



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 06-0280527

THE APPLICATION OF LKD CORP. FOR A COMMERCIAL PERMIT TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A RESERVOIR PRODUCTIVE OF OIL OR GAS FOR THE MCWILLIAMS BROS LEASE WELL NO. 2, PENN-GRIFFITH, W. (PETTIT, LO.) FIELD, RUSK COUNTY, TEXAS

HEARD BY: Andres J. Trevino P.E., Technical Examiner
Terry Johnson, Hearings Examiner

APPEARANCES:

APPLICANT:

James Bostic
David Triana
Larry Davis

REPRESENTING:

LKD Corp.

PROTESTANT:

David P. Brown

Himself

PROCEDURAL HISTORY

Application Filed:	September 27, 2012
Request for Hearing:	February 1, 2013
Notice of Hearing:	February 7, 2013
Date of Hearing:	April 8, 2013
Proposal For Decision Issued:	August 23, 2013

EXAMINERS' REPORT AND PROPOSAL FOR DECISION

STATEMENT OF THE CASE

LKD Corp. requests authority pursuant to Statewide Rule 46 to operate Well No. 2 on its McWilliams Bros. Lease in Rusk County as a commercial disposal well. The application was declared administratively complete by Doug Johnson, Manager for

Injection of the Storage Permits and Support Section of the Commission on January 22, 2013. This application is protested by Mr. David P. Brown. Mr. Brown owns property adjacent to the tract on which the proposed disposal well is located.

DISCUSSION OF THE EVIDENCE

Applicant's Evidence

The subject well is currently a shut in oil well completed in the Penn-Griffith, W. (Pettit, Lo.) Field. The McWilliams Bros. No. 2 was the last producing well in the field when it ceased production in September 2012. The well was originally drilled in February 11, 2006 to a total depth of 11,908 feet. The well was originally completed in the Cotton Valley Sands between depths of 9,384 feet to 11,612 feet. The well was recompleted in April 2007 into the Penn-Griffith, W. (Pettit, Lo.) Field. Cast iron bridge plugs were set at depths of 9,340 feet and 7,275 feet to isolate past production perforations. The wellbore is currently completed for injection and will not require any recompletion other than running tubing and packer. The well has 1,210 feet of 9⁵/₈" surface casing with cement circulated from the casing shoe to the ground surface, and 4¹/₂" casing set at a depth of 11,904 feet. The 4¹/₂" casing is cemented with 1,967 sacks of cement with the top of cement behind the longstring casing at a depth of 5,380 feet. The top of cement was determined by a cement bond log run on February 7, 2006. (See Wellbore Diagram attachment). The Commission's Groundwater Advisory Unit recommends that usable-quality ground water be protected to a depth of 900 feet. The GAU further requires that fresh water contained in the interval from the land surface to a depth of 450 feet must be isolated from water in underlying and overlying beds.

The proposed injection will be through 2⁷/₈" tubing set on a packer at approximately 6,800 feet, but no higher than 100 feet above the top of the injection interval. The proposed injection interval is the Lower Pettit formation, the top of which occurs at a depth of 6,900 feet. The proposed injection interval is between 6,900 and 7,200 feet. Injection will occur through existing perforations in the well from 7,120 to 7,148 feet. The proposed maximum injection volume is 25,000 BWPD, with an estimated average of 12,500 BWPD. The proposed maximum injection pressure is 3,450 psig.

There are no oil or gas wellbores within a ¼ mile radius of the proposed disposal well. There is one plugged wellbore, the McWilliams Brothers "A" No. 1, within a ½ mile radius of the proposed disposal well. The McWilliams Brothers "A" No. 1 was drilled in August 1981 and plugged in December 1986. The McWilliams Brothers "A" No. 1 has adequate cemented surface casing set at a depth 1,230 feet, protecting the usable-quality groundwater depth to 900 feet. The well has four cement plugs set within the wellbore. A W-3, dated February 4, 1987 lists the four plugs as having been set from 6,991 feet to 6,845 feet, the second plug is set from 1,020 feet to 830 feet, the third plug is set from 100 feet to 15 feet and the fourth plug is set from 10 feet to the surface. The wellbore is filled with 10lb/gal mud. Any fluids disposed of into the Lower Pettit at a depth of 6,900 feet or

below will be isolated from reaching the surface and groundwater by the cement plugs. Additionally, LKD reviewed the cementing records for all wells within a one mile radius of the proposed disposal well and found all wellbores within one mile have cement across the proposed disposal interval.

