

OIL AND GAS DOCKET NO. 03-0248561

**THE APPLICATION OF K-3 RESOURCES, LP FOR COMMERCIAL DISPOSAL
AUTHORITY IN THE E. RICHERS LEASE WELL NO. 2, HAMMAN FIELD, MATAGORDA
COUNTY, TEXAS**

HEARD BY: Donna K. Chandler, Technical Examiner
Mark J. Helmueller, Hearings Examiner

APPEARANCES:

APPLICANT:

Lloyd Muennink
Karlis Ercums
Scott King
Michael McLeod
Roland Baker

REPRESENTING:

K-3 Resources, LP

PROTESTANTS:

Rex White, Jr.
Stanley Rosenthal
Frederico Flores

Stanley Rosenthal

REVISED EXAMINERS' REPORT AND PROPOSAL FOR DECISION

PROCEDURAL HISTORY

Application Filed:	June 13, 2006
Request for Hearing:	July 20, 2006
Notice of Hearing:	August 30, 2006
Date of Hearing:	October 20, 2006
Transcript Received:	October 30, 2006
Proposal For Decision Issued:	January 4, 2007
Re-Opened Hearing:	April 11, 2007
Transcript Received:	April 26, 2007
Revised PFD Issued:	May 11, 2007

STATEMENT OF THE CASE

K-3 Resources, LP ("K-3") requests authority pursuant to Statewide Rule 9 to operate Well No. 2 on its E. Richers Lease in Matagorda County as a commercial disposal well. The application had originally been filed as an application under Rule 46. However, at the hearing, the proposed injection interval was amended to include only non-productive zones and is therefore an application pursuant to Rule 9.

This application is protested by Stanley Rosenthal. Rosenthal owns the mineral estate for the E. Richers Lease.

A recommendation was presented to the Commission at conference on February 23, 2007. The Commission remanded the case to the examiners to address whether the proposed well is in the public interest. The hearing was re-opened on April 9, 2007 to consider additional evidence.

DISCUSSION OF THE EVIDENCE

Applicant's Evidence

The subject well was drilled in 1940 to a total depth of 8,950 feet. In 1950, the well was deepened to 10,891 feet and plugged back to 9,520 feet. The well has 1,234 feet of 10³/₄" surface casing with cement circulated from the casing shoe to the ground surface. The well also has 7" casing set at 8,937 feet with top of cement calculated to be at 7,000 feet. The Texas Commission on Environmental Quality recommends that usable-quality ground water be protected to a depth of 1,200 feet. (See attachment of wellbore diagram).

K-3 had originally requested an injection interval from 3,800 feet to 9,500 feet, which included both productive and non-productive intervals. K-3 amended the injection interval to 5,300 feet to 6,500 feet. There is no production from this interval within 5 miles of the Richers No. 2 well and the application should therefore be considered pursuant to Rule 9.

As conditions of the permit, Commission staff recommended that several cementing operations be performed on the well in order to accomplish zonal isolation of injected fluids. The cementing operations are summarized as follows:

1. Place a cast iron bridge plug and 20 feet of cement above the open perforations in the well at 8,356 feet;
2. Perform a block squeeze to provide at least 50 feet of cement coverage below the injection interval;
3. Perform a block squeeze to provide at least 600 feet of cement coverage above the injection interval.

Prior to the original hearing, K-3 set a bridge plug at 6,500 feet with 30 feet of cement on top, to isolate open perforations between 8,356 feet and 8,406 feet. K-3 also performed a cement squeeze on the well at the top of the injection interval. A cement bond log demonstrates cement from 5,528 feet to 5,610 feet. K-3 has not performed the required squeeze at the base of the injection interval.

The proposed injection will be through 2 $\frac{7}{8}$ " tubing set on a packer no higher than 100 feet above the top of the injection interval. The proposed maximum injection volume is 10,000 BWPD, with an estimated average of 8,000 BWPD. The proposed maximum injection pressure is 1,500 psig. K-3 plans to use the well to dispose of produced salt water from area wells.

There are four wellbores within a $\frac{1}{4}$ mile radius of the proposed disposal well, three of which have been plugged and abandoned according to Commission mapping records. The fourth well is a producing well with perforations between 9,162 and 9,170 feet. One of the plugged wells, the Huebner Estate "A" No. 2, was properly plugged in 1981 and a plugging report is available for this well. A second well, identified as the J. F. Thompson No. 4, was drilled in 1941 and properly plugged in 1972. A plugging report for this well was submitted at the re-opened hearing. The third plugged well, the Richers No. 1A, was drilled in the 1940's to a depth in excess of 9,000 feet. Completion papers for this well were located, but no plugging report could be located. Rosenthal claims to have plugged this well in 1974.

