

OIL AND GAS DOCKET NO. 7C-0263208

THE APPLICATION OF ALICE ENVIRONMENTAL SERVICES, LP FOR COMMERCIAL DISPOSAL AUTHORITY PURSUANT TO STATEWIDE RULE 9 FOR THE PONDEROSA LEASE, WELL NO. 1, PRICE (GRAYBURG) FIELD, REAGAN COUNTY, TEXAS

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

APPEARANCES:

REPRESENTING:

APPLICANT:

Clay Nance
Jay Stewart
Bruce A. Strickland
Larry E. Carlisle
Mark L. McCoury
Danny Tidwell

Alice Environmental Services, LP

PROTESTANTS:

George C. Neale
Bruce Middleton

Lone Star Anchor Trucking, Inc.

Rick Johnston

DLB Oil & Gas, Inc.

John Gilbert

Pioneer Exploration, LLC

Richard Scott

Delhi Partners, Ltd.

Jim Hogan

Self

PROCEDURAL HISTORY

Application Filed:	August 21, 2009
Protest Received:	August 25, 2009
Request for Hearing:	September 24, 2009
Notice of Hearing:	October 14, 2009
Hearing Held:	November 10, 2009
Transcript Received:	December 4, 2009
Amended Notice of Hearing:	February 25, 2010
Re-convened Hearing Held:	March 10, 2010
Transcript Received:	March 29, 2010

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Proposal for Decision Issued: April 13, 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 Ponderosa Lease, Well No. 1, in the Price (Grayburg) Field, Reagan County, Texas.

The application is protested by offset operators and surface owners adjacent to the tract on which the proposed disposal well is located. After the first hearing, the examiners determined that insufficient notice was given to all affected parties. As a result, Alice re-noticed and re-published the notice of hearing. In addition, Alice moved the well location approximately 1,000 feet further east on their 122.17 acre tract. A re-convened hearing was held for the limited purpose of receiving testimony and evidence to regarding the re-issued notice of application and to evaluate the modified $\frac{1}{4}$ mile area of review for the new proposed well site.

DISCUSSION OF THE EVIDENCE

Applicant's Evidence

The subject well has not yet been drilled, but will be located on a 122.17 acre tract adjacent to and south of U.S. Highway 67. The tract is situated approximately four miles southeast of the town of Big Lake, Texas. Alice Environmental Services, LP proposes that the well be drilled through the San Andres formation to a maximum depth of 3,500 feet. It is proposed that the well will have 900 feet of 13 $\frac{3}{8}$ " surface casing set with cement circulated from the casing shoe to the ground surface. The 7" longstring casing will be set at the top of the San Andres formation at an estimated depth of 2,600 feet with cement circulated from the casing shoe to approximately 1,600 feet (See attached Alice Exhibit No. 21 - Wellbore Diagram). Alice has also agreed to run a cement bond log to confirm the top and 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 to a depth of 850 feet below the land surface. There is approximately 1,300 feet of impermeable shale and dolomite between the top of the proposed injection interval at 2,600 feet and the base of usable quality water at 850 feet. Alice submitted a TCEQ letter dated February 18, 2010, which stated that injection of produced water into the proposed injection interval will not harm usable quality water.

The proposed injection will be through 2 $\frac{7}{8}$ " tubing set on a packer at approximately 2,600 feet, but no higher than 100 feet above the top of the injection interval. The proposed injection interval is the open hole portion of the San Andres formation between

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2,600 feet and 3,500 feet. The proposed maximum injection volume is 10,000 BWPD, with an estimated average of 3,500 BWPD. The proposed maximum surface injection pressure is 1,300 psig.

Alice requests commercial authority to allow disposal of saltwater produced by wells in the area, including wells permitted, drilled and completed since 2007, most of which are east and south of the proposed injection well. There is no San Andres production within a 2 mile radius. The nearest production is from the shallower Grayburg formation at an average depth of 2,350 feet in the Price (Grayburg) Field and there is one deeper shut-in Spraberry formation producing well at an average depth of 5,200 feet in the Spraberry (Trend Area) Field.

There are six wells located within the $\frac{1}{4}$ mile radius of review for the proposed disposal well. The nearest wellbore that entirely penetrates the proposed disposal interval is the shut-in Spraberry formation producing well that is located approximately 1,000 feet to the northeast. In addition, there are five Grayburg wells with four producing and one plugged. All of the wells located within the $\frac{1}{4}$ mile radius of review are properly cased and cemented or plugged and abandoned which will protect the usable-quality ground water.

There are currently 14 active commercial disposal wells contained within Reagan County. Of these wells, almost 80% are more than 24 years old and most of the wells dispose of produced salt water into the San Andres formation. Although there is some permitted disposal capacity in excess of current demand in Reagan County, most of the disposal wells have seen an increase in salt water disposal volumes over the last year.