There are nine active commercial disposal wells in Rusk County. The density of commercial disposal wells in the county is equivalent to one disposal well per 104 square miles. The commercial disposal wells are located as close as 4.2 miles from the McWilliams Bros. No. 2 and as far away as 26.7 miles. The commercial disposal wells are largely completed in shallower zones than the zone proposed for the McWilliams Bros. No. 2. The permitted injection depths for the existing disposal wells range from as shallow as 3,220 feet to as deep as 7,700 feet. Although the Luther Ross SWD well is permitted from 3,640 feet to 7,700 feet, Mr. Larry Davis with LKD stated he is certain the Ross well is injecting into the Goodland Lime at a depth of 3,640 feet. The disposal formations that the existing disposal wells are permitted in include the Duck Creek Lime, Woodbine, Goodland Lime, Rodessa, Pettit and Travis Peak. Several wells are injecting into the Duck Creek Lime, the shallowest at 3,220 to 3,600 feet and the Rodessa at depths of 5,800 to 6,633 feet. Injection well data for the active commercial wells indicate the wells are disposing on average between 526 BWPD to 4,270 BWPD each. Mr. Davis with LKD believes approving the McWilliams Bros. No. 2 into the Lower Pettit at depths from 6,900 to 7,200 feet will be beneficial to area disposal demands as it will provide an alternative to the shallower disposal zone in the Duck Creek Lime at 3,200 feet and the Rodessa at 5,800 feet, which has issues of being over pressured in Panola County, the county adjacent to Rusk County.

LKD 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 Valley Lime and Taylor Sands, "liquids play" in this area. Currently operators are drilling horizontal wells into the Cotton Valley Lime and Cotton Valley Taylor Sands that are rich in liquid hydrocarbons. The horizontal drilling is increasing the production of frac water and produced saltwater. Additionally, throughout Rusk County, there are many existing mature vertical wells that produce increasing quantities of saltwater that require disposal. This recent play and development strategies will significantly increase drilling activity and increase the demand for safe and economical water disposal facilities. LKD conducted a survey of area oil and gas operators and saltwater haulers to determine if a need existed for a new disposal well in Rusk County. As a result of the survey LKD is confident additional disposal capacity is needed now and will be needed in the future.

The LKD SWD site will incorporate all requirements the Commission imposes on all commercial disposal wells to operate in environmentally sound and safe manner. The Commission's standard permit conditions for commercial permits require in part that the proposed facility's tanks sit inside a synthetically lined secondary containment basin, all waste storage and pretreatment facilities be constructed of steel, concrete, fiberglass or other material approved by the Commission, the facility shall have security to prevent unauthorized access, and each storage tank must be equipped with a device to alert

drivers when each tank is within 130 barrels from being full.

LKD Corp. has an active P-5 on file with the Commission, with a \$25,000 letter of credit financial assurance. There are no past or pending enforcement actions against LKD Corp.

Notice of the subject application was published in the *Kilgore News Herald*, a newspaper of general circulation in Rusk County, on September 19, 2012. A copy of the application was mailed on September 24, 2012 to the Rusk County Clerk's Office, the surface owners, the offsetting surface owners and any operators within ½ mile of the proposed well. There are no offsetting operators within ½ mile of the proposed well.

Protestant's Evidence

Mr. David Brown is a land and mineral owner to a property adjacent to the McWilliams Bros. lease where the proposed disposal well will be located. Mr. Brown stated he is not opposed to LKD getting a disposal well in general but is opposed to the location of this well. Mr. Brown further stated he believed the well should not be approved as notification was improper. In his opinion, the notice should have been published in the *Henderson Daily News* instead of the *Kilgore News Herald*. The *Kilgore News Herald* is published in Gregg County not Rusk County, while the *Henderson Daily News* is published in Rusk County. Mr. Brown did not present additional evidence, but asked numerous questions regarding the application and voiced his concerns about the proposed disposal well. Mr. Brown has concerns about the potential for surface and groundwater contamination. Mr. Brown has cattle on his property that rely on a shallow water well, 25 to 50 feet deep, and a natural spring for domestic and cattle consumption. Mr. Brown has concerns horizontal drilling wastes injected down the well will contaminate his water well and or the springs. Mr. Brown had questions about the applied for RCRA Exempt wastes. He did not know what they were and did not know if the wastes would contaminate his water well and the springs on his property. Mr. Davis stated although he would be allowed to dispose of RCRA Exempt wastes, his intentions are to only allow produced frac water and produced saltwater to be injected into the disposal well. He further stated frac water and produced water may have trace amounts of oil or condensate that may unintentionally enter the wellbore. Typically oil and condensate are separated out before injection to be sold as skim oil for additional revenue. In the rebuttal case, Mr. Davis stated that adjacent landowners have access to two rural water supply systems, the Oakwood and Churchill rural water supply systems in addition to domestic water supply wells. In rebuttal to Mr. Brown's assertions the Notice was improper, Mr. Davis' attorney stated that the *Kilgore News Herald* certified with an affidavit that the paper is a newspaper of general circulation in Rusk County. The attorney stated under the requirement of the Commission's rules publication is required in a newspaper of general circulation not necessarily the newspaper with the greatest circulation in a particular county.

