



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

PROPOSAL FOR DECISION

OIL AND GAS DOCKET NO. 02-0295756

THE APPLICATION OF TRIPLE STAR WELLS, LLC PURSUANT TO STATEWIDE RULE 46 FOR A PERMIT TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF OIL OR GAS, TRIPLE STAR SWD LEASE, WELL NO. 1, KENEDY, SW MIDDLE WILCOX (7500) FIELD, KARNES COUNTY, TEXAS

HEARD BY: Richard Eyster, P.G. – Technical Examiner
Marshall Enquist – Administrative Law Judge

APPEARANCES:

REPRESENTING:

APPLICANT:

Tim George
Dale Miller
Philip Massey

Triple Star Wells, LLC

PROTESTANTS:

Eric Opiela
Russel Labus
Ronald Green, Ph.D

Evergreen Underground Water District

Paul Garcia

Self

PROCEDURAL HISTORY

Application Filed:	February 26, 2015
Protest Received:	April 29, 2015
Request for Hearing:	February 11, 2015
Notice of Hearing:	April 13, 2015
Date of Hearing:	May 06, 2015
Transcript Received:	September 09, 2015
Proposal For Decision Issued:	January 22, 2016

STATEMENT OF THE CASE

Pursuant to Statewide Rule 46 (16 Tex. Admin. Code §3.46)¹ Triple Star Wells, LLC (“Triple Star”) seeks authority to inject produced salt water and RCRA-exempt waste into a reservoir productive of oil or gas, on its Triple Star SWD Lease, Well No.1, (TS-1 Well), Kenedy, SW Middle Wilcox (7500) Field, Karnes County, Texas. The proposed injection well will be a commercial disposal well for the disposal of saltwater and RCRA- exempt waste.² Notice of the subject application was published in the *Karnes County Wide*, a newspaper of general circulation in Karnes County, on December 24, 2014. Notice of the application was sent to the surface owners of the injection tract on January 12, 2015. Triple Star seeks authority to dispose of a maximum of 25,000 barrels per day (BBL/D) of salt water and RCRA-exempt waste into the Wilcox Formation at a depth of 5,600 ft to 7,400 ft at a maximum surface injection pressure of 2,800 psi. The proposed average injection volume will be 15,000 BBL/D.

The application is protested by the Evergreen Underground Water Conservation District (EUCD) and an adjacent landowner, Mr. Paul Garcia, (Collectively, “Protestants) due to concerns that;

- a. The proposed injection well will not have sufficient surface casing to be protective of fresh groundwater.
- b. There are two dry holes (subject wells) one half-mile from the proposed injection well that the EUCD believes are not properly plugged and will provide a possible pathway for fluid migration into usable quality groundwater.
- c. The facility is situated in the 100 year floodplain and the site could flood and possibly contaminate surface water and shallow aquifers in the area.

The application was declared administratively complete by the Texas Railroad Commission of Texas’ Oil and Gas Division but due to protests by the EUCD and Mr. Garcia, Staff was unable to administratively approve the application. The Applicant requested a hearing as a result of the protests.

¹. 16 Tex. Admin. Code § 3.46 (Fluid Injection Into Productive Reservoirs)

². Resource Conservation and Recovery Act: Examples of RCRA exempt oil and gas waste includes produced water, drilling fluids, hydraulic fracturing flow back fluids, rig wash and workover wastes.

APPLICABLE LAW

The Railroad Commission of Texas (Commission) may grant an application for a disposal well permit under Texas Water Code § 27.051(b)³ and may issue a permit if it finds:

1. The use or installation of the injection well is in the public interest;
2. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation;
3. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution; and
4. The applicant has made a satisfactory showing of financial responsibility as required by Section 27.073.

DISCUSSION OF THE EVIDENCE

APPLICANTS EVIDENCE

Triple Star seeks authority to dispose a maximum volume of 25,000 BBL/D and a daily average of 15,000 BBL/D of saltwater and RCRA-exempt waste. The proposed injection interval is from 5,600 ft to 7,400 ft into the Wilcox Formation, on the Triple Star SWD Lease, Well No.1, (TS-1 Well), Kenedy, SW Middle Wilcox (7500) Field, Karnes County, Texas. The proposed TS-1 Well injection well will be located 8.2 miles southwest of Kenedy on a 28 acre site. The proposed injection well will be a commercial disposal well for the disposal of saltwater and RCRA- exempt waste. The Commission’s Groundwater Advisory Unit (GAU) letter states the Base of Usable Quality Groundwater (BUGW) is 100 ft and the base of the Underground Source of Drinking Water (USDW) is 1,500 ft.

