

THE APPLICATION OF COMMON DISPOSAL, LLC FOR AN ADMINISTRATIVELY DENIED APPLICATION FOR A COMMERCIAL PERMIT TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A POROUS FORMATION NOT PRODUCTIVE OF OIL OR GAS, COMMON SWD LEASE WELL NO. 3, HUXLEY (6100) FIELD, SHELBY COUNTY, TEXAS

HEARD BY: Andres J. Trevino P.E., Technical Examiner
Christopher S. Hotchkiss, Hearings Examiner

APPEARANCES:

APPLICANT:

Stephen Fenoglio
Rick Lout
Kerry Pollard

REPRESENTING:

Common Disposal, LLC

PROTESTANTS:

David Cooney
Doug Johnson

Railroad Commission Staff

PROCEDURAL HISTORY

Application Filed:	December 3, 2010
Request for Hearing:	November 29, 2010
Notice of Hearing:	December 16, 2010
Date of Hearing:	February 9, 2011
Proposal For Decision Issued:	July 15, 2011

EXAMINERS' REPORT AND PROPOSAL FOR DECISION

STATEMENT OF THE CASE

Common Disposal, LLC requests authority pursuant to Statewide Rule 9 to operate Well No. 3 on its Common SWD Lease in Shelby County as a commercial disposal well. This application was administratively denied by the Commission's Technical Permitting staff over concerns of possible fluid migration from the Rodessa formation.

DISCUSSION OF THE EVIDENCE

Applicant's Evidence

The subject well has not yet been drilled but a permit to drill was issued by the Commission on April 13, 2010. It is proposed that the well be drilled through the Rodessa to a maximum depth of 6,500 feet. It is proposed that the well have 1,650 feet of 9⁵/₈" surface casing with cement circulated from the casing shoe to the ground surface, and 7" casing set through the Rodessa, estimated to occur no deeper than 6,500 feet. The 7" casing will be cemented with 776 sacks of cement with the top of cement behind the longstring casing estimated to be at 1,835 feet. (See Wellbore Diagram attachment). A cement bond log will be run to determine the actual top of cement prior to putting the well into service. The Texas Commission on Environmental Quality recommends that usable-quality ground water be protected to a depth below the base of the Wilcox Sands, which are expected to occur at 1,425 feet. TCEQ further recommends that fresh water contained in the interval from the land surface to a depth of 250 feet be isolated from water in the underlying beds.

The proposed injection will be through 4¹/₂" tubing set on a packer at approximately 5,950 feet, but no higher than 100 feet above the top of the injection interval. The proposed injection interval is the Rodessa formation, the top of which is expected to occur at about 6,140 feet. The proposed injection interval is between 6,000 and 6,500 feet. This estimated depth of the Rodessa is based on the log of the Humble Oil & Refining Co.- Pickering Lumber Co. No. 1C. This well is approximately 2 miles to the east of the proposed well and is the closest well which penetrated the Rodessa and for which an electric log is available. The proposed maximum injection volume is 15,000 BWPD, with an estimated average of 12,500 BWPD. The proposed maximum injection pressure is 3,000 psig.

There is one wellbore within a ½ mile radius of the proposed disposal well. The HP Glidden - Pickering Lumber Co. Well No.# 1 was drilled as a dry hole in 1931 with cable tool drilling rig. The well was drilled to TD at a depth of 3,854 feet. Only a 10" surface casing was set at a depth of 105 feet. The well did not penetrate the proposed Rodessa disposal formation which is expected to be found below 6,000 feet in this well. A study was made of wells within a one mile radius of the proposed disposal well. In between the ½ mile radius and the one mile radius there are two permitted locations and one gas well. One permitted location is for a gas well in the Huxley (6100) Field (James Lime) as is the completed gas well. A study was made of wells within a two mile radius of the proposed disposal well. In between the one mile radius and the two mile radius of the proposed disposal well there are nine additional wells. Six of the wells are producing gas wells in the Huxley (6100) Field. These are multi-lateral wells generally producing below 6,400 feet. All of the wells identified and studied either did not penetrate the Rodessa or had adequate cement across and above the Rodessa.