The closest commercial disposal well is the Lone Star Anchor Trucking, Inc. - TXL Lease, Well No. 1, which is located approximately $\frac{1}{2}$ mile to the northwest. This well has a permitted disposal interval of 2,600 feet to 3,050 feet. Pioneer Exploration, LLC operates another commercial disposal well, the Husky Lease, Well No. 1, which is located approximately 1 $\frac{1}{2}$ miles to the southwest. The next closest commercial disposal well is the Basic Energy Services, LP - University Lease, Well No. 1D, which is located four miles to the northwest in the town of Big Lake. All of these wells dispose of produced saltwater into the San Andres formation. In addition, Endeavor Energy operates one private disposal well, the Hickman "B" Lease, Well No. 3, which is located approximately $\frac{1}{2}$ mile to the south. This well disposes produced salt water into the producing Grayburg formation within the Price (Grayburg) Field.

Alice's general manager stated that Alice Environmental is the surface owner of the 122.17 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 thirteen commercial disposal facilities throughout the State of Texas and the closest facility is located approximately 60 miles away near Ozona, Texas. Alice plans to

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use the proposed facility for its own disposal needs, but it will be available for use by other salt water disposal haulers.

The general manager testified that the salt water disposal volumes within a 30 mile radius of the proposed injection facility have picked up within the last year, as a direct result of increased drilling activity. He stated that the disposal facilities that Alice is currently using fill up and require Alice to divert some of the salt water to other facilities, which increases the operator's costs. In addition, it is not uncommon for Alice to encounter five or six trucks waiting to unload. He believes that he could provide better service for his customers and lower their costs with his own facility.

Alice's general manager had been contacted by two of his customers, Broad Oak Energy and Pioneer Natural Resources, and they supported this application, as both companies felt that the proposed disposal facility would allow Alice to be competitive in the area market and thereby lower their disposal costs. A representative of Tidwell Production Company appeared and stated that his company operates many leases in the area and it seemed to him that Alice had to travel a great distance to dispose of his water, which was increasing his costs. In addition, whenever his company had multiple loads of salt water, many times Alice would experience wait times and it would take almost two hours to make a round trip haul. Tidwell's representative felt that a disposal well at the proposed site would allow Alice to make a shorter haul from their leases and thereby greatly reduce his operating expenses and increase the ultimate recovery from his producing wells.

The area surrounding the proposed injection facility is rural ranching land. There are many oil and gas wells producing within a 10-mile radius and the protestants have producing oil and gas wells located on their property. Access to the disposal facility will be off of U.S. Highway 67, which is a paved two lane public highway. Alice has already applied for and received approval from TXDOT for the entrance and exit of 18-wheeler trucks to Highway 67.

At an average injection rate of 3,500 BWPD, there will be approximately 35 trucks per day accessing the facility. The facility can accommodate many trucks at any one time and is of sufficient size to allow trucks access without having to wait on the highway. The surface facility will comply with all of the permit conditions requested by the Commission staff. In addition, the facility will be manned 24 hours per day, have a firewall built around the entire facility and have high water level switches to prevent the tanks from overflowing onto the ground.

Alice's expert engineering witness submitted a pressure front calculation assuming that the two injection wells would be 1,200 feet apart, instead of the current ½ mile apart, injecting 10,000 BWPD at a maximum surface pressure of 1,300 psi. The calculations used an average San Andres formation porosity of 11.8% and permeability of 30.5 millidarcies. These values were derived by arithmetic averaging all of the data points contained in the

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Texas Water Development Board Report No. 157, which contained information from adjacent counties where the San Andres formation was productive. The engineer estimated the net pay thickness to be 75% of the gross pay thickness or 675 feet. Using a maximum surface injection pressure of 1,300 psi and a fluid gradient of 0.41 psi per foot, the engineer calculated a maximum injection pressure at the top of the injection interval at 2,600 feet of 2,366 psi. The pressure front calculations showed that, after 20 years of injecting 10,000 BWPD, the formation pressure five feet from the proposed injection well will be 1,686 psi. This pressure is almost 700 psi less than the calculated maximum formation pressure of 2,366 psi at the subject wellbore.

The engineer stated that the primary reason for the pressure difference is that the San Andres formation is a blanket formation across Reagan county and, using an infinite unbounded reservoir assumption, the fluids will dissipate out in all directions over time. If the reservoir were a bounded reservoir, the calculations would show a pressure approaching the maximum downhole injection pressure. Based on the pressure front calculations, the engineer felt that injection into Alice's proposed well at a maximum daily disposal rate of 10,000 BWPD would not adversely affect the injection pressure at the Lone Star well, which is now almost ½ mile away from the revised injection location.