The Applicant stated that the proposed injection well will be completed and operated in such a manner as to protect usable quality ground water and surface water.

Triple Star is proposing to complete and operate the proposed injection well as follows;

- 12-3/4 inch surface casing will be set at 200 ft, cemented with 95 sacks of cement and circulated to the surface.
- 7-5/8 inch production casing will be set at 7,400 ft and cemented with 1,685 sacks of cement circulated to surface.

³ Tex. Water Code §27.051(b)(1-4).

- 4-1/2 inch tubing will be set on a packer at 5,500 ft.
- The injection interval will be from 5,600 ft to 7,400 ft into the Wilcox Formation.
- The maximum daily injection volume will be 25,000 barrels per day of saltwater and RCRA-exempt waste.
- The maximum surface injection pressure will be 2,800 psi.
- The average daily injection volume will be 15,000 barrels per day of saltwater and RCRA-exempt waste.

1/4 MILE AREA OF REVIEW

There is one well within the one-quarter mile area of review (AOR) of the proposed TS-Well No.1, the Marathon Oil EF LLC, Dewbre- Johnson Unit No. 1H, (DJ-1H Well), (API No. 255-31923) a producing gas well. The DJ-1H Well was drilled on June 20, 2011 to a Total Depth (TD) of 13,052 ft and has surface casing set at 4,055 ft.⁴ There is one plugged and abandoned well just outside the 1/4-mile AOR, the Al Buchanan & Slick Oil Company, Mary K. Wolf No. 1 Well, (Wolf No.1). The Wolf No.1 Well is a plugged and abandoned dry hole. The plugging report for the Wolf No. 1 states the well was drilled to a TD of 6,265 ft. The well was plugged August 21, 1944 with two plugs. The first plug was set at 5,750 ft with 25 sacks of cement. The second plug was set at 1,150 ft with 25 sacks of cement. The plugging report also states the well was pumped full of mud in order to confine all oil, gas and water to the strata.⁵

SEISMIC EVENTS

There were no seismic events in a radius of 9.08 kilometers around the proposed well from January 1, 1900 to September 1, 2015.

⁴ Applicant's Exhibit No.8.

⁵ Applicant's Exhibit No.10.

PUBLIC INTEREST

Triple Star asserts the proposed injection well is necessary to accommodate the current drilling and hydraulic fracturing activity in the Eagle Ford Formation. The Applicant contends that there continues to be development in the EagleFord Field in Karnes, Bee, and Live Oak counties and therefore there is a need for the proposed injection well. The total number of producing wells in Karnes County has increased from 224 wells in February 2000 to 1,915 wells in February 2015. Bee County had 486 producing wells in February 2000 and 624 producing wells in February 2015.⁶ In the Eagle Ford shale there are more than 12,000 wells that have been completed and an additional 6,200 wells that are still permitted.⁷ These wells are fractured stimulated so there is a lot of flowback water. When operators complete these wells, there's a need for disposal.⁸

ENDANGER OR INJURE ANY OIL, GAS, OR OTHER MINERAL FORMATION

Although there is historical hydrocarbon production from the Wilcox Formation in Karnes County, the majority of producing wells within two miles of the proposed injection well are horizontal wells producing from the Eagle Ford Formation at depths of over 13,000 ft. The two closest producing wells are the, (DJ-1H Well). The DJ-1H Well was drilled on June 20, 2011 to a TD of 13,052 ft and has surface casing set at 4,055 ft. The DJ-1H Well is approximately 1/4 mile west of the proposed injection well. The second well is the Dewbre Petroleum Corporation's E. Johnson Gas Unit 1-E No. 1 Well, (API No. 255-31081), (1-E Well). The 1-E Well was drilled in 01/28/1984 into the Wilcox, and recompleted on 05/19/1999. The 1-E Well was drilled to a TD of 13,326 ft, with surface casing set at 3,997 ft. Applicants Exhibit No.1, contains a downhole geophysical log from Pioneer Natural Resources USA, Inc. (Pioneer) - Wernli GU # 1. Well No. 4, (API No. 42-255-31505). This well is approximately 3/4-mile from the proposed injection well and the log shows over 5,000 ft of shale separating the bottom of the injection zone from the hydrocarbon producing Eagle Ford Shale Formation.