Common Disposal plans to use the proposed well to dispose of produced water and frac water generated as a result of the active and ongoing development of the Cotton

OIL AND GAS DOCKET NO. 06-0268535

Valley found at 8,800 feet and the James Lime found at 6,100 feet in this area. Common Disposal believes that additional disposal facilities are necessary to accommodate the active drilling as the two existing commercial wells within a ten mile radius are either private (not open to the public) or are at near operating capacity. The two commercial disposal wells within the ten mile radius are the Marathon Oil Company USA Bridges well and the Common Disposal SWD No.1. The Marathon Disposal well is a private well that only disposes of water of Marathon leases. The Common Disposal well is servicing wells to the west from the SWD No. 1 and is operating near capacity. Common Disposal believes expanding drilling activity from the James Lime, Haynesville Shale and the Travis Peak will require additional disposal capacity that the Common Disposal SWD No. 3 will provide. Common Disposal presented a map showing initial water production from wells completed from January 2008 through January 2011. Initial water production from the 35 wells listed ranged from 5 BWPD to up to 2,723 BWPD. Total initial water production from the 35 wells totaled 14,457 BWPD.

Common Disposal LLC has an active P-5 on file with the Commission, with \$25,000 financial assurance. There are no past or pending enforcement actions against Common Disposal LLC.

Notice of the subject application was published in *The Light and Champion*, a newspaper of general circulation in Shelby County, on June 28, 2010. A copy of the application was mailed on June 23, 2010 to the Shelby County Clerk's Office and the offsetting surface owners and operators within ½ mile of the proposed well. Centre Express, LLC owns the surface of the 23.541 acre tract on which the well is proposed to be located.

Staff Position

The Carrizo Wilcox aquifer is a very large freshwater aquifer which outcrops over virtually all of Panola and Shelby Counties. Staff is concerned about protection of this water resource in light of the number of disposal wells in various stages of the permitting process in Shelby County. The Commission is bound by law to protect both surface waters and groundwater of the State. The Commission staff will not issue a permit if they believe it will cause pollution of the State's water resources.

The Technical Permitting Section staff administratively denied the permit application in part due to their concerns "over the potential for the Rodessa formation to become over pressurized due to the proliferation of disposal wells injecting at high rates into the Rodessa within the area of the Sabine uplift." Staff admitted in the letter that the proposed well is somewhat removed from the area of greatest concern where there is a large number of applications for high rate injection wells into the Rodessa formation in Shelby County. Other staff concerns are that the proposed injection interval is exposed in an uncemented cased-hole annulus and may become a conduit for the non-confinement of fluids to the permitted interval. Staff recommended that Common be required to demonstrate through well records and/or pressure influence calculations that its proposed injection operations

OIL AND GAS DOCKET NO. 06-0268535

will not cause the nearest well that has the Rodessa exposed in an uncemented casing/borehole annulus to become a conduit for fluids to travel from the proposed injection interval up to the base of the useable quality groundwater.

At the time of the hearing, there were 17 commercial disposal wells within a 10 mile radius permitted into the Rodessa/Fredricksburg in the Joaquin area, with numerous other commercial applications pending. The Joaquin area has a large concentration of commercial disposal wells due to its proximity to a produced saltwater pipeline carrying produced water from Louisiana. The pipeline was bored under a narrow section of the Sabine River near Joaquin, Texas. There is no produced saltwater pipeline in existence near the proposed Common disposal well as the Sabine River is too wide to make it practical.

In some parts of Shelby and Panola Counties wells are known to exist with inadequate cement across the Rodessa. The number of pending applications for Rodessa disposal, in conjunction with existing disposal wells in the Joaquin area, may result in pressure increases in the Rodessa sufficient to raise fluid to the usable quality water zone in offsetting wells which do not have production casing cemented across the Rodessa. Injected fluids would not be confined to the Rodessa in such circumstances.