On January 26, 2010, notice of application was sent to the Reagan County Clerk, offset operators and surface owners of each tract which adjoins the disposal tract. Notice of the subject application was published in the *San Angelo Standard Times*, a newspaper of general circulation in Reagan County, on February 1, 2010.

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 offset operators and surface owners adjacent to the tract on which the proposed disposal well is located. The protestants believe that the application for the proposed commercial disposal well and facility should be denied. Protestants' evidence fell into several general categories: 1) the availability of disposal capacity at existing commercial disposal wells; 2) potential negative consequences to the existing production in the Price (Grayburg) Field; and 3) increased heavy truck traffic on U.S. Highway 67, causing road deterioration and public safety concerns.

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Lone Star's Case

Lone Star Anchor Trucking, Inc. ("Lone Star") is the operator of the TXL Lease, Well No. 1, commercial SWD. This disposal well is located north of U.S. Highway 67 and approximately 1,200 feet northwest of the proposed injection well. The permitted injection interval is the San Andres formation from 2,600 feet to 3,050 feet. Lone star 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 their permitted volume, Lone Star does not believe there is any need for another disposal well in the area.

Lone Star's witness testified that there were three other commercial disposal wells within 25 miles of Big Lake, Texas, each with unused disposal capacity. Lone Star also had an injection permit for another disposal well north of Big Lake, Texas, off of Highway 137. Their witness stated that Lone Star had not drilled this well, as they have plenty of capacity at their existing facility and did not want to add additional capacity in Reagan County at this time.

DLB's Case

DLB Oil & Gas, Inc. ("DLB") operates six wells in the Price (Grayburg) Field, which are located north of U.S. Highway 67 and the proposed injection well. These wells are completed in the Grayburg formation and produce from a depth between 2,350 feet and 2,575 feet. DLB is primarily concerned that the addition of another injection well in the area will create a large pressure accumulation in the vicinity that would adversely affect the production from the shallower producing wells.

DLB's expert engineering witness submitted a well log from the Pioneer Exploration, LLC - Ball Lease, Well No. 2, which is the only well in the area that penetrated the entire San Andres formation. The expert witness used a 10% porosity cutoff and calculated about 350 feet of porosity development from 2,600 feet to 3,050 feet. This interval was chosen since it was the permitted injection interval from the offset TXL Lease, Well No. 1, commercial SWD. The expert witness felt that this interval should be used, as the intent of the pressure front calculation was to see what amount of pressure interference two wells injecting into the same interval would cause.

The expert witness stated that Alice's pressure front calculation showed a 238 psi pressure increase at a distance of 1,320 feet. Since this is a proportional calculation, if you apply the ratio of 675 feet of net pay calculated by Alice's expert witness compared to 350 feet calculated by DLB's witness, to account for the difference in the net feet of pay, the pressure increases to about 540 pounds. So, the net effect, if both wells are allowed to operate at the same time, is that they will interfere with one another by about 540 pounds each.

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The expert witness felt that the total effect would be additive and result in a pressure buildup in the vicinity around the two wells far in excess of what just one well would cause. This effect would increase the likelihood of cross flow out of the injection interval up into the producing horizon and reduce the effective life of the two injection wells. The expert witness was also troubled by Alice's pressure front calculation, as the printout showed a formation compressibility of 1 psi. The protestant asserted that the value is typically on the order of 3 times 10 to the minus six and not one. So without really knowing what number Alice used for the formation compressibility, the expert witness felt that he could not adequately check the calculations.

Statements in Opposition

Protestant Pioneer Exploration, LLC ("Pioneer") operates one shut-in Spraberry formation well within the ¼ mile radius and several producing wells in the Price (Grayburg) Field. The producing wells are located approximately 2 miles southwest of the proposed injection well. Pioneer stated that its wells were producing from the Grayburg formation at a depth close to the requested top of injection at 2,600 feet. Pioneer was concerned that the San Andres formation would pressure up and the injection water would "back up" into the Grayburg formation and water out their producing wells.

Protestant Jim Hogan is an adjacent property owner along U.S. Highway 67 north of the proposed SWD facility. The Lone Star disposal facility is located on his property. Mr. Hogan is primarily concerned about the San Andres disposal zone becoming pressured up by injection from both the existing injection well and the proposed injection well. In addition, he is worried about the truck traffic into both facilities, as the two driveway entrances are only approximately 500 feet apart.

EXAMINERS' OPINION

The examiners recommend approval of the application for commercial disposal authority pursuant to Statewide Rule 9 for the Ponderosa 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. Since the proposed injection well was moved 1,000 feet further to the east at the re-convened hearing, the proposed injection well is now almost ½ mile from the existing TXL Lease, Well No. 1, commercial disposal well. This new location should greatly reduce any potential interference effects between the proposed and existing injection wells that were estimated from the pressure front calculations.

