RAILROAD COMMISSION OF TEXAS
HEARINGS DIVISION

OIL AND GAS DOCKET NO. 08-0314968

APPLICATION OF OWL SWD OPERATING, LLC (629870) PURSUANT TO STATEWIDE RULE 46 TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF OIL AND GAS FOR THE CRONOS SWD LEASE, WELL NO. 1, GRICE (DELAWARE) FIELD, LOVING COUNTY, TEXAS

HEARD BY: Petar Buva – Technical Examiner
Jennifer N. Cook – Administrative Law Judge

PROCEDURAL HISTORY:

Application Filed:	June 18, 2018
Protest Received:	June 28, 2018
Request for Hearing Received:	September 5, 2018
Prehearing Conference:	October 15, 2018
Hearing on the Merits:	January 17, 2019
Transcript Received:	February 5, 2019
Proposal for Decision Issued:	May 15, 2019
Conference Date:	June 18, 2019

APPEARANCES:	**REPRESENTING:**
APPLICANT:	OWL SWD Operating, LLC
W. Timothy George, Attorney	
Jerry D. Ferguson, Geologist	
Stephen L. Pattee, P.G.	
PROTESTANTS:	Z&T Cattle Company, LLC
George C. Neale, Attorney	
Zane Kiehne, President	

CASE SUMMARY

Applicant OWL SWD Operating, LLC ("OWL") seeks authority pursuant to 16 Tex. Admin. Code § 3.46 ("SWR 46") to dispose of oil and gas waste by injection into a formation productive of oil or gas on the Cronos SWD Lease, Well No. 1, Grice (Delaware) Field, Loving County, Texas. The proposed injection well is located on a 2.61-acre tract of land, approximately 16.7 miles north of the town of Mentone in Loving County.

OWL requests authority to dispose of 20,000 barrels per day ("bpd") of produced water, including salt water, brackish water, Resource Conservation and Recovery Act ("RCRA") exempt waste, and flowback fluids, into the Delaware Formation from a depth of 5,000 feet to 6,200 feet, with a maximum surface injection pressure at 2,500 psig.

On June 28, 2018, OWL published notice of the subject application in the *Pecos Enterprise*, a newspaper of general circulation in Loving County, Texas, as required by SWR 46. OWL also provided notice of the subject application to the Loving County Clerk, offset operators, and each affected person described in SWR 46. The proposed injection well is not within the corporate limits of a city or town.

The subject application is protested by Z&T Cattle Company, LLC ("Z&T"), an adjacent landowner, who contends that the proposed injection well is not in the public interest and could potentially pollute the groundwater.

Based on the evidence in the record, the Administrative Law Judge and Technical Examiner (collectively "Examiners") recommend that the application be granted.

APPLICABLE LAW

SWR 46 requires that, "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."[1]

The Commission may grant the subject application and issue a permit if it finds that:

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] 16 Tex. Admin. Code § 3.46(a).

4. The applicant made a satisfactory showing of financial responsibility as required by the Tex. Water Code.[2]

DISCUSSION OF THE EVIDENCE

Applicant's Evidence (OWL SWD Operating, LLC)

Application

The Cronos SWD Lease, Well No. 1, in the Grice (Delaware) Field, in Loving County, Texas, is a proposed new injection well. OWL proposed the following design and operation limitations:

- Drilled to a total depth of 6,200 feet;
- Surface casing (13 3/8-inch) set at 1,200 feet, cemented to the surface using 800 sacks of Class A cement;
- Intermediate casing (9 5/8-inch) set at 6,200 feet, cemented to surface using 2,500 sacks of Class H cement;
- Tubing (5 1/2-inch) and packer set at 4,900 feet, 100 feet above the top of the proposed injection interval;
- An injection interval from 5,000 feet to 6,200 feet in the Delaware formation.
- A maximum daily injection volume equal to 20,000 bpd;
- A maximum surface injection pressure equal to 2,500 psig; and
- Injected fluids limited to salt water, brackish water, RCRA exempt waste, and flowback fluids.[3]