Staff does not believe that the values reported for top of cement behind production casing are reliable in the Joaquin area, as the Rodessa has been known to be a zone of lost circulation. Forms W-15, the cementing reports filed for some wells, indicate a calculated "height" of cement in the annular space behind the production casing, based on the volume of cement used. The calculated heights listed on the W-15 did not include a wash out factor.

EXAMINERS' OPINION

The examiners believe that this application should be approved. The Common SWD No. 3 will be completed in a manner which will confine disposal fluids to the proposed disposal interval in the Rodessa. Surface casing will be set and cemented through the base of usable quality water. The longstring production casing will also be cemented up to an estimated depth of 1,835 feet to prevent migration from the injection interval. A cement bond log will be run to determine the actual top of cement prior to putting the well into service. There are no oil or gas wells within the one-half mile radius of review that have penetrated the Rodessa formation. The nearest well that has penetrated the Rodessa formation, the XTO Energy, Bridges Estate No. 1H, has an estimated 2,300 feet of cement above the Rodessa. The examiners believe that Common Disposal has met it's burden of proof in showing that injected fluids will be confined to the Rodessa interval and that the Rodessa formation currently is not over-pressured in the proposed SWD Well No.3.

The examiners further believe Common has demonstrated that the proposed Common SWD Well No.3 will not be injecting into an over-pressured area of the Rodessa or that the Rodessa will become over pressured as a result of the injection operations

OIL AND GAS DOCKET NO. 06-0268535

proposed by Common Disposal. The proposed location of the Common SWD Well No. 3 has two disposal wells within a ten mile radius. Compared to the Joaquin area where there are 17 commercial disposal wells within a half circle of a 10 mile radius as half of the 10 mile radius circle lies within Louisiana, that does not have any injection wells. The two wells within the 10 mile radius of the Common SWD Well No. 3 are of low to average injection rates. Form P-18 data reported for the month of November 2010 shows the Common SWD No. 1 injected at a rate of 14,219 BWPD. During that same month the Marathon USA-Bridges well was injecting at a rate of 405 BWPD.

Staff was concerned an uncemented cased-hole annulus may become a conduit for fluids to flow up to the surface or the base of the usable quality water. Common demonstrated that there are not any wells with in a two mile radius with an uncemented cased hole across the Rodessa. All wells either had adequate cement across and above the Rodessa or did not penetrate the Rodessa. Staff stated in the denial letter that they wanted a demonstration through well records "and/or" pressure influence calculations that the proposed injection operations will not cause the nearest well to become a conduit to fluids from the Rodessa to the base of the useable quality water. Common complied with this requirement through well records. Although Common did not place any pressure influence calculations as exhibits, Common felt it met the requirement through well records. Common's engineer did testify that by placing reasonable parameters into the pressure influence formula he determined that at the proposed rate of injection, formation pressure in the Rodessa will only increase by 200 psi within a 2 mile radius after 10 years of injection.

Approval of the requested permit is in the public interest given it is in the public interest to promote the development of the Cotton Valley and James Lime in Shelby County. The Common SWD Well No.3 will reduce truck traffic and congestion at other disposal facilities in the area. Horizontal drilling is increasing in the Cotton Valley, James Lime, Travis Peak and Haynesville Shale. Having a disposal facility close to the horizontal wells will reduce disposal cost and increase hydrocarbon recovery. The evidence indicates that the operation of the subject disposal well and facility will not adversely impact any surface or subsurface useable quality water.

FINDINGS OF FACT

1. Notice of this hearing was given to all persons entitled to notice at least ten (10) days prior to the hearing. Notice of the application was published in *The Light and Champion*, a newspaper of general circulation in Shelby County, on June 28, 2010.
2. The Common SWD No. 3 has not been drilled. Common Disposal plans to drill the well to a maximum depth of approximately 6,500 feet. The top of the Rodessa is expected to occur at approximately 6,000 feet.
3. The maximum requested injection volume is 15,000 barrels of water per day and the

OIL AND GAS DOCKET NO. 06-0268535

maximum requested surface injection pressure is 3,000 psi. The requested disposal interval is the Rodessa formation between approximately 6,000 and 6,500 feet.

