

THE APPLICATION OF BERKSHIRE HOLDING, LLC FOR A COMMERCIAL PERMIT TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A POROUS FORMATION NOT PRODUCTIVE OF OIL OR GAS, TOM SWD LEASE WELL NO. 1D, WEMAC (WOLFCAMP) FIELD, ANDREWS COUNTY, TEXAS

HEARD BY: Andres J. Trevino P.E., Technical Examiner
Marshall Enquist, Hearings Examiner

APPEARANCES:

APPLICANT:

Brian Sullivan
Paul Tough
Greg Cloud
Shanam McGaughy
Audrey Alexander

REPRESENTING:

Berkshire Holding LLC

PROTESTANTS:

Jay Stewart
Larry Carlisle
Wilma Tom

Wilma Tom

PROCEDURAL HISTORY

Request for Hearing:	July 1, 2011
Application Filed:	January 17, 2011
Notice of Hearing:	August 18, 2011
Date of Hearing:	October 10, 2011
Proposal For Decision Issued:	March 9, 2012

EXAMINERS' REPORT AND PROPOSAL FOR DECISION

STATEMENT OF THE CASE

Berkshire Holding LLC requests authority pursuant to Statewide Rule 9 to operate Well No. 1D on its Tom SWD Lease in Andrews County as a commercial disposal well. This application is protested by Wilma Tom. Wilma Tom owns property adjacent to the tract on which the proposed disposal well is located.

DISCUSSION OF THE EVIDENCE

Applicant's Evidence

The subject well has not yet been drilled. It is proposed that the well be drilled through the San Andres to a maximum depth of 5,800 feet. It is proposed that the well have 1,850 feet of 8⁵/₈" surface casing with cement circulated from the casing shoe to the ground surface, and 5¹/₂" casing set above the San Andres formation, estimated to occur no deeper than 4,800 feet. The 5¹/₂" casing will be cemented with 950 sacks of cement with the top of cement behind the longstring casing estimated to be at 1,600 feet. (See Wellbore Diagram attachment). The Texas Commission on Environmental Quality recommends that usable-quality ground water be protected to a depth of 1,700 feet. TCEQ further recommends that fresh water contained in the interval from the land surface to a depth of 250 feet and the zone from 1,100 feet to 1,700 feet be isolated from water in the underlying beds.

The proposed injection will be through 3¹/₂" tubing set on a packer at approximately 4,700 feet, but no higher than 100 feet above the top of the injection interval. The proposed injection interval is the San Andres formation, the top of which is expected to occur at about 4,700 feet. The proposed injection interval is between 4,800 and 5,800 feet. The injection interval will be completed with an open hole completion. This estimated depth of the San Andres is based on the log of the Continental Oil Company - Teague "B" No. 2. This well is approximately 1,000 feet to the east of the proposed well and is the closest well which penetrated the San Andres and for which an electric log is available. The proposed maximum injection volume is 15,000 BWPD, with an estimated average of 8,000 BWPD. The proposed maximum injection pressure is 2,450 psig.

There is one plugged oil well within a ¼ mile radius of the proposed disposal well. The T.F. Teague "B" No. 2 was drilled in 1959 and was plugged and abandoned in November 1987. The well was drilled to a total depth of 9,350 feet. The well was plugged in such a manner that it does not present a potential conduit for fluids to migrate from the injection interval to the base of the usable quality water. A log of the Teague "B" No. 2 shows there is over 2,900 feet of anhydrite, salt and gypsum between the top of the proposed disposal interval at 4,800 feet and the base of the usable quality water at 1,700 feet. Anhydrite, salt and gypsum contain no porosity or permeability and serve as barriers to fluid flow. There are five wells located within a ½ mile radius of the proposed disposal well. All five wells are properly plugged and abandoned in accordance with Commission rules and in a manner that will prevent the migration of fluids from the disposal interval into the freshwater strata.

The proposed facility will consist of a 339 foot by 268 foot location pad on a 137.7 acre tract. The facility will have twelve 500 bbl tanks and a concrete unloading station. All tanks will sit inside a secondary containment basin. All surface areas which are expected to handle fluids will be constructed of concrete. Fluids will be unloaded in the concrete unloading station which will accommodate up to four vacuum trucks at a time. The entire 339 foot by 268 foot location pad will be a caliche pad. The caliche pad will be

impermeable and will prevent any spills from reaching the groundwater. The subject well is 2000 feet east of the Protestant's home. The north and eastern sides of the pad will be lined by double rows of Eldarica pine trees to create both a visual and dust barrier from the Protestant's home. The pine trees will be up to 12 feet tall when planted and will reach a height of 30 to 60 feet tall when mature. Berkshire Holding will design the surface facilities in accordance with Commission rules to prevent the possibility that contaminated water will leave the surface facility and contaminate any areas outside the facility.