Geology and Resource Development

The proposed disposal zone in the Delaware Formation includes the Bell Canyon and Cherry Canyon within the Delaware Mountain Group.[4] In the area, production occurs from the Ramsey Sandstone, located within the upper Bell Canyon, approximately 450 feet above the top of proposed injection interval.[5] The Ramsey Sandstone is present in the productive El Mar and Grice (Delaware) Fields located to the north and east of the proposed injection well, respectively.[6]

The El Mar Field is approximately 20 feet thick (at its thickest interval), two miles wide, eight miles long, and exhibits a gentle, west-to-east monoclinal dip, without

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[2] Texas Water Code § 27.051.

[3] OWL Exhibit Nos. 9-10.

[4] OWL Exhibit No. 3.

[5] Tr., pg. 18, lns. 17-20.

[6] OWL Exhibit No. 3 and 5; Tr., pg. 33, lns. 1-17.

faulting.[7] A naturally occurring stratigraphic trap, or "pinch-out," is present in the southern most point of the El Mar Field, delineating the productive limits of the field.[8] The Grice (Delaware) Field similarly demonstrates a gentle, monoclinal dip, without faulting.[9] A pinch-out is present in the western most point of the Grice (Delaware) Field, delineating the productive limits of the field.[10] The Ramsey Sandstone is also pinched-out at the proposed location of the subject injection well.[11]

The proposed injection interval is capped by approximately 3,000 feet of the Salado and Castille Formations, impermeable sections comprised of evaporates, salt, and anhydrites.[12] Additionally, between the Ramsey Sandstone and the proposed injection interval, 450 feet of shale and shaly sand exist to prevent upward migration of injected fluids to the Ramsey Sandstone.[13] A significant zone of shale and shaly sand also exists below the base of the proposed injection interval to prevent downward migration of any injection fluid.[14]

The proposed location is both vertically and horizontally separated and distant from the productive Ramsey Sandstone.[15]

Groundwater

The Commission's Groundwater Advisory Unit ("GAU") determined that water-bearing strata exists at the proposed location from the land surface to a depth of 350 feet.[16] Additionally, the Rustler Formation, a formation that yields moderate to large quantities of fresh to brackish water, is present at the proposed location from a depth of 650 feet to 1,100 feet.[17] The GAU estimated that the base of underground sources of drinking water occurs at a depth of 1,150 feet.[18]

Applicant contends that the proposed injection well will be cased and cemented in accordance to protect groundwater resources.[19]

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[7] *Id.*

[8] Tr., pg. 20, lns. 10-18.

[9] OWL Exhibit No. 4; Tr., pgs. 27-28., lns. 22-5.

[10] *Id.*

[11] *Id.*; Tr., pg. 36, lns. 1-12.

[12] OWL Exhibit. Nos. 3 and 5; Tr., pg. 18, lns. 9-11; Tr., pg. 31, lns. 5-20.

[13] OWL Exhibit No. 5; Tr.; pgs. 33-36.

[14] Tr., pg. 88-90, lns. 4-24.

[15] Tr., pg. 44, lns. 2-18.

[16] OWL Exhibit No. 11.

[17] *Id.*

[18] *Id.*

[19] OWL Exhibit No. 10.

Area of Review

Statewide Rule 3.46(e)(1) provides:

> "Except as otherwise provided in this subsection, the applicant shall review the data of public record for wells that penetrate the proposed disposal zone within a 1/4-mile radius of the proposed disposal well to determine if all abandoned wells have been plugged in a manner that will prevent the movement of fluids from the disposal zone into freshwater strata. The applicant shall identify in the application any wells which appear from such review of public records to be unplugged or improperly plugged and any other unplugged or improperly wells of which the applicant has actual knowledge."

