

OIL AND GAS DOCKET NO. 06-0263915

THE APPLICATION OF ALICE ENVIRONMENTAL SERVICES, LP FOR COMMERCIAL DISPOSAL AUTHORITY PURSUANT TO STATEWIDE RULE 9 FOR THE NACOGDOCHES SWD LEASE, WELL NO. 1, LITTLE EARS (PETTIT LIME) FIELD, NACOGDOCHES COUNTY, TEXAS

HEARD BY: Richard D. Atkins, P.E. - Technical Examiner
Marshall F. Enquist - Legal Examiner

APPEARANCES:

REPRESENTING:

APPLICANT:

Clay Nance
Jay Stewart
Bill Friend
Larry E. Carlisle
Mark L. McCoury

Alice Environmental Services, LP

PROTESTANTS:

George C. Neale
Rick Johnston
Bobby Walker
Kelly Parma

Salty's Disposal Wells, LP

PROCEDURAL HISTORY

Application Filed:	October 16, 2009
Protest Received:	November 16, 2009
Request for Hearing:	November 20, 2009
Notice of Hearing:	December 17, 2009
Hearing Held:	February 25, 2010
Transcript Received:	March 23, 2010
Closing Arguments Received:	April 9, 2010
Proposal for Decision Issued:	June 21, 2010

EXAMINERS' REPORT AND PROPOSAL FOR DECISION**STATEMENT OF THE CASE**

Alice Environmental Services, LP ("Alice") requests commercial disposal authority pursuant to Statewide Rule 9 for the Nacogdoches SWD Lease, Well No. 1, Little Ears (Pettit Lime) Field, Nacogdoches County, Texas.

Notice of the subject application was published in *The Daily Sentinel*, a newspaper of general circulation in Nacogdoches County, on October 13, 2009. Notice of the application was sent to the Nacogdoches County Clerk, offset operators within ½ mile and to the surface owners of each tract which adjoins the disposal tract on October 15, 2009.

This application is protested by Salty's Disposal Wells, LP ("Salty's"), who is an offset commercial disposal well operator.

DISCUSSION OF THE EVIDENCE**Applicant's Evidence**

The subject well has not yet been drilled, but will be located on a 25.49 acre tract adjacent to and west of U.S. Highway 59. County Road 802 intersects U.S. Highway 59 and bisects the tract from the southeast to northwest. The tract is large, relatively flat and open and is situated in an industrial area just west of the city of Nacogdoches, Texas. The eastern 9.42 acres is contained within the city limits.

Alice proposes that the well be drilled through the Woodbine formation to a maximum depth of 6,000 feet. It is proposed that the well will have 2,850 feet of 13 ¾" surface casing set with cement circulated from the casing shoe to the ground surface. The 7" longstring casing will be set at the estimated total depth of 6,000 feet with cement circulated from the casing shoe to the ground surface (See attached Alice Exhibit No. 23 - Wellbore Diagram). Alice has agreed to run a cement bond log to confirm the quality of the cement behind the long string of casing.

The Texas Commission on Environmental Quality ("TCEQ") recommends that usable-quality ground water be protected through the base of the Wilcox Sands, estimated to occur at a depth of 2,800 feet below the land surface. There is over 2,600 feet of shale and impermeable formations between the top of the proposed injection interval at 5,400 feet and the base of usable quality water at 2,800 feet. Alice submitted a TCEQ letter dated October 29, 2009, which stated that injection of produced water into the proposed injection interval will not harm usable quality water.

The proposed injection will be through 4 ½" tubing set on a packer at approximately

5,400 feet, but no higher than 100 feet above the top of the injection interval. The proposed injection interval is the Woodbine formation between 5,400 feet and 6,000 feet. The proposed maximum injection volume is 25,000 BWPD, with an estimated average of 10,000 BWPD. The proposed maximum surface injection pressure is 2,700 psig.

There are four wells located within the $\frac{1}{4}$ mile radius of review for the proposed disposal well. Two of the wells are horizontal wells producing from a depth below 9,000 feet and are cased in a manner which will not provide a conduit for the migration of injected water from the injection interval into other oil, gas or mineral bearing formations or useable quality groundwater zones. The remaining two wells were former producing wells and are properly plugged and abandoned.