4. The Common SWD No. 3 will be cased and cemented in a manner to protect usable quality water and injection will be confined to the injection interval.
 - a. The subject well will have 1,650 feet of 9⁵/₈" surface casing cemented to surface.
 - b. The subject well will have approximately 6,500 feet of 7" casing, cemented with 776 sacks of cement with a top of cement at approximately 1,835 feet.
 - c. A cement bond log will be run to determine the actual top of cement prior to putting the well into service to verify that the top of cement is approximately 1,800 feet.
 - d. Injection will be through tubing set on a packer no higher than 100 feet above the top of the injection interval.
 - e. The Texas Commission on Environmental Quality recommends that usable-quality water be protected to 1,425 feet in the area of the proposed well.
5. There is one wellbore within one-half mile of the proposed disposal well. The well is a dry hole drilled in 1931 with at total depth of 3,854 feet.
6. Staff denied the application due to concerns of the potential of over pressuring the Rodessa and the possibility of there being uncemented wellbores across the Rodessa.
7. There are 17 commercial disposal wells in the Joaquin area (11 miles to the north near the Texas/Louisiana border) and many more pending disposal permit applications.
8. The proposed site for the Common SWD No. 3 is 11 miles to the south of the Joaquin area.
9. There are two commercial disposal wells within a 10 mile radius of the Common SWD No. 3.
10. One of the commercial disposal wells located within 10 miles of the Common SWD No. 3 is private (not open to the public) and the other one is operating near capacity.
11. Due to increasing development of the Cotton Valley and James Lime with horizontal drilling in this area, large quantities of produced water must be disposed of. Use of the Common SWD No. 3 as a commercial disposal well is in the public interest to

OIL AND GAS DOCKET NO. 06-0268535

promote this development by providing a safe and economic means of disposal of the fluids associated with production.

12. Redirecting truck traffic from the proposed Common SWD Well No. 3 area to the Joaquin area will increase costs and reduce ultimate hydrocarbon recovery.
13. Common Disposal has met the concerns raised by Commission Staff in the denial letter.
14. The nearest wellbore penetrating the Rodessa, the XTO Energy, Bridges Estate No. 1H has adequate cement across and above (2,300 feet) the Rodessa. Other wells either did not penetrate the Rodessa or have adequate cement above the Rodessa.
15. The Rodessa is not over pressured or “over injected” in the Common SWD Well No. 3 area.
 - a. There are only two commercial wells within 10 miles of the Common SWD Well No. 3, the Marathon Oil Company USA Bridges well and the Common Disposal SWD No.1.
 - b. Form P-18 data reported for the month of November 2010 shows the two commercial wells are injecting at a combined rate of 14,624 BWPD.
 - c. Pressure influence calculations indicate pressure in the Rodessa would rise by 200 psi at a radius of 2 miles after 10 years of injection. A 200 psi pressure increase is equivalent to a 100 foot rise in saltwater fluid level.
16. Common Disposal, LLC has an active P-5 on file with the Commission, with \$25,000 financial assurance.

CONCLUSIONS OF LAW

1. Proper notice was issued in accordance with the applicable statutory and regulatory requirements.
2. All things have occurred to give the Railroad Commission jurisdiction to consider this matter.
3. The use or installation of the proposed injection well is in the public interest.
4. The use or installation of the proposed injection well will not endanger or injure any oil, gas, or other mineral formation.
5. With proper safeguards, as provided by terms and conditions in the attached final

OIL AND GAS DOCKET NO. 06-0268535

order which are incorporated herein by reference, both ground and surface fresh water can be adequately protected from pollution.

6. Common Disposal, LLC has made a satisfactory showing of financial responsibility to the extent required by Section 27.073 of the Texas Water Code.
7. Common Disposal, LLC has met its burden of proof and satisfied the requirements of Chapter 27 of the Texas Water Code and the Railroad Commission's Statewide Rule 9.

EXAMINERS' RECOMMENDATION

Based on the above findings and conclusions, the examiners recommend that the application be approved as set out in the attached Final Order.

Respectfully submitted,

Andres J. Trevino
Technical Examiner

Christopher S. Hotchkiss
Hearings Examiner