GROUNDWATER PROTECTION

The Commission's Groundwater Advisory Unit has determined that the interval from the land surface to the base of usable quality water (BUQW) at a depth of 100 feet must be protected, and the base of the USDW is 1,500 ft.⁹ The Applicant stated that they will complete and operate the proposed injection well in a manner that will be protective of surface and ground water. The proposed injection well will have surface casing and intermediate casing set with cement circulated

⁶. Applicants Exhibit No. 15.

⁷ Tr. Pg. 66. Lns. 5-10

⁸ Tr. P. 67. Lns. 1-7

⁹. Applicants Exhibit No. 1., Pg 9

to surface. The well used as the offset log the Pioneer Wernli GU # 1-Well No. 4. This well's located approximately 3/4 -mile from the proposed injection well. This well's downhole log shows a 1,750 ft shale interval from 3,850 ft to the top of the proposed injection zone at 5,600 ft and at least 5,000 ft of shale below the proposed injection interval. The proposed well construction and the 1,750 shale interval above the proposed injection interval will be protective of groundwater. In addition to the standard permit conditions for a State Wide Rule 46 injection well, to avoid the possible contamination of surface water and shallow groundwater due to flooding, the Applicant is proposing to construct the entire site above the 100 year flood plain.¹⁰

FINANCIAL ASSURANCE

Triple Star has an active P-5 and financial assurance in the amount of \$25,000 in the form of a cash deposit, effective until November, 30, 2016.

PROTESTANTS EVIDENCE

EUCD believes the surface casing in the proposed injection well will not be set deep enough to protect usable quality groundwater. In an effort to show usable groundwater is deeper than the GAU recommendation that the interval from the land surface to 100 ft must be protected, EUCD introduced Protestant's Exhibit's No. 1, a Texas Water Development Board (TWDB) Groundwater Data Base Water Quality Report for Karnes County, and Exhibit's No. 2, a TWDB Groundwater Data Base Water Quality Report for Bee County. The TWDB groundwater reports give the well name, depth and Total Dissolved Solids (TDS) for water wells in the two counties. Mr. Russell Labus, EUCD's General Manager, gave several examples of water wells in Karnes and Bee Counties listed on the two TWDB reports and shown on the Applicant's Exhibit No. 17, which is a map showing the locations of water wells within a two mile radius. The first water well discussed by Mr. Labus is Water Well No. 7917204, located approximately one mile from the proposed TS-1 Well and completed at a TD of 270 ft. The 7917204 Well has a TDS of 2,416 parts per million (ppm) with a chloride content of 1,240 ppm. The second well the EUCD introduced is Water Well No. 7917101 which is located greater than two miles from the proposed TS-1 Well. This well is completed at a TD of 400 ft and has a TDS of 2,246 ppm with 1,240 ppm Chlorides. The third water well example is Water Well No. 7909702 located approximately four miles from the proposed TS-1 Well. The 7909702 Well has a TD of 356 ft and the TDS is 2,300 ppm with a chloride content of 890 ppm. EUCD also referred to the Applicants Exhibit No. 13, the H-1 form for the Nabors Well, (API No. 255-31997) an active injection well located approximately two miles north of the proposed injection well. The Nabors Well has surface casing set at 857 ft.

¹⁰. Tr. Pg. 214, Lns, 16-24. Pg. 215, Lns., 1-12

The Protestant did not provide any information on domestic or municipal water wells less than a mile from the proposed injection well. The closest municipal or domestic water wells are the City of Kenedy's water supply wells located between six and eight miles northeast of the proposed injection well.¹¹

The Protestants are also concerned that two dry holes located approximately one half-mile east from the proposed injection well, may provide a pathway for fluid migration into usable quality groundwater. The two dry holes are the Inca Drilling Company Sprencel-Stanolind No. 1, (Inca Well) and the M.S. Lusk Felix Sprencel No. 1-A Well, (Lusk Well).