Alice's expert engineering witness reviewed all of the wells within a 2 mile radius and other selected wells within a 10 mile radius. He found that the shallowest production was below 9,000 feet and that there were no potentially productive formations above 9,000 feet. As a result, there is more than 3,000 feet of strata above any productive zone and the base of the proposed injection interval. In addition, the proposed Woodbine formation disposal zone is not productive within at least ten miles and correlates in all of the well logs reviewed, indicating that it was a blanket formation that was contiguous and continuous across a large area. The expert believed that these facts clearly indicated that the injected fluids would be confined to the proposed injection interval.

Alice's engineering witness submitted a log of the closest Travis Peak producing well, the Halliburton Operating Company - Tatum Lease, Well No. 5, and calculated a net thickness of 160 feet for the Woodbine Formation. He also reviewed other Woodbine Formation disposal permits in District 6 and determined an average porosity of 20% and an average permeability of 200 millidarcies. Based on these parameters, the witness felt that pressure front calculations would show that the increase in the reservoir pressure between the two closest disposal wells and the proposed injection well was not sufficient to cause any damage or restrict any injection volumes.

Alice's area manager stated that Alice is the surface owner of the 25.49 acre tract where the proposed disposal facility will be located and is a wholly owned subsidiary of Forbes Energy. Forbes Energy also owns CC Forbes, which is the well servicing division, and Texas Energy, which is the fluid transport division. Forbes Energy operates other commercial disposal facilities throughout Texas and has a similar facility located in Harrison County. Alice plans to use the proposed disposal well for its own disposal needs, but it will be available for use by other salt water disposal haulers.

Alice requests commercial authority to allow disposal of frac fluids and saltwater produced by wells in Nacogdoches and adjacent counties within a 50 mile radius of the proposed injection well. Alice has a yard located near Lufkin, Texas which is almost 20 miles away. It currently hauls approximately 70 loads of saltwater per day from wells in the

area to other disposal wells. A facility located at the proposed location, would reduce the round trip haul time by one hour. In addition, Alice's area manager stated that he had potential customers that believed in a "cradle to grave"¹ theory of saltwater disposal and a disposal well at this location would allow Alice to be competitive in the area.

Alice asserts additional disposal capacity in Nacogdoches County is necessary to address disposal of saltwater produced by wells located in the area within a 50 mile radius. A drilling permit query of the RRC online system showed that 82 new drilling permits were issued in Nacogdoches County and 316 new drilling permits were issued in the surrounding counties from June 2009 through January 2010. These drilling permits are resulting in 11 active drilling rigs working in Nacogdoches County and 34 active drilling rigs working in the surrounding counties. In addition, a production query of the RRC online system showed that 5.1 MBO, 97.4 MMCF of casinghead gas, 66.1 BCFG and 226.8 MBC was produced in Nacogdoches County and 2.0 MMBO, 4.3 BCF of casinghead gas, 165.9 BCFG and 608.7 MBC was produced in the surrounding counties from June 2009 through January 2010.

There are currently only 4 active commercial disposal wells contained within Nacogdoches County. The closest commercial disposal well to the proposed location is the protestants (Salty's Disposal Wells, LP) - Nacogdoches Salty SWD Lease, Well No. 1, which is located off of U.S. Highway 59 approximately ½ mile to the south. The next closest commercial disposal well is the Nabors Well Services Ltd. - NWS Woodbine SWD Lease, Well No. 1, which is located off of U.S. Highway 59 approximately one mile to the north.

In addition, there are private disposal wells operated by large producers which stay at capacity and require the operators of these private wells to seek commercial disposal alternatives for the excess water. During the hearing and several times in the past, the protestant's facility has been down causing Alice and the protestant to haul water to facilities located outside of the county. Alice's area manager felt that such limited disposal alternatives were insufficient for a county with substantial exploration and production activity.