At the re-opened hearing, K-3 presented evidence demonstrating that there is a need for additional commercial disposal capacity in this area and the operation of the well therefore serves the public interest. K-3's trucking company hauled over 1.9 million barrels of produced water with its 10 trucks during 2006. The majority of this water was hauled to the three other commercial facilities in Matagorda County. K-3's witness testified that on many occasions, several times a month on average, the trucks would arrive at a facility and find it to be shut-down due to capacity limits, requiring travel to another facility. K-3 is aware that the Red Wolf Oil Company disposal facility is permitted for disposal of 6,000 BWPD with a maximum surface injection pressure of 1,700 psig. Currently, the injection pressure at this well is approaching the maximum allowed by its permit.

The drilling activity in Matagorda County is increasing and many existing wells produce large volumes of water. K-3's witness testified of occurrences of wells being shut-in due to lack of disposal capacity in the county. Unless additional disposal capacity is available, producing wells may have to be shut-in more often.

Notice of the subject application was published in *The Bay City Tribune*, a newspaper of general circulation in Matagorda County, on April 23, 2006. A copy of the application was mailed on May 24, 2006 to the Matagorda County Clerk's Office, the City Clerk's office of the City of Bay City, offsetting surface owners, and operators within $\frac{1}{2}$ mile of the proposed well. The surface of the facility is owned by Bay City Black Cats, L.P., a limited partnership owned by K-3 Resources, LP.

K-3 has an active P-5 on file with the Commission, with \$25,000 financial assurance. There are no pending enforcement actions against K-3.

Protestant's Evidence

Rosenthal filed the protest in this case over concerns that the original application and proposed injection interval would interfere with the development of the mineral estate. As previously noted, the application was originally filed to include injection into productive intervals. Additionally, the original request for an injection interval from 3,800 feet to 9,500 feet included both productive and non-productive intervals. Rosenthal believes that K-3's ownership of the surface estate does not provide a sufficient legal basis for K-3 to use the Richers No. 2 for commercial disposal.

Rosenthal also expressed concern that he would be held responsible for any breakout in the location of the Richers No. 1A well resulting from the proposed injection because no Commission records can be located to confirm the well was plugged. He testified that the Richers No. 1A well was properly plugged and provided documentation to confirm payment to a plugging service company. However, this business record did not contain any specific plugging information for the well. At the re-opened hearing, a witness for Rosenthal testified that he had supervised the plugging of the well in 1974. Commission mapping records identify the Richers No. 1A well as plugged and abandoned.

Rosenthal does not believe that operation of the E. Richers No. 2 is in the public interest. Rosenthal believes that there is sufficient disposal capacity in the area to meet the needs of operators.

EXAMINERS' OPINION

The examiners believe this application should be approved but that certain requirements must be met before the E. Richers No. 2 well is used for disposal, to ensure the protection of water resources in the area and to provide zonal isolation of injected fluids. The examiners recommend that a block squeeze be performed at the base of the injection interval to provide at least 50 feet of cement coverage behind pipe below the injection interval. Additionally, the 82 feet of cement that currently exists behind pipe above the injection interval is not sufficient to meet requirements of Rule 13 and the recommendations of Commission staff. The examiners recommend additional cementing to provide a total of at least 600 feet of cement behind the production casing above the injection interval. With the recommended additional cementing behind production casing, the E. Richers No. 2 will be completed in a manner which will confine disposal fluids to the disposal interval, which will be between 5,610 (base of cement at top of interval) and 6,450 feet (50 feet above base of interval).

Additionally, it is recommended that K-3 be required to re-enter the Richers No. 1A to confirm that the well is properly plugged to protect useable quality water resources. This wellbore is within the ¼ mile radius of review. The No. 1A was apparently drilled in the

1940's and penetrates the proposed disposal interval. With no plugging report or completion report available, it is not possible to rule out the possibility that the well may serve as a potential conduit for fluid migration into useable quality water and/or other productive horizons. The testimony at the re-opened hearing of Rosenthal's witness concerning plugging of the No. 1A well in 1972 was not persuasive. Further, applicant had no objection to re-entry of the Richers No. 1A as a condition of the permit.¹ Plugs must be set in the well in accordance with Rule 14, including plugs at the base of the useable quality water at 1,200 feet, and at the base of the surface casing, if the surface casing is not set through the base of useable quality water.

Because the application was amended to limit disposal to non-productive intervals, Rosenthal's concerns regarding the potential impact on the development of the mineral estate have been effectively negated. Texas law recognizes the ownership of "pore space" in a non-productive interval attaches to the surface estate. (See *Humble Oil & Refining Co. v. West*, 508 S.W.2d 812, 815 (Tex. 1974) citing *Emeny v. United States*, 412 F.2d 1319, 188 Ct.Cl. 1024 (1969). K-3's right to use the surface estate was not controverted.