A Commission plugging report introduced as by EUCD as Protestant's Exhibit No. 6, states the Inca Well was a dry hole drilled to a TD of 5,960 ft and was plugged and abandoned on June 22, 1954. The report states the Inca Well had 475 ft of surface casing left in the well and the well was filled with mud and cement. The report also says the mud and cement was pumped into the well. The Inca Well plugging report also states the manner of confining all oil, gas or water to strata was mud and cement. Page three of the plugging report states that the method of "shutting off water" is cement.¹²

According to Protestants Exhibit No. 7, the Commission plugging report for the Lusk 1-A Well, the well was a dry hole plugged and abandoned on January 9, 1955. Page one of the plugging report states the Lusk Well was drilled to a Total Depth of 6,034 ft. Surface casing was set at 644 ft and cemented with 155 sacks of cement. During plugging, the cemented surface casing was left in the well. The well was pumped full of mud and plugged from 585 ft to 700 ft with 50 sacks of cement.¹³

EUCD's expert witness, Dr. Ron Green, Ph.D., introduced a well bore schematic and theoretical pressure front calculations for 1, 5, 10, 15, 20, and 30 years of continuous operation of the proposed injection well and the possible effects of continuous injection on the two dry holes.¹⁴ Dr. Green stated that he used "reasonably assumed properties and values that are given on the Applicant's application".¹⁵ Dr. Green's pressure front calculations hypothesized that after one year of injection there could be a 21 psi increase in the bottom hole pressure of the Inca and Lusk Wells. After 30 years of continuous injection there could be a 36 psi rise in bottom hole pressure in the two

¹¹ Tr. Pg. 126, lns 1-25. Pg. 127 Lns, 1-22

¹² Protestant Exhibit No. 6, RRC plugging report for Inca Drilling Company Sprencel-Stanolind No.1 Well.

¹³ Protestant Exhibit No. 7, RRC plugging report for the M. S. Lusk, Felix Sprencel No. 1-A Well.

¹⁴ Protestant's Exhibit No. 4, Their equations for the two subject wells

¹⁵ Pg. 138., Lns, 1-2

subject wells and if the two subject wells were not properly plugged the differential pressure increase may force fluid from the injection zone up into the USDW.

The EUCD introduced Theis pressure front equations¹⁶ for the "Mogford Well" (API. No 42-127-00054), a dry hole abandoned in 1949 and located in Dimmit County, over 100 miles from Karnes County. EUCD used the Mogford Well as an example of an injection well possibly causing a surface breakout from an improperly plugged well and as a real world test of his Theis equation inputs for the subject wells in this application. EUCD claims the Mogford Well had a surface breakout caused by the operation of the Sandy SWD Injection Well. The Mogford Well is located 1,747 ft from the Sandy SWD Well, which is slightly greater than one quarter-mile, and the Sandy SWD Well was injecting at an average pressure of 1,700 psi into a 29 foot injection zone in the Olmos Formation from an injection well, the Carmen Jung 1 (Sandy SWD Well). The Examiners note the EUCD did not provide any completion, plugging or other technical reports, calculations, or other type of data to support their claim. The Examiners also note the discrepancies between disposal into a 29 ft injection interval and the 1,800 ft injection interval in the proposed well.

Mr. Garcia is an adjacent landowner protesting the proposed injection well. Mr. Garcia is concerned that Medio Creek will flood the proposed facility and contaminate his property surface and shallow groundwater and that a possible lightning strike will ignite the saltwater storage tanks on site. Mr. Garcia introduced six exhibits, (Garcia Exhibits 1-6), admitted photographs showing the extent of the flooding he experienced in 2015. Mr. Garcia is also concerned that oil and gas operations in the area are adversely affecting local residents health.

EXAMINERS' ANALYSIS OF THE EVIDENCE

Triple Star has the burden to prove the proposed disposal well meets the requirements of Chapter 27 of the Texas Water Code and Statewide Rule 46.