Access to the disposal facility will be off of U.S. Highway 59, a public highway with two paved lanes and a shoulder in each direction that are split by a median. U.S. Highway 59 has a posted speed limit of 55 miles per hour and it is proposed that truck traffic will turn onto paved County Road 802, which runs through the disposal tract. Alice plans for all trucks to enter and exit the facility traveling south on U.S. Highway 59. Trucks proceeding north will travel one mile south on U.S. Highway 59 to U.S. Highway 21, make a U-turn and then proceed back north on U.S. Highway 59.

¹The customers' "cradle to grave" theory means that the salt water hauling company that picks up salt water from a customer's site must dispose of the salt water in their own disposal well.

Alice submitted a 2008 TXDOT Traffic Volume Map showing a 24 hour vehicle count on U.S. Highway 59 adjacent to the proposed facility of approximately 29,000 vehicles. Alice has not yet met with TXDOT to discuss the entrance and exit of 18-wheeler trucks to U.S. Highway 59. However, the Alice tract has almost 1,000 feet of frontage along U.S. Highway 59 with good visibility of traffic flow in both directions. Alice's area manager does not believe that he will have any problems obtaining access permission from TXDOT.

At an average injection rate of 12,000 BWPD, there will be approximately 70 to 80 loads per day delivered to the facility. The facility will be constructed to accommodate numerous trucks at any one time and will be large enough to allow trucks access without waiting on U.S. Highway 59. The surface facility will be manned 24 hours per day. A firewall will be constructed around the entire facility to contain any spilled fluids. The tanks will be equipped with high water level switches to prevent overflows. Additionally, the facility will comply with all of the permit conditions requested by the Commission staff.

Alice submits that it has the expertise to build and manage the proposed facility. Alice has a current approved Form P-5 (Organization Report), has posted financial assurance in the form of a \$25,000 bond and has no pending Commission enforcement actions. Alice also carries a \$1 million general liability with a \$5 million umbrella insurance policy.

Protestants' Evidence

The application is protested by Salty's Disposal Wells, LP who is an offset commercial disposal well operator. Salty's is the operator of the Nacogdoches Salty SWD Lease, Well No. 1. The permitted injection interval is the Woodbine Formation from 5,440 feet to 6,000 feet. Salty's is afraid that a new disposal well will interfere with their disposal well injection pressure and shorten the life of their well. In addition, since their well was operating at less than half of its permitted volume, Salty's does not believe there is any need for another disposal well in the area. Salty's personnel had driven by the injection wells in the area and found only three trucks at any injection at one time. Based on this survey, Salty's operations manager believed that there was not a need for another disposal well in Nacogdoches County.

Salty's engineer had reviewed the injection history of the Salty's and Nabors injection wells, which were the two closest disposal wells to the proposed injection well. The Salty's well averaged 15,000 barrels of water injected per day during 2006. The well was now averaging 9,000 barrels of water injected per day, which is less than 50% of the permitted disposal volume of 25,000 BWPD. The Nabors well averaged 10,000 barrels of water injected per day during 2008. The well was now averaging 5,000 barrels of water injected per day, which is less than 25% of the permitted disposal volume of 30,000 BWPD. The witness felt that the application for the proposed commercial disposal well and facility should be denied due to the availability of disposal capacity at the two closest existing commercial disposal wells.

Salty's engineer also testified that he had discovered two horizontal producing wells within ½ mile that did not have cement across the proposed injection interval. The wells were the Tatum Lease, Well Nos. 4 and 5 that are operated by Haliburton Operating Company. They had a reported top of cement of 6,675 feet and 6,877 feet, respectively. The engineer was concerned that additional injection into the Woodbine Formation would cause it to become overpressured, resulting in the migration of injected fluids out of the injection interval. He felt that this could potentially cause bradenhead pressure problems for the two producing wells.

Salty's traffic engineer submitted a traffic analysis for the proposed saltwater disposal site. The site is located on the west side of U.S. Highway 59 with traffic proceeding from north to south. He noted that there were two access points to County Road 802 from U.S. Highway 59, which he labeled as a northern and southern access. The northern access would need 850 feet of sight distance to the north. The sight distance is over 2,000 feet, so he felt that there would be no problem for trucks entering or exiting the disposal site from the northern access to County Road 802.