Berkshire Holding LLC plans to use the proposed well to dispose of produced water and frac water generated as a result of the active and future development of the Wolfberry play in eastern Andrews county. In the Wolfberry play wells, the thick Spraberry trend interval is combined with the thick Wolfcamp zones. The wells require large, multi-stage fracs that use large quantities of water. The wells later produce the frac water which requires disposal. Berkshire believes that additional disposal facilities are necessary to accommodate the active drilling as current commercial wells in the area are either private (not open to the public) or are located west of the town of Andrews. Berkshire Holding presented a map showing over 200 new drilling permits issued in the last two years within a ten mile radius of the proposed disposal well. Berkshire Holding believes their facility is necessary to accommodate ongoing and active drilling occurring in the Wolfberry play which is expanding into eastern Andrews County. There are approximately 17 commercial wells in Andrews County. There are no commercial wells within 10 miles of the proposed disposal well. Berkshire believes that the location of the proposed well in an area without any other source for disposal services will reduce the number of trucking miles necessary to move fluids to a disposal well, which results in reducing disposal costs for the operators.

Berkshire Holding LLC has an active P-5 on file with the Commission, with \$25,000 financial assurance. There are no past or pending enforcement actions against Berkshire Holding LLC.

Berkshire Holding amended the original disposal application by proposing to drill a new disposal well instead of re-entering an existing plugged well, the Teague "B" No. 2. The Teague "B" No. 2. Is located approximately 1,000 feet west of the Protestant's home. The location of the proposed Tom SWD No. 1D is approximately 2,000 feet to the west from the Protestant's home. The original notice published in the *Andrews County News* stated the disposal well will be located 1 mile east of Andrews, Texas in the Wemac (Wolfcamp) field. The original application was administratively denied on April 14, 2011 due to a mistake on the application. On May 24, 2011, Berkshire filed the amended application that proposed the Tom SWD No.1D. On June 29, 2011 a copy of the amended application was sent to surface owners, offset surface owners and to the Andrews County Clerk. Mrs. Tom (the Protestant) received a copy of the amended application. The new location of the well did not change the individuals entitled to notice under the ½ mile radius of review. The applicant concluded that there was no need to republish the notice because nothing in the notice (including the general location of the well) changed.

Notice of the subject application was published in the *Andrews County News*, a newspaper of general circulation in Andrews County, on December 19, 2010. A copy of

the application was mailed on June 29, 2011 to the Andrews County Clerk's Office and the offsetting surface owners within ½ mile of the proposed well. Billie Tom owns the surface of the 137 acre tract on which the well is proposed and is a partner in the well.

Protestant's Evidence

Wilma Tom and her representatives were present to present evidence and state her concerns. Mrs. Tom owns a residence and land adjacent from the proposed disposal well's location. Mrs. Tom stated she is not opposed to the oil & gas industry in general, but had concerns about the potential for surface and groundwater contamination. Mrs. Tom raised concerns of truck traffic, nuisances from dust, noise, odors, impacted property values and a general concern over facility operations if the disposal facility is approved. Mrs. Tom stated she is most concerned that dust from the facility might contaminate her catfish pond. Mrs. Tom's expert petroleum engineer testified wind patterns in the area and increased truck traffic would cause dust to settle on Mrs. Tom's house, vegetation and catfish pond. The expert testified the dust could harm the catfish in the pond and cause damage to her trees and other vegetation. The land surrounding the proposed disposal well is a rural area with mesquite bushes and trees.

Mrs. Tom was unsure of the location of the well as it was originally proposed that Berkshire was going to re-enter the Teague "B" No. 2. The original location of Berkshire's disposal well was only 1,000 feet from Mrs. Tom's residence. Mrs. Tom also believed the entire 137.7 acre Berkshire tract was going to be leveled, cleared of brush, filled in with caliche and used for truck parking. This, she felt would generate dust across her fence line and onto her property.

Mrs. Tom's expert petroleum engineer further testified he felt proper notice was not given because the well and the location was changed in the amended application filed on May 24, 2011. Mrs. Tom's expert petroleum engineer testified that the disposal well was not needed. He based his assumption on 2009 and 2010 water disposal rates on existing commercial disposal wells. The wells were being utilized at rates between 5.3% to 60% of permitted disposal capacity.

EXAMINERS' OPINION

During the review of the evidence, the examiners determined proper notice was not given for the amended application filed on May 24, 2011. Because the well and the location had changed in the amended application republishing of noticed was required. The applicant republished notice in the *Andrews County News*, a newspaper of general circulation in Andrews County, on February 19, 2012. No protests were received as a result of the republished notice.

The examiners believe that this application should be approved. The Tom SWD No. 1D will be completed in a manner which will confine disposal fluids to the proposed disposal interval in the San Andres. Surface casing will be set and cemented through the base of usable quality water. The longstring production casing will also be cemented up

to a depth of 1,600 feet to prevent migration from the injection interval. There are no oil or gas wells within the ¼ mile radius of review that will have the potential to serve as conduit for injected fluids to reach the base of the usable quality water. The water wells in the area will be protected by surface casing as recommended by the TCEQ.