The Commission may grant a permit under Chapter 27 of the Texas Water Code, Subchapter D, in whole or part, and may issue a permit to dispose of fluids by underground injection if it finds:

1. The use or installation of the injection well is in the public interest;
2. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation;
3. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution; and
4. The applicant has made a satisfactory showing of financial responsibility.

¹⁶ A mathematical model for two-dimensional radial flow to a point source in an infinite, homogeneous aquifer.

Based on the supporting evidence the Examiners recommend the Commission enter an order approving the application.

1. The Use or Installation of the Injection Well is in the Public Interest;

Triple Star intends to use the TS-1 Well as a commercial injection well to dispose of water and RCRA-exempt waste. Evidence of continuing drilling and the need for water production requiring disposal was provided. There continues to be development in the EagleFord Field in Karnes, Bee, and Live Oak counties and therefore the need for the proposed injection well. In the Eagle Ford shale, more than 12,000 wells have been completed and an additional 6,200 wells are permitted. Triple Star has demonstrated the proposed disposal well is in the public interest.

2. The Use or Installation of the Injection Well Will Not Endanger or Injure Any Oil, Gas, or Other Mineral Formation.

The evidence in the record is sufficient to demonstrate that injection will not endanger or injure any oil, gas, or other mineral formation. Applicant's Exhibit No 1, contains a downhole geophysical log from the Pioneer Wernli GU # 1 which the Applicant used as the offset log. The downhole log shows a 1,750 ft shale interval from 3,850 ft to the top of the proposed injection zone at 5,600 ft and over 4,000 ft of shale isolating the base of the injection zone from the underlying hydrocarbon bearing zones. The proposed well construction along with shale above and below the proposed injection zone will seal the proposed injection zone from the hydrocarbon bearing zones in the Wilcox Formation above the injection interval, and the Eagle Ford Formation below the injection interval. The proposed injection well will not endanger or injure any oil, gas, or other mineral formation.

3. With Proper Safeguards, Both Ground and Surface Fresh Water Can Be Adequately Protected from Pollution.

As discussed in previous sections, Triple Star provided evidence to demonstrate that the proposed injection fluids will be confined to the injection interval. Interpretation of the local geologic structure and its capacity to contain the injected fluids was provided. Applicant's Exhibit No. 5, the TS-1 Well wellbore schematic shows the well will be properly cased and cemented to protect fresh water. The shale layers above and below the proposed injection interval in conjunction with the design of the proposed injection well will seal off the proposed injection zone from fresh water sands above the injection interval.

The Protestant's pressure front calculations hypothesized that after 30 years of continuous injection there could be a 36 psi rise in bottom hole pressure in the two subject wells and if the two dry holes were not properly plugged the differential pressure increase may force fluid from the

injection zone up into the USDW.¹⁷ In order to reach this result, Dr. Greens assumed properties included the following; a 300 ft injection zone instead of the 1,800 ft injection zone requested in the application; that depth to usable groundwater occurred at 300 ft instead of the 100 ft level that the GAU has determined must be protected; permeability to be 400 millidarcies (md) instead of the 800 md given on the Applicants application;¹⁸ hydrostatic pressure of the Wilcox is the same or greater than the USDW; and that the two dry holes, (the Inca and Lusk Wells) did not have cement or drilling mud in them. However, the Protestant's failed to provide technical evidence or an explanation to support the use of a 300 ft injection interval or 300 ft groundwater level, or the use of 400md. Dr. Green stated in cross that the 1,800 ft interval is six times the 300 ft interval and that every time you double the injection thickness the pressure is reduced by half. Dr. Green used a 300 ft injection interval in his calculations which showed that after 30 years of injection the bottom hole pressure would be 36 psi. Doubling the interval to 600 ft would reduce the bottom hole pressure to 18 psi.¹⁹ The Examiners note that without changing any parameters except the thickness of the injection interval bottom hole pressures can be highly variable.