The traffic engineer was mainly concerned about the southern access. This access was directly across from a median cross-over which is only 56 feet wide, but a saltwater disposal truck is 65 feet long. The truck would need 1,300 feet of sight distance to the south in order to use the crossover, since the truck would be unable to stop in the cross-over without blocking traffic from the north. However, there is only 900 feet available.

The traffic engineer was also concerned that the pavement on County Road 802 was only 18 feet wide. Saltwater disposal trucks entering and exiting County Road 802 would not be able to remain on the pavement, as their turning radius of curve exceeds the pavement width. In addition, he believed that the trucks would be unable to safely pass on County Road 802 without each truck leaving the pavement.

EXAMINERS' OPINION

The examiners recommend approval of the application for commercial disposal authority pursuant to Statewide Rule 9 for the Nacogdoches SWD Lease, Well No. 1. The proposed injection well will be completed in a manner which will protect useable quality water resources and will confine the injected fluids to the injection interval. Alice will run a cement bond log to confirm the top and quality of the cement behind the long string of casing.

Although there are two horizontal wells operated by Haliburton Operating Company within ½ mile that do not have cement across the proposed disposal interval, no problems have been reported by Halliburton concerning the current Salty's and Nabors saltwater injection and Halliburton did not protest this application. Likewise, the Woodbine formation is a blanket formation that is contiguous and continuous across a large area and has exceptional reservoir qualities. The examiners believe that it is doubtful that pressure front calculations would show any appreciable increase in reservoir pressure between the two

closest disposal wells and the proposed injection well that would be sufficient enough to cause any damage or restrict any injection volumes.

Approval of the application is in the public interest. There are currently only 4 active commercial disposal wells contained within Nacogdoches County. All of the wells dispose of produced salt water into the Woodbine formation. Salt water disposal volumes within a 50 mile radius of the proposed injection facility have picked up within the last year, as a direct result of increased drilling activity. According to Alice, the disposal facilities that the company is currently using are down from time to time, requiring Alice to divert some of the salt water to facilities in other counties. In addition, the private disposal wells operated by large producers stay at capacity and require the operators to seek commercial disposal alternatives for the excess water. Several of Alice's customers believe in a "cradle to grave" theory of saltwater disposal and a disposal well at this location would allow Alice to be competitive in the area. Although there is some permitted disposal capacity in excess of current demand in Nacogdoches County, the examiners believe that such limited disposal alternatives are insufficient for an area with substantial exploration and production activity.

Alice has a yard located near Lufkin, Texas which is almost 20 miles away. It currently hauls approximately 70 loads of saltwater per day from wells in the area to other disposal wells. A facility located at the proposed location, would reduce the round trip haul time by one hour. Shorter hauls decrease truck time on the public roadways, thereby decreasing public risk from the truck traffic.

Access to the disposal facility will be off of U.S. Highway 59, which is a public highway that has two paved lanes and a shoulder in each direction that are split by a median. The surface facility is of sufficient size to accommodate trucks hauling water to the facility without creating a traffic hazard on the highway that provides access to the facility. The Alice tract has almost 1,000 feet of frontage along U.S. Highway 59 with good visibility of traffic flow in both directions. The examiners believe that Alice will not have any problems obtaining access permission from TXDOT. Compliance with permit conditions will minimize the risk of spills at the facility and will prevent the migration of any spills that occur, thereby protecting both ground and surface water.

FINDINGS OF FACT

1. Notice of hearing was given to all affected persons, the Nacogdoches County Clerk, all surface owners of adjoining tracts and all operators within one-half mile. Notice of the subject application was published in *The Daily Sentinel*, a newspaper of general circulation in Nacogdoches County, on October 13, 2009.
2. The proposed injection into the Nacogdoches SWD Lease, Well No. 1, will not endanger useable quality water.

