

OIL AND GAS DOCKET NO. 09-0249176

**THE APPLICATION OF B & S DISPOSAL, LLC FOR COMMERCIAL DISPOSAL
AUTHORITY IN THE WM. K. MOORE LEASE WELL NO. 1, JACK COUNTY REGULAR
FIELD, JACK COUNTY, TEXAS**

HEARD BY: Donna K. Chandler, Technical Examiner
James M. Doherty, Hearings Examiner

APPEARANCES:

APPLICANT:

George Neale
Rick Johnston
Stephen Moore

REPRESENTING:

B & S Disposal, LLC

PROTESTANTS:

Mickey Olmstead
Cary McGregor
Blake Bowen

Paula Bowen

Sidney McClain
Eric Rothe

Mr. & Mrs. Eric Rothe

EXAMINERS' REPORT AND PROPOSAL FOR DECISION

PROCEDURAL HISTORY

Application Filed:	August 7, 2006
Request for Hearing:	September 18, 2006
Notice of Hearing:	October 4, 2006
Date of Hearing:	November 21, 2006
Transcript Received:	November 30, 2006
Proposal For Decision Issued:	January 4, 2007

STATEMENT OF THE CASE

B & S Disposal, LLC ("B & S") requests authority pursuant to Statewide Rule 9 to operate Well No. 1 on its Wm. K. Moore Lease in Jack County as a commercial disposal well.

This application is protested by Paula Bowen and Mr. & Mrs. Eric Rothe. Protestants are offsetting surface owners to the tract on which the subject disposal well is located.

DISCUSSION OF THE EVIDENCE

Applicant's Evidence

The subject well was drilled in 1981 to a total depth of 5,522 feet. The well was completed as a gas well in the Ennis (Cong) Field with perforations between 5,364 and 5,385 feet. The well has 263 feet of 8⁵/₈" surface casing cemented to surface. The well also had 5,522 feet of 4¹/₂" casing, with top of cement at 4,568 feet. The well was plugged in 1988 and the 4¹/₂" casing was cut at 4,022 feet and pulled from the well. In its original filings, B & S planned to re-enter the wellbore, drill out the surface casing plug, and set 5¹/₂" casing at approximately 2,700 feet, with cement circulated to surface. (See attached wellbore diagram.) After concerns were raised by protestants regarding deeper fresh water, B & S offered to set an additional 7" casing string to 600 feet with cement to surface. B & S would then set 4¹/₂" casing to 2,700 feet with cement to surface. The Texas Commission on Environmental Quality recommends that useable-quality ground water be protected to a depth of 250 feet.

The proposed disposal interval is the Strawn between 2,020 feet and 2,470 feet. Injection will be through 2⁷/₈" tubing set on a packer no higher than 2,020 feet. The proposed maximum injection volume is 3,000 BWPD, with an estimated average of 1,500 BWPD. The proposed maximum injection pressure is 1,000 psig. B & S plans to use the well to dispose of produced salt water and frac fluids from area Barnett Shale wells.

There is one wellbore within a ¹/₄ mile radius of the proposed disposal well. This well, Mary Graves No. 1, was drilled in 1981 and plugged in 1996. The total depth of the well is 5,600 feet and the well has 291 feet of surface casing cemented to surface. The well has a plug at the productive interval at approximately 5,400 feet and a plug across the base of the surface casing.

Because the subject well is in the Barnett Shale geographic area, the Commission requires that wells within a ¹/₂ mile radius be reviewed to demonstrate zonal confinement if an applicant requests a pressure gradient of greater than 0.25 psi/foot and/or a greater volume than 5,000 BPWD into a zone shallower than 4,000 feet. B & S identified two additional wells within the ¹/₂ mile radius of review. The Kirk E. Moore No. 1 was drilled in 1982 to a total depth of 5,800 feet and was plugged as a dry hole. The well has a plug across the base of the surface casing, which is set at 257 feet and cemented to surface.

The K. E. Moore No. 2 was drilled in 1982 to a total depth of 5,800 feet. The well was plugged in 1985 with plugs at 5,307 feet, 3,835 feet and across the base of the surface casing which is set at 267 feet.

There is an additional well very near the edge of the ½ mile radius of review. This well, the Moore No. 1D, was apparently drilled in 1950 and has 99 feet of surface casing. No records could be found to determine if the well was properly plugged. In the absence of any information about the well, B & S performed pressure front calculations to determine that the proposed disposal would not increase the pressure in the Moore No. 1D a sufficient amount to raise a column of fluid to the base of useable quality water at 250 feet, or even to a level of 500 feet.

B & S currently operates the Coley SWD facility (2 disposal wells) in Jack County and the Johnston SWD facility (1 disposal well) in Parker County. B & S also operates a trucking company which hauls salt water. The trucking company offices are on the site of the proposed disposal well in Jack County.