A Commission plugging report introduced by EUCD states the Inca Well has 475ft of cemented surface casing left in the well. The report states that mud and cement was pumped into the well. The Inca Well plugging report also states the manner of confining all oil, gas or water to strata was mud and cement. Page three of the plugging report states that the method of shutting off water is cement.²⁰

EUCD introduced a Commission plugging report for the Lusk Well. Page one of the plugging report states the Lusk Well was drilled to a TD of 6,034 ft. Surface casing set at 644 ft and cemented with 155 sacks of cement. During plugging, the cemented surface casing was left in the well. The well was pumped full of mud and plugged from 585 ft to 700 ft with 50 sacks of cement.²¹ The Protestants did not provide any evidence that the Inca and Lusk Wells did not contain drilling mud and cement as was stated in the plugging reports. Further, under cross Dr. Green was asked "Is it correct that the only evidence we have of what's in those wellbores (The Inca and Jung Wells) indicates that there is mud or heavy mud or cement in those two dry holes?" Dr. Green answered "Yes".²²

¹⁷ Protestants Exhibit No. 4

¹⁸ Applicant's Exhibit No.13

¹⁹ Tr. Pg186, lns, 1-25. Pg 187, lns 1-25, Pg. 188, lns 1-15.

²⁰ Protestant's Exhibit No. 6

²¹ Protestants Exhibit No. 7

²² Tr. Pg., 189, Lns., 17-20.

The Examiners conclude the cemented surface casing and the presence of mud in both the Inca and Lusk Wells as stated in the plugging reports will prevent the movement of fluids from the disposal zone into freshwater strata. Therefore the Examiners further conclude the two wells will not act as a conduit for fluid to migrate up the wellbores and contaminate fresh surface or ground water.

The Protestants consider the proposed TS- 1 Well and its potential effects on the two subject wells to be analogous to the Sandy-Mogford event. Dr. Green stated that the Mogford Well in Dimmit County was relevant to the proposed injection well two counties away because “It (TS-1 Well) is in similar formations. The TS-1 Well is a little deeper in the stratigraphic column.... there are similarities of those units. They’re sands, they’re shales”²³. However, the Protestant did not enter into the record any technical evidence or Commission reports that would substantiate EUCD’s claim the breakout at the Mogford Well, if one did occur, was the result of injection well activities or how it relates to the proposed injection well except that both wells have shale and sand formations. Due to the lack of evidence substantiating EUCD’s assertions the Examiners do not believe the Mogford Well has any relevance to the instant case. The Examiners note the EUCD did not provide any completion, plugging or other technical reports, calculations, or other type of data to support their claim.

4. The Applicant Has Made a Satisfactory Showing of Financial Responsibility as Required by Section 27.073.

On December 17, 2015 a Commission letter was sent to the Applicant and the Protestant stating that a search of the Commission’s mainframe showed that Triple Star was listed as “Inactive” as of August 31, 2015 and that their Financial Assurance, a Letter of Credit in the amount of \$25,000, expired December 15, 2015. The Examiner are taking Official Notice of the referenced mainframe information. The letter stated that if Triple Star did not renew its P-5 and its financial assurance no later than January 4, 2016 the Examiners would issue a PFD recommending denial of the permit. The Examiners note that as of January 4, 2016 Triple Star has an active P-5 and \$25,000 in financial assurance.

The Examiners conclude that the Applicant has met its burden of proof of a satisfactory showing of financial responsibility that its application be approved.

²³ Tr. Pg., 194, Lns 1-10

FINDINGS OF FACT

1. Triple Star, LLC seeks a permit authorizing a commercial disposal operations pursuant to 16 Tex. Admin. Code § 3.46 ("Statewide Rule 46") for the Triple Star SWD Lease, Well No. 1, Kenedy, SW Middle Wilcox (7500) Field, Karnes County, Texas. (TS-1 Well).
2. Notice of this hearing was given to all parties entitled to notice at least ten days prior to the date of hearing.
3. Notice of the subject application was published in the *Karnes Countywide*, a newspaper of general circulation in Karnes County, on February 20, 2014.
4. Notice of the application was sent to the surface owners of the injection tract on March 25, 2014.
5. The proposed injection well will be completed as follows;
 - a. 12-3/4 inch surface casing will be set at 200 ft, cemented with 95 sacks of cement and circulated to the surface.
 - b. 7-5/8 inch production casing will be set at 7,400 ft and cemented with 1,685 sacks of cement circulated to surface.
 - c. 4-1/2 inch tubing will be set on a packer at 5,500 ft.
 - d. The injection interval will be from 5,600 ft to 7,400 ft into the Wilcox Formation.
 - e. The maximum daily injection volume will be 25,000 barrels per day of saltwater and RCRA-exempt waste.
 - f. The maximum surface injection pressure will be 2,800 psi.
 - g. The average daily injection volume will be 15,000 barrels per day of saltwater and RCRA-exempt waste.
6. The use or installation of the TS-1 Well is in the Public Interest.
 - a. In the Eagle Ford shale there are more than 12,000 wells that have been completed and an additional 6,200 wells that are still permitted.