EXAMINERS' OPINION

The examiners believe that this application should be approved. The McWilliams

Bros. No. 2 will be completed in a manner which will confine disposal fluids to the proposed disposal interval in the Lower Pettit formation. Surface casing is set and cemented through the base of usable quality water. The longstring production casing is also cemented to a depth of 5,380 feet which was verified by a cement bond log in 2006. The well's cemented casing will prevent migration from the injection interval. There are no oil or gas wells within the ¼ mile radius of review. There is one plugged wellbore within ½ mile of the proposed disposal well. The plugged wellbore was plugged in accordance to the Commission's requirements and does not pose a threat to any oil and gas resources, groundwater or surface waters. Standard requirements imposed by the Commission for above-surface commercial facilities such as secondary containment, spill prevention measures and alarms on tanks to prevent over topping will minimize spills, and minimize wastes from migrating off site. Notification was proper as the record evidence demonstrated that the *Kilgore News Herald* is a newspaper of general circulation in Rusk County.

Approval of the requested permit is in the public interest. It is in the public interest to promote the development of the "liquids rich" play in the Cotton Valley formation throughout Rusk County. Rusk County has nine commercial disposal wells which, Commission records indicate, are all being actively used. A survey conducted by LDK, of area oil and gas operators and saltwater haulers indicates there currently is support for additional disposal capacity in the area. Additional disposal capacity will be needed as the anticipated drilling increases. Having an additional disposal facility close to the active drilling area will increase competition and will reduce disposal costs for all operators.

The Commission does not have direct jurisdiction over issues regarding site selection and traffic patterns. The Commission has historically interpreted the "public interest" finding required by Texas Water Code 27.051(b) as limited to matters related to oil and gas production and as not including issues such as traffic safety and road conditions. The Commission's interpretation has been upheld by the Texas Supreme Court as reasonable and in alignment with the statute's meaning. See, *Railroad Commission v. Texas Citizens for a Safe Future and Clean Drinking Water*, 336 S.W.3d 619, 630 (Tex. 2011). The evidence indicates that the operation of the subject disposal well and facility will not adversely impact any surface or subsurface useable quality water and will enhance hydrocarbon recovery. The Protestant's shallow water well and natural springs will be protected from the injected fluids as the proposed disposal well has 1,210 feet of surface casing with cement circulated to the surface and the production string is cemented to a depth of 5,380 feet, 1,520 feet above the proposed injection interval.

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 subject application was published in the *Kilgore News Herald*, a newspaper of general circulation in Rusk County, on September 19, 2012. A copy of the application was mailed on September 24, 2012 to the Rusk County Clerk's Office, the surface owners, the offsetting surface owners and any operators within ½ mile of the proposed well. The *Kilgore News Herald* meets the publishing notification requirements of the Commission.