- a. The TCEQ recommends that usable-quality ground water be protected to a depth of 2,800 feet below the land surface.
 - b. The proposed well will have 2,850 feet of 13 3/8" surface casing set with cement circulated from the casing shoe to the ground surface.
 - c. There is over 2,600 feet of shale and impermeable formations between the top of the proposed injection interval at 5,400 feet and the base of usable quality water at 2,800 feet.
3. The proposed injection into the Nacogdoches SWD Lease, Well No. 1, will not endanger production from other oil, gas or mineral bearing formations.
- a. The proposed well will have 7" longstring casing set at the estimated total depth of 6,000 feet with cement circulated from the casing shoe to the ground surface.
 - b. Alice will run a cement bond log to confirm the top and quality of the cement behind the long string of casing.
 - c. The proposed injection will be through 4 1/2" tubing set on a packer at approximately 5,400 feet, but no higher than 100 feet above the top of the injection interval.
 - d. There are four wells located within the 1/4 mile radius of review for the proposed disposal well. The wells are properly cased or plugged in a manner which will not provide a conduit for the migration of injected water from the injection interval into other oil, gas or mineral bearing formations or useable quality groundwater zones.
 - e. The proposed Woodbine formation disposal zone is not productive within at least ten miles.
 - f. The Woodbine formation is a blanket formation across Nacogdoches county and, using an infinite unbounded reservoir assumption, the fluids will dissipate out in all directions over time.
4. Use of the Nacogdoches SWD Lease, Well No. 1, as a commercial disposal well is in the public interest.
- a. It will allow Alice to be competitive in the area market and reduce its hauling distances. Shorter hauls decrease truck time on the public roadways, thereby decreasing traffic accidents, operator expenses, wear on roadways and spill risks.

- b. There were 82 new drilling permits issued in Nacogdoches County and 316 new drilling permits issued in the surrounding counties from June 2009 through January 2010. These drilling permits are resulting in 11 active drilling rigs working in Nacogdoches County and 34 active drilling rigs working in the surrounding counties.
 - c. There was 5.1 MBO, 97.4 MMCF of casinghead gas, 66.1 BCFG and 226.8 MBC produced in Nacogdoches County and 2.0 MMBO, 4.3 BCF of casinghead gas, 165.9 BCFG and 608.7 MBC produced in the surrounding counties from June 2009 through January 2010.
 - d. The private disposal wells operated by large producers stay at capacity and require the operators of these private wells to seek commercial disposal alternatives for the excess water.
 - e. Although there is some permitted disposal capacity in excess of current demand in Nacogdoches County, the limited disposal alternatives are insufficient for an area with substantial exploration and production activity.
5. Use of the Nacogdoches SWD Lease, Well No. 1, for commercial disposal of produced saltwater will not create a traffic safety hazard.
- a. The surface facility is of sufficient size to accommodate trucks hauling water to the facility without creating a traffic hazard on the highway that provides access to the facility.
 - b. The area surrounding the proposed injection facility is large, relatively flat and open and is situated in an industrial area. Access to the disposal facility will be off of U.S. Highway 59, which is a public highway that has two paved lanes and a shoulder in each direction that are split by a median.
 - c. The Alice tract has almost 1,000 feet of frontage along U.S. Highway 59 with good visibility of traffic flow in both directions.
6. Alice has a current approved Form P-5 (Organization Report) and has posted a \$25,000 financial assurance bond. Alice also carries a \$1 million general liability with a \$5 million umbrella insurance policy.

CONCLUSIONS OF LAW

1. Proper notice was issued in accordance with the applicable statutory and regulatory requirements.

2. All things necessary to give the Railroad Commission jurisdiction to consider this matter have occurred.
3. Approval of the application will not harm useable quality water resources, will not endanger oil, gas, or geothermal resources, will promote further development in this area of Nacogdoches County and is in the public interest pursuant to Sec. 27.051 of the Texas Water Code.
4. Alice Environmental Services, LP has met its burden of proof and its application satisfies 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 of fact and conclusions of law, the examiners recommend that the application of Alice Environmental Services, LP for commercial disposal authority pursuant to Statewide Rule 9 for the Nacogdoches SWD Lease, Well No. 1, be approved, as set out in the attached Final Order.

Respectfully submitted,

Richard D. Atkins, P.E.
Technical Examiner

Marshall F. Enquist
Legal Examiner