Approval of the requested permit is in the public interest given it is in the public interest to promote the development of the Wolfberry play in eastern Andrews County. Although there are 17 commercial disposal wells in Andrews County, only one commercial disposal well is located east of the city of Andrews where the Wolfberry play is occurring. Without the Tom SWD well, operators will either use the eastern well (MTN Energy, Mabee No. 1W) or drive an additional 30 to 60 mile round trip and through the town of Andrews. The Tom SWD disposal well will reduce truck miles driven and reduce truck traffic through the town of Andrews. Drilling is increasing in the Wolfberry play which require large, multi-stage fracs to extract the oil. Having a disposal facility close to the Wolfberry wells will increase competition and reduce disposal costs.

The Commission does not have jurisdiction over issues regarding site selection, traffic patterns and property values. The examiners believe that any impact on the Protestant's property will be minimal due to the distances involved. Trucks will enter the disposal facility from the paved Highway 176. The trucks will travel at low speeds on the caliche pad to unload their disposal water and exit back on Highway 176. Other features that Berkshire will use to minimize impact on the Protestant's quality of life include planting of pine trees around the facility to abate noise, light pollution and dust, electric pumps verses diesel pumps to eliminate fumes, minimize sound, and directional lighting. The evidence demonstrates 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 application was published in *Andrews County News*, a newspaper of general circulation in Andrews County, on December 19, 2010. Proper notice was not given for the amended application filed on May 24, 2011. Because the well and the location had changed in the amended application republishing of noticed was required. The applicant republished notice in the *Andrews County News*, a newspaper of general circulation in Andrews County, on February 19, 2012. No protests were received as a result of the republished notice.
2. The Tom SWD No. 1D has not been drilled. Berkshire Holding LLC plans to drill the well to a maximum depth of approximately 5,800 feet. The top of the San Andres is expected to occur at approximately 4,800 feet.
3. The maximum requested injection volume is 15,000 barrels of water per day and the maximum requested surface injection pressure is 2,400 psi. The requested disposal interval is the San Andres formation between approximately 4,800 and 5,800 feet.
4. The Tom SWD No. 1D will be cased and cemented in a manner to protect usable

quality water and injection will be confined to the injection interval.

- a. The subject well will have 1,850 feet of 8⁵/₈" surface casing cemented to surface.
 - b. The subject well will have approximately 4,800 feet of 5¹/₂" casing, cemented with 950 sacks of cement with a top of cement at approximately 1,600 feet.
 - c. Injection will be through tubing set on a packer no higher than 100 feet above the top of the injection interval.
 - d. There is over 2,900 feet of anhydrite, salt and gypsum between the top of the proposed disposal interval at 4,800 feet and the base of the usable quality water at 1,700 feet. Anhydrite, salt and gypsum are barriers to fluid flow.
 - e. The Texas Commission on Environmental Quality recommends that usable-quality water be protected to 1,700 feet in the area of the proposed well.
5. There is one wellbore within ¼ mile of the proposed disposal well. The well was plugged in such a manner that it does not present a potential conduit for fluids to migrate from the injection interval to the base of the usable quality water.
 6. There are 17 commercial disposal wells in Andrews County. All commercial wells except for one, the MTN Energy, Mabee No. 1W are located west of the city of Andrews. The Wolfberry play occurs in the eastern part of the County.
 7. There is only one commercial disposal well located within 10 miles of the Tom SWD No. 1D.
 8. The Wolfberry play wells combine the thick Spraberry trend interval with the thick Wolfcamp zones. The wells require large, multi-stage fracs that use large quantities of water. The wells later produce the frac water which requires disposal.
 9. Due to increasing development of the Wolfberry formation in the eastern part of the County, use of the Tom SWD No. 1D 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 drilling and production.
 10. Without the Tom SWD well, operators will either use the eastern well (MTN Energy, Mabee No. 1W) or drive an additional 30 to 60 mile round trip and through the city of Andrews. The Tom SWD disposal well will reduce truck miles driven, reduce truck traffic through the city of Andrews and is in the public interest as it will provide an economic means of disposal of produced water and will increase public safety overall.
 11. The proposed location of the Tom SWD No. 1D is approximately 2,000 feet from Mrs. Tom's residence.

12. Berkshire Holding will implement several measures at the proposed facility to minimize the impact on Mrs. Tom's quality of life.
13. Berkshire is proposing to plant pine trees around the facility to abate noise, light pollution and dust, use electric pumps versus diesel pumps to eliminate fumes and minimize sound, and use directional lighting.
14. Berkshire Holding LLC 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. 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. Berkshire Holding LLC has made a satisfactory showing of financial responsibility to the extent required by Section 27.073 of the Texas Water Code.
7. Berkshire Holding 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,

Andres J. Trevino
Technical Examiner

Marshall Enquist
Hearings Examiner