The Johnston No. 1 well is capable of disposing of only about 2,000 BWPD. The remainder of the salt water transported by B & S goes to the Coley facility about 20 miles to the southwest of the proposed Moore facility. Most trucks would pass by the Moore facility in route to the Coley facility. B & S could reduce its costs of disposal by having a shorter distance to haul.

There are two other commercial facilities in Jack County, one operated by Geer Tank Trucks and one operated by Tolar Disposal. However, B & S is not able to unload its trucks at these facilities the majority of the time due to long waiting times.

Notice of the subject application was published in *The Jack County Herald*, a newspaper of general circulation in Jack County, on June 23, 2006. A copy of the application was mailed on July 23, 2006 to the Jack County Clerk's Office. A copy of the application was mailed to some offsetting surface owners on July 23, 2006, with two additional offsetting surface owners being notified on August 16, 2006. There are no operators within ½ mile of the proposed well. The surface of the facility is owned by B & S Disposal, LLC.

B & S has an active P-5 on file with the Commission, with \$25,000 financial assurance. The Johnston facility, now operated by B & S had violations of Rules 8 and 9 in late 2004. However, at the time of the violations, the operator of the facility was Doc's Tank Trucks. Operatorship of the facility changed with the approval of a Form P-4 on November 1, 2006, effective April 1, 2005, changing the operator from Doc's to B & S Disposal. The violations which occurred while Doc's Tank Trucks was the operator were resolved by B & S after it became operator.

Protestant's Evidence

Protestant Paula Bowen owns property adjacent to the proposed disposal site. Ms. Bowen has two water wells on her property, both of which are approximately 240 feet deep. Bowen has identified eight water wells within a 2 mile radius of the proposed disposal well which are deeper than 250 feet. Two of these wells, the Tom Perdue well and the Inge well, are within ½ mile of the proposed disposal well and are 380 feet and 450 feet deep, respectively. Based on the presence of these deeper water wells, attorney for Ms. Bowen notified the Texas Commission on Environmental Quality that the depth of protection of useable quality water in this area should be amended from 250 feet to at least 500 feet.

There are no records available for the Moore No. 1, the well at the edge of the ½ mile radius of review, to indicate whether this well is plugged in a manner to protect fresh water. None of the other wells in a ½ half mile radius have surface casing set deeper than 291 feet and therefore do not protect the deeper water found in area water wells.

Ms. Bowen is also concerned that disposal fluids will not be confined to the proposed disposal interval. All of the plugged wells in the area of review are open hole with no production casing across the proposed disposal interval in the Strawn. Protestant believes that injection into the Wm. K. Moore No. 1 will result in pressure increases in these offsetting wellbores, which will cause salt water to rise to the level of unprotected water sands. Protestant is also concerned that re-entry of the proposed disposal well will expose unprotected water sands below the surface casing at 263 feet in the proposed disposal well to higher chloride drilling fluids.

Ms. Bowen also believes the application should be denied because there is sufficient disposal capacity in the area. The closest commercial disposal wells have excess capacity of about 13,000 BWPD based on Form H-10's filed for the wells.

Protesant Eric Rothe owns land adjacent to the proposed facility. The Rothes plan to use the land to raise cattle. There are two water wells on the Rothe property which will be vital to the cattle business. One of the wells on the property is the previously discussed Tom Purdue well drilled to 380 feet. If these water wells are polluted, the value of the Rothe property will decrease.

EXAMINERS' OPINION

The examiners believe this application should be approved. With the proposed 5½" casing set at 2,700 feet and cemented to surface, the subject well will be completed in a manner which will confine disposal fluids to the proposed Strawn disposal interval between 2,020 and 2,470 feet and will protect useable quality water.

As of July 2005, the Commission adopted new criteria for review of injection/disposal well applications in the Barnett Shale Trend. For injection/disposal wells in this area with injection above 4,000 feet and with volumes greater than 5,000 BWPD, the maximum surface injection pressure would be limited to 0.25 psi/foot. For approval of an injection pressure of 0.5 psi/foot, the applicant would have the following options:

1. Show that all producing wells within a ½ mile radius of the subject well are sufficiently cemented to demonstrate zonal confinement of injection fluids, i.e. cement behind pipe, and show that all plugged wells within ½ mile are properly plugged to protect useable quality water; or,
2. If all wells within ½ mile are not sufficiently cemented or properly plugged, then applicant must perform a hydrologic analysis to demonstrate that the 0.5 psi/foot injection pressure and volume will not endanger useable quality water within the ½ mile radius.