OWL performed a 1/4-mile and 1/2-mile area of review study of active and plugged wells.[20] Four wells exist within a 1/4-mile radius of the proposed injection well's proposed location:

- Cholla Petroleum, Inc.'s Kyle, Sid #34 Well No. 1. This well is plugged and abandoned in a manner that would protect groundwater resources.
- Shell Western E&P's Bridwell 54-1-34 LOV Well No. 1H. This well is a producing gas well and is cemented and cased in a manner that would protect groundwater resources.
- Anadarko E&P Onshore LLC's Dusk 54-1-34 Unit Well No. 1H. This well is a producing oil well and is cemented and cased in a manner that would protect groundwater resources.
- Anadarko E&P Onshore LLC's Hammerhead 54-1-35 Well No. 1H. This well is currently shut-in and is cemented and cased in a manner that would protect groundwater resources.[21]

Four wells exist outside of the 1/4-mile area of review but inside the 1/2-mile area of review:

- Baytech, Inc.'s TXL "39" Well No. 1. This vertical well was drilled to a total vertical depth equal to 4,556 feet but is plugged and abandoned.
- Walsh & Watts, Inc.'s TXL-G- Well No.10. This vertical well was drilled to total vertical depth equal to 4,753 feet and is a producing oil well.
- Walsh & Watts, Inc.'s TXL-G- Well No.9. This vertical well was drilled to total vertical depth equal to 4,627 feet and is a producing oil well.

[20] OWL Exhibit No. 13.

[21] *Id.*

- Fulfer Oil and Cattle Co.'s Johnson, W.D. Well No. 1. This vertical well was drilled to total vertical depth equal to 4,600 feet and is a producing oil well.[22]

These wells are drilled and completed at depths which do not penetrate the proposed injection interval and will not act as conduits for injected fluids to endanger groundwater resources.[23]

OWL presented evidence demonstrating that within a 10-mile radius of the proposed location approximately 2,000 active or permitted wells exist which require saltwater disposal services.[24] OWL also claims that from 2016 through 2018, oil and gas production significantly increased in the immediate area of the proposed location, supporting the need for additional saltwater disposal capacity.[25]

Seismic Activity

As of June 4, 2018, no seismic events were observed within 9.08 km of the proposed location.[26]

Financial Assurance

OWL has an active Form P-5 Organization Report, reported under Operator No. 629870.[27] Commission records demonstrate that OWL has financial assurance to operate the proposed injection well in the amount of a $50,000 cash deposit.[28]

Protestant's Evidence

Z&T is the surface owner of a 640-acre tract of land immediately adjacent to the proposed location and, within a 5-mile radius, also owns numerous other tracts of land.[29] Several permitted or active commercial disposal/injection wells are located on Z&T-owned tracts of land.[30]

Z&T contends that excess capacity currently exists at active injection wells in the area and, additionally, other injection wells are currently permitted waiting to be drilled, negating any public interest in permitting the proposed injection well.[31] Z&T offered testimony and evidence to illustrate its contention that excessive salt water disposal

[22] *Id.*

[23] *Id.*

[24] OWL Exhibit Nos. 18 and 19.

[25] OWL Exhibit No. 19.

[26] OWL Exhibit No. 14.

[27] OWL Exhibit No. 17.

[28] *Id.*

[29] OWL Exhibit No. 18.

[30] OWL Exhibit 19.

[31] Z&T Exhibit No. 1.

operations exist within 10 miles of the proposed location.[32] According to Z&T, Anadarko is the major operator in the area with five disposal wells in the 10-mile radius from proposed injection well. Anadarko also has an extensive pipeline system just outside of the 10-mile perimeter servicing nearby SWD's. Z&T maintains that there three other operators in the area, EOG, XTO and BHP, but no supporting evidence of their oil and gas activity has not been presented. Z&T also asserts that OWL has permitted but not yet drilled wells in the immediate vicinity of the proposed well, allegedly negating any need for the subject injection well.[33]

In testimony by Z&T in response to questions on cross-examination, it was established that Z&T receives income and royalty from selling the right to dispose on its property. Additionally, it was established that, on property owned by Z&T that is immediately adjacent to the proposed location, the Commission has approved permits for five commercial disposal wells.[34]

Z&T expressed its concern for the groundwater safety, should the subject injection well be permitted, but failed to provide supporting evidence.

