proposed by V-F will not endanger fresh water in this area.

The injection interval is overlain by a 100-foot thick dense strata with a low level of porosity. Above the low porosity zone, beginning at a depth of about 2,950 feet, is a thick anhydrite/evaporite section that would act as an upper confining layer.⁴ There are many wells within a two-mile radius of the proposed well. Most of these wells produce from the Spraberry, Dean and Wolfcamp Formations. There is no oil or gas production from the San Andres Formation within two miles of the proposed disposal well.

There is one wellbore within a one-quarter mile area of review that penetrates the disposal interval. The Hunt G Lease Well No. 7, located about 1,700 feet to the east, was a Spraberry (Trend Area) Field oil well that produced from a depth of 7,622 feet to 7,770 feet. Commission records indicate Well No. 7 was constructed with surface casing through the BUQW to a depth of 435 feet and cemented to the surface. The well was plugged in 2002. Multiple plugs were placed to isolate the former producing interval and the BUQW.

In addition, three horizontal wellbores cross within the one-quarter mile radius, but do not penetrate the disposal interval. The surface locations for these wells are located more than one-half mile to the north or south of the proposed disposal well. The horizontal laterals are completed in the Wolfcamp Formation, a part of the Spraberry (Trend Area) Field, at a depth of about 8,000 feet.

There are two commercial disposal wells injecting fluid into the San Andres Formation within 1 ½ miles of the proposed well. The Rains Energy, LLC Best SWD, located about one-half mile to the west, was drilled in September 2014. This well passed

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a mechanical integrity test in March 2015 and is identified as an active injection well. The Prime Operating Company Watkins No. 4 well, located about 1 ½ miles to the south of the proposed well, began injection activities into the San Andres Formation in March 2013.

V-F studied the potential for over-pressured conditions in the San Andres Formation near the proposed well. In its study, V-F reviewed log headers of wells drilled in Reagan County since 2012 to identify the open hole mud weights used to drill through the San Andres Formation. Mud weight can be an indication of over-pressure in a water-bearing formation, as a driller will increase mud weight to control high formation pressure. While there was no data within two miles of the proposed disposal well, all of the available data points out to a radial distance of about 7 miles indicate a normal saltwater gradient based on mud weights of less than 9.5 pounds per gallon. Beyond a 7-mile radius there were a few wells records indicating higher mud weights—up to 10.5 pounds per gallon. One commercial disposal well located about 7 miles to the east reported a measured bottom-hole pressure gradient of 0.46 psi per foot, which is normal. In addition, the nearest injection into the San Andres Formation is V-F concludes there is no evidence the San Andres Formation is over-pressured in this part of Reagan County.

V-F (Operator No. 880375) holds a current and valid Form P-5 Organization Report. V-F has filed a \$50,000 letter of credit with the Commission for financial assurance.

On April 24, 2013, V-F filed its original application for a disposal permit for the J. L. Watkins Lease Well No. 3D. The initial application sought authority for a commercial disposal well. The application was refiled on February 10, 2014, also seeking commercial disposal authority. A third filing, on December 3, 2014, revised the authority sought to non-commercial. V-F maintains that, at this time, it only has plans to dispose of saltwater produced from its existing well on the J. L. Watkins lease. V-F anticipates the cost-savings associated with on-lease disposal will cover the cost of converting the well to injection service after five years.

Protestant's Evidence

Protestant Johnny Pat Watkins did not present a direct case in protest. Mr. Watkins' counsel, John Hicks, did cross examine V-F's witnesses. Mr. Hicks questioned the public interest requirement for the well, specifically the need for a 3,000 bwpd disposal well when the J. L. Watkins Lease currently only produces about 20 bwpd. In response to Mr. Hicks' questions, V-F indicated it currently has no plans that would result in an increase in the lease's water production.

Mr. Hicks also questioned whether the disposal cost savings would justify the cost of converting an existing wellbore to injection service. V-F indicated the proposed cost to convert the well would be about \$100,000 and disposal cost savings would be \$3 per barrel of water. V-F anticipates the conversion will pay out in about five years.

Mr. Hicks also questioned technical aspects of the application, including the presence of a lower confining strata and V-F's analysis of San Andres Formation pressures.

EXAMINERS' ANALYSIS OF THE EVIDENCE

The evidence in the record demonstrates V-F has met its burden of proof, and that the application meets the requirements of Chapter 27 of the Texas Water Code and Statewide Rule 9. The Examiners recommend the application be approved and a permit issued. The required elements of the Texas Water Code § 27.051(b) will be taken in turn.

Public Interest

This application is for non-commercial disposal well that will dispose of salt water produced on the J. L. Watkins Lease (No. 06723). The waste fluid will stay on the lease in which it was produced. The applicant, V-F, owns the mineral rights to the disposal tract and to a depth that includes the disposal zone. The proposed disposal well will benefit V-F's development of its own mineral interests. The evidence in the record demonstrates the application is in the public interest pursuant to Texas Water Code § 27.051(b)(1).

Protect Oil, Gas and Mineral Resources

The San Andres Formation is not productive within two miles of the proposed disposal well. Current oil and gas exploration and production activity in the area is focused on the Wolfcamp Formation within the Spraberry (Trend Area) Field at depths of 8,000 feet and greater, which is 4,000 feet below the proposed disposal interval. There is one wellbore within a one-quarter mile area of review that penetrates the disposal interval. This penetrating wellbore was plugged in 2002 in a manner sufficient to isolate the injection interval from overlying fresh water and underlying potentially productive zones. The evidence in the record demonstrates the proposed disposal well will not endanger or injure any oil, gas, or other mineral formation pursuant to Texas Water Code § 27.051(b)(2).