There are currently 14 active commercial disposal wells contained within Reagan County. Of these wells, almost 80% are more than 24 years old and most of the wells dispose of produced salt water into the San Andres formation. Although there is some permitted disposal capacity in excess of current demand in Reagan County, most of the

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disposal wells have seen an increase in salt water disposal volumes over the last year and many of the older wells may be nearing the end of their useful lives.

Approval of the application is in the public interest. Salt water disposal volumes within a 30 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 fill up and require Alice to divert some of the salt water to other facilities where it is not uncommon to encounter five or six trucks waiting to unload. Several of Alice's customers believe that the proposed disposal facility would allow Alice to be competitive in the area market, make a shorter haul from their leases and thereby lower their disposal costs and increase the ultimate recovery from their producing wells. Shorter hauls decrease truck time on the public roadways, thereby decreasing public risk from the truck traffic.

The TXL Lease, Well No. 1, commercial SWD has a permitted injection interval in the San Andres formation from 2,600 feet to 3,050 feet. Likewise, there is already produced salt water injection into the producing Grayburg formation within the Price (Grayburg) Field by Endeavor Energy, approximately ½ mile to the south of the proposed disposal well. Since the proposed injection interval is 2,600 feet to 3,500 feet, it is doubtful that any adverse effects would be seen in any of the shallow offset Grayburg formation producing wells. Alice has also agreed to run a cement bond log to confirm the top and quality of the cement behind the long string of casing.

Access to the proposed disposal facility will be from a paved public highway. The surface facility is newly constructed and 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. Access to the disposal facility will be off of U.S. Highway 67, which is a paved two lane public highway. Alice has already applied for and received approval from TXDOT for the entrance and exit of 18-wheeler trucks to Highway 67. 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 Reagan County Clerk, all surface owners of adjoining tracts and all operators within one-half mile. Notice of the subject application was published in the *San Angelo Standard Times*, a newspaper of general circulation in Reagan County, on February 1, 2010.
2. The proposed injection into the Ponderosa Lease, Well No. 1, will not endanger useable quality water.

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- a. The TCEQ recommends that usable-quality ground water be protected to a depth of 850 feet below the land surface.
 - b. The proposed well will have 900 feet of 13 $\frac{3}{8}$ " surface casing set with cement circulated from the casing shoe to the ground surface.
 - c. There is approximately 1,300 feet of impermeable shale and dolomite between the top of the proposed injection interval at 2,600 feet and the base of usable quality water at 850 feet.
3. The proposed injection into the Ponderosa Lease, Well No. 1, will not endanger production from other oil, gas or mineral bearing formations.
 - a. The proposed well will have the 7" longstring casing set at the top of the San Andres formation at an estimated depth of 2,600 feet with cement circulated from the casing shoe to approximately 1,600 feet.
 - b. Alice has agreed to run a cement bond log to confirm the top and quality of the cement behind the long string of casing.
 - c. There are six wells located within the $\frac{1}{4}$ mile radius of review for the proposed disposal well and all of the wells are properly cased and cemented or plugged and abandoned.
 - d. The proposed injection will be through 2 $\frac{7}{8}$ " tubing set on a packer at approximately 2,600 feet, but no higher than 100 feet above the top of the injection interval.
 - e. There is no San Andres production within a 2 mile radius. The nearest production is from the shallower Grayburg formation at an average depth of 2,350 feet in the Price (Grayburg) Field.
 - f. The San Andres formation is a blanket formation across Reagan county and, using an infinite unbounded reservoir assumption, the fluids will dissipate out in all directions over time.
4. Use of the Ponderosa Lease, Well No. 1, as a commercial disposal well is in the public interest because it will would allow Alice to be competitive in the area market, reduce hauling distances and wait times and thereby lower their customer's disposal costs and increase the ultimate recovery from their customer's producing wells. Shorter hauls decrease truck time on the public roadways, thereby decreasing public risk from the truck traffic.
5. Use of the Ponderosa Lease, Well No. 1, for commercial disposal of

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produced saltwater will not create a traffic safety hazard.

- a. Access to the disposal facility will be off of U.S. Highway 67, which is a paved two lane public highway. Alice has already applied for and received approval from TXDOT for the entrance and exit of 18-wheeler trucks to Highway 67.
 - b. The surface facility is of sufficient size to ensure saltwater haulers using the site for disposal will not have to form a line on the highway at the entrance to the facility.
 - c. The area surrounding the proposed injection facility is rural ranching land. The highway on either side of the entrance and exit of the facility is straight and relatively level for a sufficient distance to ensure adequate visibility of trucks entering and exiting the facility by drivers of other vehicles using the highway.
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 Reagan 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.

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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 Ponderosa 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