EXAMINERS' ANALYSIS

The Examiners conclude that the record evidence demonstrates that OWL's proposed injection well meets the requirements of the Tex. Water Code and SWR 46. The proposed injection well is in the public interest and will be constructed and operated in a manner that will protect surface water and groundwater from pollution. The proposed injection well will not endanger or injure any oil, gas, mineral, or geothermal resource or formation.

Public Interest

OWL presented evidence demonstrating that within a 10-mile radius of the proposed location approximately 2,000 active or permitted wells exist which require saltwater disposal services.[35] Also, from 2016 through 2018, oil and gas production significantly increased in the immediate area of the proposed location, supporting the need for additional saltwater disposal capacity.[36] The proposed injection well will decrease operating costs of nearby producing wells, extending the economic limits of each.

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[32] Z&T Exhibit Nos. 2 and 3; Tr., pgs. 113-120.

[33] Z&T Exhibit No. 1.

[34] OWL Exhibit 19.

[35] OWL Exhibit Nos. 18 and 19.

[36] OWL Exhibit No. 19.

As discussed above, Z&T has contracted with operators to drill commercial disposal well on its properties and receives revenue from those operations. As such, Z&T owns interests in competition with the proposed injection well. The Examiners have considered Z&T's arguments in light of this evidence.

Protection of Any Oil, Gas, or Geothermal Resources

The record evidence demonstrates that the proposed injection well will be drilled, completed, and operated in a manner that will not endanger or injure any oil, gas, or geothermal resource, as required by SWR 46, and will adequately protest ground and surface fresh water from pollution, pursuant to Texas Water Code § 27.051(b)(2). The proposed injection interval is capped by approximately 3,000 feet of the Salado and Castille Formations, impermeable sections comprised of evaporates, salt, and anhydrites. A zone of shale and shaly sand also exists below the base of the proposed injection interval. Confining intervals, both above and below the proposed injection interval, will prevent upward and downward migration of injected fluids to productive zones.

Four wells exist within a 1/4-mile radius of the proposed injection well's proposed location. One well is plugged and abandoned, one well shut-in, two wells are producing. The record evidence demonstrates that no well will provide a pathway for the migration of injected fluids outside of the disposal zone—each well is sufficiently cased and cemented or plugged in accordance with Commission rules.

Prevention of Ground and Surface Water Pollution

The GAU estimated that the base of underground sources of drinking water occurs at a depth of 1,150 feet. The proposed injection well will be cased and cemented in a manner to prevent the migration of injected fluids from the proposed injection zone to ground or surface water resources.

Financial Responsibility

OWL has an active Form P-5 Organization Report. As required by Statewide Rule 78, OWL demonstrated financial responsibility in the form of a $50,000 cash deposit, an amount sufficient to operate the proposed injection well.

FINDINGS OF FACT

1. On June 28, 2018, OWL published notice of the subject application in the *Pecos Enterprise*, a newspaper of general circulation in Loving County, Texas.

2. On June 26, 2018, OWL provided notice of the subject application to the Loving County Clerk, operators of wells within 1/2-mile of the proposed location, and all other affected persons, as required by 16 Tex. Admin. Code § 3.46.

3. On June 28, 2018, Z&T filed with the Commission a protest of the subject application.

4. The proposed location is approximately 16.7 miles north of the town of Mentone in Loving County.

5. The proposed injection well will be completed and operated as follows:

    a. Drilled to a total depth 6,200 feet;

    b. Surface casing (13 3/8-inch) set at 1,200 feet, cemented to the surface using 800 sacks of Class A cement;

    c. Intermediate casing (9 5/8-inch) set at 6,200 feet, cemented to surface using 2,500 sacks of Class H cement;

    d. Tubing (5 1/2-inch) and packer set at 4,900 feet, 100 feet above the top of the proposed injection interval;

    e. An injection interval from 5,000 feet to 6,200 feet in the Bell Canyon and Cherry Canyon Formations, located within the Delaware Mountain Group;

    f. A maximum daily injection volume equal to 20,000 bpd;

    g. A maximum surface injection pressure equal to 2,500 psig; and

    h. Injected fluids limited to saltwater, brackish water, RCRA exempt waste, and flowback fluids.