Even though the proposed disposal is for 3,000 BWPD and does not fall within the criteria of the new review process, B & S submitted data to show that their application qualifies for 0.5 psi/foot injection pressure. Assuming useable quality water exists to 250 feet as indicated by the TCEQ, three of the four wells in the ½ mile area of review have adequate surface casing to protect useable quality water. The fourth well at the outer edge of the ½ mile radius apparently has only 100 feet of surface casing. Pressure front calculations demonstrate that the proposed injection will not raise a column of fluid up to 250 feet in that well. However, assuming that useable quality water exists to a depth of 500 feet, none of the four plugged wells within ½ mile have adequate cement plugs to protect useable quality water. The examiners have used the parameters set forth in B & S Exhibit No. 15 to calculate the expected reservoir pressure in the closest of the plugged wellbores (about 1,000 feet away) after injection at 3,000 BWPD for 20 years. The calculated pressure in the Strawn in this closest well would be 579 psi. The pressure needed to raise a column of injected fluid up to 500 feet in the closest plugged well is 707 psi. The proposed injection will not be a threat to useable quality water, even if useable quality water exists to a depth of 500 feet.

Protestants raised the issue that the TCEQ recommendation for useable quality water protection is not accurate. The recommendation is to protect to a depth of 250 feet. Protestants identified two water wells within ½ mile which are 380 feet and 450 feet deep. Protestants notified the TCEQ of numerous water wells in the area which are deeper than 250 feet and recommended that TCEQ change its protection depth to at least 500 feet. The examiners are taking official notice of the December 5, 2006 letter from TCEQ in response to protestants' letter. In its December 5, 2006 letter, the TCEQ found that the water well reports for wells in the area deeper than 250 feet do not present any evidence that useable quality ground water exists deeper than 250 feet. Specifically, the well log of the proposed disposal well indicates Total Dissolved Solids of 3,600 ppm at 300 feet. Useable quality groundwater in Texas is defined as having Total Dissolved Solids of less

than or equal to 3,000 ppm. Further, none of the water well reports submitted by protestants indicate that water quality tests were performed on water from any of the wells deeper than 250 feet. The examiners believe that the TCEQ findings should be relied on for protection of useable quality water in the ½ mile area of review wells.

Applicant agreed to a permit condition requiring the setting of an additional casing string set to 600 feet. This would provide an additional layer of protection to any deeper useable quality water that may exist in the area. However, with the proposed 5½" long string cemented to surface, the examiners do not believe that the setting of the additional casing at 600 feet is necessary for the protection of useable quality water. Calculations shows that the wells within ½ mile will not provide a conduit for contamination of any useable quality water interval above 500 feet.

The use of the proposed well as a commercial disposal well serves the public interest by providing a safe and proper means of disposal of produced saltwater. There is a need for additional disposal capacity in the area based on the experience of B & S haulers. 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 subject application was published in *The Jack County Herald*, a newspaper of general circulation in Jack County, on June 23, 2006.
2. The requested disposal interval between 2,020 feet and 2,470 feet in the Wm. K. Moore No. 1 is not productive of oil or gas within at least two miles of the subject well.
3. The Wm. K. Moore No. 1 will be cased and cemented in a manner to protect useable quality water and injection will be confined to the injection interval.
 - a. The subject well was drilled in 1981 to a total depth of 5,522 feet and was completed as a gas well in the Ennis (Cong) Field with perforations between 5,364 and 5,385 feet.
 - b. The well has 263 feet of 8⅝" surface casing cemented to surface. The well also had 5,522 feet of 4½" casing, with top of cement at 4,568 feet.
 - c. The well was plugged in 1988 and the 4½" casing was cut at 4,022 feet and pulled from the well.

- d. Prior to beginning disposal operations, B & S must set 7" casing at approximately 600 feet and 4½" casing at approximately 2,700 feet, with cement circulated to surface in both strings of casing.
 - e. Injection will be through tubing set on a packer no higher than 100 feet above the top of the injection interval.
 - f. The Texas Commission on Environmental Quality recommends that useable-quality ground water be protected to a depth of 250 feet.
4. The requested maximum injection volume is 3,000 barrels of water per day and the requested maximum surface injection pressure is 1,000 psi.
 5. The proposed injection will not cause a sufficient increase in pressure in any well within ½ mile to raise a column of fluid in any of the wells up to 500 feet.
 6. Due to active development of the Barnett Shale in this area, disposal of large quantities of produced water is necessary. Use of the Wm. K. Moore No. 1 as a commercial disposal well is in the public interest to promote this development by providing an additional means of disposal of the fluids associated with production.
 7. B & S Disposal, LLC has an active P-5 on file with the Commission, with \$25,000 financial assurance and no outstanding violations of Commission rules.

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 order which are incorporated herein by reference, both ground and surface fresh water can be adequately protected from pollution.
6. B & S Disposal, LLC has made a satisfactory showing of financial responsibility to the extent required by Section 27.073 of the Texas Water Code.

7. B & S 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,

Donna K. Chandler
Technical Examiner

James M. Doherty
Hearings Examiner