2. The McWilliams Bros. No. 2 is currently a shut in oil well completed in the Penn-Griffith, W. (Pettit, Lo.) Field. The McWilliams Bros. No. 2 was the last producing well in the field when it ceased production in September 2012.
3. The application was declared administratively complete by Doug Johnson, Manager for Injection of the Storage Permits and Support Section of the Commission on January 22, 2013.
4. The maximum requested injection volume is 25,000 barrels of water per day and the maximum requested surface injection pressure is 3,450 psi. The requested disposal interval is the Lower Pettit formation, the top of which occurs at a depth of 6,900 feet. The proposed injection interval is between 6,900 and 7,200 feet.
5. The McWilliams Bros. No. 2 is cased and cemented in a manner to protect usable quality water and injection will be confined to the injection interval.
 - a. The subject well has 1,210 feet of 9⁵/₈" surface casing cemented to surface.
 - b. The subject well has 11,904 feet of 4¹/₂" casing, cemented with 1,967 sacks of cement with a top of cement behind the casing at a depth of 5,380 feet. The top of cement was determined by a cement bond log ran on February 7, 2006.
 - c. Injection will be through 2⁷/₈" tubing set on a packer no higher than 100 feet above the top of the injection interval.
 - d. The Commission's Groundwater Advisory Unit recommends that usable-quality ground water be protected to a depth of 900 feet in the area of the proposed well.
6. There are no wellbores within ¼ mile of the proposed disposal well.
7. There is one plugged wellbore, the McWilliams Brothers "A" No. 1, within a ½ mile radius of the proposed disposal well.
 - a. The McWilliams Brothers "A" No. 1 was plugged in December 1986 in accordance to the Commission's plugging requirements.
 - b. The McWilliams Brothers "A" No. 1 has adequate cemented surface casing set at a depth 1,230 feet, protecting the usable-quality groundwater depth of 900 feet.
 - c. The McWilliams Brothers "A" No. 1 was plugged in a manner protective of surface water and ground water and will not pose a potential threat to oil and gas production in the area.
8. All wellbores within 1 mile of the proposed disposal well have cement across the

- proposed disposal interval.
9. The adjacent landowners have access to two rural water supply systems, the Oakwood and Churchill rural water supply systems in addition to domestic water supply wells.
 10. There are nine commercial disposal wells located within Rusk County.
 - a. The commercial disposal wells are completed in shallower zones than the zone proposed for the McWilliams Bros. No. 2. The permitted injection depths for the existing disposal wells range from as shallow as 3,220 feet to as deep as 7,700 feet.
 - b. The disposal formations that the existing disposal wells are permitted in include the Duck Creek Lime, Woodbine, Goodland Lime, Rodessa, Pettit and Travis Peak.
 - c. Injection well data for the active commercial wells indicate the wells are disposing on average between 526 BWPD to 4,270 BWPD each.
 - d. The McWilliams Bros. No. 2 will provide a disposal alternative to the shallower disposal zone in the Duck Creek Lime at 3,200 feet and the Rodessa at 5,800 feet, which has issues of being over pressured in Panola County, the county adjacent to Rusk County.
 11. A survey conducted by LDK, of area oil and gas operators and saltwater haulers indicates there is support for additional disposal capacity in the area.
 12. Due to increasing development of the Cotton Valley "liquids play" in this area, disposal of large quantities of produced water and frac water is required.
 13. Although LDK is requesting authority to dispose of RCRA Exempt wastes, his intentions are to only dispose of produced frac water and produced salt water.
 14. Use of the McWilliams Bros. No. 2 Well as a commercial disposal well is in the public interest to promote this development by providing a safe and economic means of disposal of the fluids associated with horizontal drilling and production.
 15. Safeguards required by standard commercial permit requirements such as catch basins, secondary containment around tanks, tank gauges and alarms will minimize or prevent spills and offsite migration of wastes.
 16. The proposed disposal well has 1,210 feet of surface casing with cement circulated to the surface and a production string cemented to a depth of 5,380 feet, 1,520 feet above the proposed injection interval that will isolate disposal fluids from the Protestant's shallow water well and natural springs.

17. LKD Corp. has an active P-5 on file with the Commission, with \$25,000 letter of credit financial assurance.

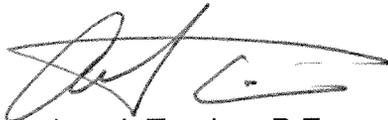
CONCLUSIONS OF LAW

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 as it will extend the life of producing wells and prevent the waste of oil or gas.
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 order which are incorporated herein by reference, both ground and surface fresh water can be adequately protected from pollution.
6. LKD Corp. has made a satisfactory showing of financial responsibility to the extent required by Section 27.073 of the Texas Water Code.
7. LKD Corp. 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 46.

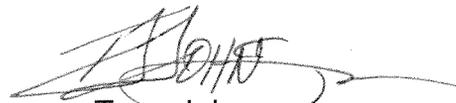
EXAMINERS' RECOMMENDATION

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, P.E.
Technical Examiner



Terry Johnson
Hearings Examiner