6. Water-bearing strata exists at the proposed location from the land surface to a depth of 350 feet.

7. The Rustler Formation, a formation that yields moderate to large quantities of fresh to brackish water, is present at the proposed location from a depth of 650 feet to 1,100 feet.

8. The base of underground sources of drinking water occurs at a depth of 1,150 feet.

9. The proposed injection well will be sufficiently cased and cemented to protect groundwater resources.

10. The use or installation of the proposed injection well will not endanger or injure any oil, gas, or geothermal resources or cause the pollution of freshwater strata unproductive of oil, gas, or geothermal resources.

11. Four wells exist within a 1/4-mile radius of the proposed injection well's proposed location:

    a. Cholla Petroleum, Inc.'s Kyle, Sid #34 Well No. 1. This well is plugged and abandoned. This well is cemented, cased, and plugged in a manner sufficient to protect groundwater resources.

    b. Shell Western E&P's Bridwell 54-1-34 LOV Well No. 1H. This well is a producing gas well. This well is cemented and cased in a manner sufficient to protect groundwater resources.

    c. Anadarko E&P Onshore LLC's Dusk 54-1-34 Unit Well No. 1H. This well is a producing oil well. This well is cemented and cased in a manner sufficient to protect groundwater resources.

    d. Anadarko E&P Onshore LLC's Hammerhead 54-1-35 Well No. 1H. This well is currently shut-in. This well is cemented and cased in a manner sufficient to protect groundwater resources.

12. Four wells exist outside of the 1/4-mile area of review but inside the 1/2-mile area of review:

    a. Baytech, Inc.'s TXL "39" Well No. 1. This vertical well was drilled to a total vertical depth equal to 4,556 feet but is plugged and abandoned.

b. Walsh & Watts, Inc.'s TXL-G- Well No.10. This vertical well was drilled to total vertical depth equal to 4,753 feet and is a producing oil well.

c. Walsh & Watts, Inc.'s TXL-G- Well No.9. This vertical well was drilled to total vertical depth equal to 4,627 feet and is a producing oil well.

d. Fulfer Oil and Cattle Co.'s Johnson, W.D. Well No. 1. This vertical well was drilled to total vertical depth equal to 4,600 feet and is a producing oil well.

e. These wells are drilled and completed at depths so that the wells will not penetrate the proposed injection interval and will not act as conduit for injected fluids to endanger groundwater resources.

13. Both ground and surface fresh water resources will be adequately protected from pollution.

14. The use or installation of the proposed injection well is in the public interest.

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

16. OWL has an active Form P-5 Organization report.

17. OWL demonstrated financial responsibility in the form of a $50,000 cash deposit, an amount sufficient to operate the proposed injection well.

18. OWL has made a satisfactory showing of financial responsibility required by Tex. Water Code § 27.073.

CONCLUSIONS OF LAW

1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Tex. Nat. Res. Code § 81.051.

2. All notice requirements have been satisfied. 16 Tex. Admin. Code § 3.46.

3. The use or installation of the proposed injection well is in the public interest, Texas Water Code § 27.051(b)(1).

4. The use or installation of the proposed 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. OWL made a satisfactory showing of financial responsibility. Texas Water Code § 27.051(b)(4).

7. The proposed injection well will not endanger oil, gas, or geothermal resources or cause the pollution of freshwater strata unproductive of oil, gas, or geothermal resources. 16 Tex. Admin. Code § 3.46.

8. OWL met its burden of proof, and the subject application satisfied the requirements of Chapter 27 of the Texas Water Code and Commission Statewide Rule 46.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend granting the application for disposal authority pursuant to Statewide Rule 46 for the Cronos SWD Lease, Well No. 1, Grice (Delaware) Field, Loving County, Texas, as requested by OWL SWD Operating, LLC.

Respectfully submitted,

Petar Buva
Technical Examiner

Jennifer N. Cook
Administrative Law Judge