- b. The proposed well will receive salt water RCRA-exempt waste from the Eagle Ford wells for disposal.
7. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution.
 - a. The interval from the land surface to the base of usable quality water (BUQW) at a depth of 100 feet will be protected with two strings of casings, both cemented to surface.
 - b. Shale barriers above and below the proposed injection interval will also protect surface and groundwater.
 - c. Fluids injected into the in the TS-1 Well will be confined to the 5,600 ft to 7,400 ft injection interval, which is bounded on the top by 1,750 ft of shale and the bottom of the interval is isolated by more than 4,000 feet of shale.
 - d. The proposed injection well and supporting facilities will be constructed above the 100 year flood plain.
 - e. Surface facilities will comply with standard permit conditions for commercial disposal well facilities, including secondary containment.
8. The use or installation of the proposed injection well will not endanger or injure oil, gas, or other mineral formations.
 - a. The proposed injection well is cased and cemented to prevent the injectate from migrating out of the proposed injection interval.
 - b. There is over 4,000 ft of shale isolating the hydrocarbon producing strata from the bottom of the proposed injection interval.
 - c. There is historical oil and gas production from the Wilcox Formation, however, in the immediate area the Wilcox is no longer productive
9. Triple Star has made a satisfactory showing of financial responsibility.
 - a. On December 17, 2015 a Commission letter was sent to the Applicant and the Protestant stating that a search of the Texas Railroad Commission's mainframe showed that Triple Star was listed as "Inactive" as of August 31, 2015 and that their Financial Assurance, a Letter of Credit in the amount of \$25,000, expired December 15, 2015.

- b. The December 17, 2015 Commission letter stated that if Triple Star did not renew its P-5 and its financial assurance no later than January 4, 2016 the Examiners would issue a PFD recommending denial of the permit.
- c. Triple Star has an active P-5 and financial assurance in the amount of \$25,000 in the form of a cash deposit, effective until November, 30, 2016.

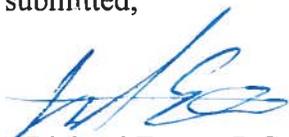
CONCLUSIONS OF LAW

- 1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas. Tex. Nat. Res. Code § 81.051.
- 2. All notice requirements have been satisfied. 16 Tex. Admin. Code § 3.46.
- 3. The evidence in the record is sufficient to establish that the use or installation of the injection well is in the public interest. Tex. Water Code § 27.051(b)(1).
- 4. The evidence in the record is sufficient to establish that the use or installation of the Triple Star SWD Lease, Well No.1, Kenedy, SW Middle Wilcox (7500) Field, injection well will not endanger or injure any oil, gas, or other mineral formation. Tex. Water Code § 27.051(b)(2).
- 5. The evidence in the record is sufficient to establish that, with proper safeguards, both ground and surface fresh water can be adequately protected from pollution. Tex. Water Code § 27.051(b)(3).
- 6. The applicant has made a satisfactory showing of financial responsibility. Tex. Water Code as required by Section 27.073 of the Texas Water Code. Tex. Water Code § 27.051(b)(4).

RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend the Commission enter an order approving the application of Triple Star, LLC Pursuant to Statewide Rule 46 for a permit to inject fluid into a reservoir productive of oil or gas on the Triple Star SWD Lease, Well No.1, (TS-1 Well), Kenedy, SW Middle Wilcox (7500) Field, Karnes County, Texas.

Respectfully submitted,



Richard Eyster, P.G.
Technical Examiner



Marshall Enquist
Administrative Law Judge