Texas Water Code Section 27.051 (b)(1) requires the Railroad Commission, when issuing a permit to find "that the use or installation of the injection well is in the public interest". The term "public interest" is not defined under Chapter 27 of the Texas Water Code. Additionally, the term is not defined in Statewide Rules 9 or 46. However, the Commission publication "Discussions of Law, Practice and Procedure", Part IX, Underground Injection Control, includes the following discussion on Protection of Public Interest in Section F:

Whether use of the well will be in the public interest is also an ultimate issue in a hearing on an application for a disposal well. Evidence to prove the well is in the public interest may consist of proof of the following:

1. Injection of water into a disposal well is a preferred method of disposal in terms of overall environmental protection.
2. The economic life of a producing well will be extended and more oil produced if an operator has a means of disposing of his produced water.
3. Extra disposal capacity is needed in the area of the proposed well. It should be noted that proof that extra capacity is not needed is not proof that the proposed well is not in the public interest.

In this case, K-3's central argument concerning public interest focused on the third factor listed in the Discussions of Law, Practice and Procedure; that extra disposal capacity is needed in the area of the proposed well. The evidence presented supports both findings

¹ Transcript, p. 8-9. October 20, 2006 hearing.

of fact and conclusions of law consistent with the Commission's interpretation of the public interest requirement in Texas Water Code Section 27.051(b)(1) as the use of the Richers No. 2 as a commercial disposal well will serve the public interest by providing a safe and proper means of disposal of produced saltwater.

The undisputed evidence presented by K-3 at the re-opened hearing demonstrated the need for additional disposal capacity in this area. Oil and gas development in Matagorda County is increasing, resulting in the production of more salt water. Additionally, some existing wells in the area which produce high volumes of water have been shut-in due to insufficient disposal capacity. K-3's trucking company hauled over 1.9 million barrels of produced water to the three commercial facilities in Matagorda County. Several times a month on average, the trucks would arrive at a facility and find it to be shut-down due to capacity limits. K-3 is aware that the Red Wolf Oil Company disposal facility is approaching the maximum injection pressure allowed by its permit.

Based on the record in this docket, the examiners recommend adoption of the following Findings of Fact and Conclusions of Law:

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 Bay City Tribune*, a newspaper of general circulation in Matagorda County, on April 23, 2006.
2. The requested disposal interval between 5,610 feet and 6,500 feet in the E. Richers No. 2 is not productive of oil or gas within at least five miles of the E. Richers No. 2.
3. The E. Richers No. 2 will be cased and cemented in a manner to protect usable quality water.
 - a. The subject well has 1,234 feet of 10 $\frac{3}{4}$ " surface casing cemented to surface.
 - b. The Texas Commission on Environmental Quality recommends that usable-quality water be protected to 1,200 feet in the area of the proposed well.
4. The E. Richers No. 2 will be cased and cemented in a manner which will confine injected fluids to the injection interval.
 - a. The subject well has approximately 8,937 feet of 7" casing with top of cement at approximately 7,000 feet.
 - b. A bridge plug has been set at 6,500 feet, with 30 feet of cement on top, to isolate open perforations between 8,356 feet and 8,406 feet.

- c. Prior to initiation of disposal operations, a cement squeeze operation must be performed to provide a total of at least 600 feet of cement behind the production casing above the injection interval.
 - d. Prior to initiation of disposal operations, a cement squeeze must be performed at the base of the disposal interval to provide at least 50 feet of cement behind the production casing at the base of the injection interval.
 - e. Injection will be through tubing set on a packer no higher than 100 feet above the top of the injection interval.
5. The maximum requested injection volume is 10,000 barrels of water per day and the maximum requested surface injection pressure is 1,500 psi.
6. Re-entry and proper plugging of the Richers No. 1A is necessary to confirm that there are no conduits for migration of injected fluids within one-quarter mile of the proposed disposal well.
7. Use of the E. Richers No. 2 as a commercial disposal well is in the public interest to provide necessary additional disposal capacity.
 - a. Due to increased oil and gas development in Matagorda County, large quantities of produced water must be disposed of.
 - b. Many existing producing wells in Matagorda County produce high volumes of water. Some have had shut-ins due to insufficient disposal capacity.
 - c. Existing disposal wells in the county are periodically unavailable because they have reached capacity.
8. Bay City Black Cats, L.P. purchased the surface estate for the 34.44 acres on which the subject well bore is located in January 2006.
9. Bay City Black Cats, L.P. is a wholly owned subsidiary of K-3 Resources, L.P.
10. K-3 Resources, LP 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. K-3 Resources, L.P. established it possesses a good faith claim of the right to use the E. Richers No. 2 for disposal into non-productive zones.
4. The use or installation of the proposed injection well is in the public interest.
5. The use or installation of the proposed injection well will not endanger or injure any oil, gas, or other mineral formation.
6. 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.
7. K-3 Resources, LP has made a satisfactory showing of financial responsibility to the extent required by Section 27.073 of the Texas Water Code.
8. K-3 Resources, LP has met its burden of proof and satisfied the requirements of Chapter 27.051 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,

Donna K. Chandler
Technical Examiner

Mark J. Helmueller
Hearings Examiner