Prevent Pollution of Ground and Surface Fresh Water

The proposed disposal well is cased and cemented through the BUQW. The new long string casing will be cemented to the surface. The injection interval is overlain by dense, low-porosity strata and a thick sequence of anhydrite/evaporites. A survey of recent drilling mud weights identified no evidence of over-pressure within the San Andres Formation disposal zone within at least 7 miles of the proposed disposal well. Further, the protestant did not assert or present evidence indicating that this portion of the San Andres Formation is over-pressurized. The evidence in the record demonstrates that, with proper safeguards, both ground and surface fresh water can be adequately protected from pollution pursuant to Texas Water Code § 27.051(b)(3).

Demonstrate Financial Responsibility

V-F (Operator No. 880375) holds a current and valid Form P-5 Organization Report. V-F has filed a \$50,000 letter of credit with the Commission for financial assurance. The evidence in the record demonstrates the applicant has made a satisfactory showing of financial responsibility as required by Texas Water Code § 27.073 pursuant to Texas Water Code § 27.051(b)(4).

FINDINGS OF FACT

1. Pursuant to Statewide Rule 9, V-F Petroleum, Inc. (V-F) requests authority to inject fluid into a reservoir productive of oil or gas by utilizing the J. L. Watkins Lease, Well No. 3D, in the Spraberry (Trend Area) Field, Reagan County, Texas.
2. Notice of the application was published on November 6, 2013, in the *San Angelo Standard-Times*, a newspaper of general circulation in Reagan County, Texas. On February 10, 2014, a copy of the application was mailed to the Reagan County Clerk in Big Lake, Texas, to the owners of record of the surface tract, and to several operators of wells within one-half mile of the proposed disposal well.
 - a. Rains Energy, LLC, an operator within one-half mile of the proposed well, did not receive notice of the initial application. Rains Energy, LLC subsequently waived its right to notice.
 - b. American Energy Permian Basin, an operator within one-half mile of the proposed well, did not receive notice of the initial application. American Energy Permian Basin filed a protest, which was later withdrawn.
 - c. All persons entitled to notice of this application have received notice.
3. The application is protested by Johnny Pat Watkins, the surface owner of the injection tract.
4. As originally constructed, the J. L. Watkins Lease Well No. 3 (API No. 42-383-30668) was completed on October 25, 1975 to a total depth of 7,900 feet and plugged back to 7,760 feet.
 - a. The well was constructed with 8 5/8-inch surface casing set to a depth of 677 feet and cemented to the surface.

- b. 4 1/2-inch production casing was set at a depth of 7,900 feet and cemented to a depth of 3,700 feet.
 - c. The well was plugged on March 14, 2015. During plugging, 3,677 feet of production casing was removed from the well, and five plugs were set in the well.
5. The proposed disposal well will be re-completed as follows:
 - a. Run 5 1/2-inch casing to a depth of about 3,700 feet, to the top of the 4 1/2-inch casing stub, and cement the 5 1/2-inch casing to the surface;
 - b. Run 2 7/8-inch injection tubing to a depth of 3,100 feet and set with a packer; and
 - c. Perforate the San Andres Formation injection interval between 3,200 feet and 4,000 feet.
6. The well will inject a maximum of 3,000 bwpd into the San Andres Formation with a maximum surface injection pressure of 400 psig.
7. Injected waste fluid will be limited to salt water produced on the J. L. Watkins Lease (No. 06723).
8. The base of usable quality water (BUQW) is at a depth of 375 feet. The base of the underground sources of drinking water (USDW) is at a depth of 875 feet.
9. The proposed disposal well will be re-completed in a manner to protect fresh ground and surface water.
10. There is no production from the San Andres Formation within a two mile radius of the proposed disposal well. The nearest production is in the Wolfcamp Formation, at a depth of about 8,000 feet, which is 4,000 feet below the injection interval.
11. There is one wellbore within a one-quarter mile area of review that penetrates the disposal interval. The penetrating well was plugged in 2002. Multiple plugs were placed to isolate the former producing interval and the BUQW.
12. There is no evidence that the San Andres Formation is over-pressured at this location.

13. V-F (Operator No. 880375) holds a current and valid Form P-5 Organization Report. V-F has filed a \$50,000 letter of credit with the Commission for financial assurance.

CONCLUSIONS OF LAW

1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas. Tex. Nat. Res. Code § 81.051.
2. All notice requirements have been satisfied. 16 Tex. Admin. Code § 3.9.
3. The use or installation of the injection well is in the public interest. Texas Water Code § 27.051(b)(1).
4. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation. Texas Water Code § 27.051(b)(2).
5. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution. Texas Water Code § 27.051(b)(3).
6. The applicant has made a satisfactory showing of financial responsibility. Texas Water Code § 27.051(b)(4).

RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend the Commission enter an order granting the application of V-F Petroleum, Inc., for a permit to dispose of oil and gas waste by injection into a porous formation not productive of oil or gas, J. L. Watkins Lease, Well No. 3D, Spraberry (Trend Area) Field, Reagan County, Texas.

Respectfully submitted,



Paul Dubois
Technical Examiner



Laura Miles-Valdez
Hearings Examiner