



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

PROPOSAL FOR DECISION

OIL AND GAS DOCKET NO. 02-0285308

THE APPLICATION OF SABLE ENVIRONMENTAL, LLC PURSUANT TO STATEWIDE RULE 9 FOR A COMMERCIAL PERMIT TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A RESERVOIR NOT PRODUCTIVE OF OIL OR GAS ON THE AUST LEASE, WELL NO. 1, EAGLEVILLE (EAGLE FORD-2) FIELD KARNES COUNTY, TEXAS.

HEARD BY: Karl Caldwell - Technical Examiner
Laura Miles-Valdez - Legal Examiner

PROCEDURAL HISTORY

Application Filed:	May 22, 2013
Protest Received:	June 6, 2013
Request for Hearing:	October 17, 2013
Notice of Hearing:	February 6, 2014
Hearing Held:	March 19 and 26, 2014
Transcript Received:	April 8, 2014
Proposal for Decision Issued:	March 23, 2015

APPEARANCES:

APPLICANT:

Clay Nance
Shannon Brandt
Kerry Pollard, P.E.
Ed Von Dran
Cody Bates
Scott Mellman
Amber Lorick
Gaye Aust
Wes Thomas

REPRESENTING:

Sable Environmental, LLC

PROTESTANTS:

William Tipton	Self, Tipton Land Holdings, LLC
John Hayes	William Tipton
Alicia Ringuet	William Tipton
Thomas Richter, P.E.	William Tipton
John Dupnik	Self
Jimmy Ray Holland	Self

INTERESTED PARTIES:

Eric Opeila	Self, The Rose Trust
Jerry Vaidos	Self
Teresa Vaidos Belcher	Self
Karen Brysch	Self
Paul Brysch	Self
Shirley Adams	Self

PROPOSAL FOR DECISION

STATEMENT OF THE CASE

Sable Environmental, LLC (Sable) requests authority pursuant to Statewide Rule 9¹ for the Aust Lease, Well No. 1, Eagleville (Eagle Ford-2) Field, Karnes County, Texas.

Notice of the Sable's original application was published in the *Karnes Countywide* a newspaper of general circulation, in Karnes County, Texas, on May 22, 2013. Notice of the application was sent to the Karnes County Clerk, offset operators within one-half mile, the owner of the surface tract where the proposed disposal well will be located, and adjacent surface owners to the tract where the proposed disposal well will be located. On January 29, 2014, notice of Sable's amended application² was published in the *Karnes Countywide*.

The application is protested by adjacent surface owners: William Tipton, Tipton Land Holdings, LLC, Jimmy Ray Holland, and John Dupnik. Nearby landowners Eric Opiela, Jerry Vaidos, Teresa Vajdos-Belcher, and Shirley Adams also appeared at the hearing in protest of the application.

¹ 16 Tex. Admin. Code § 3.9 (Disposal Wells).

² On February 26, 2014 the Commission received a revised Form W-14 from the Applicant. The revised Form-W-14 listed a different injection interval and disposal formation than the original application. See *Commercial Disposal Well Application*, pg. 3.

INTRODUCTION

Sable has applied for a commercial disposal well permit in Karnes County to provide additional disposal capacity for current, established clients with an immediate need for additional capacity in the area. The proposed disposal well location is centrally located in relation to the Eagle Ford Shale development. The proposed disposal well location is near an ephemeral stream bed that is a tributary of the Escondido Creek. This stream only flows as a result of rainfall events in the area. The stream does not have a contributing source other than rainfall. On-going oilfield operations occur within view of the proposed disposal well location. There is no evidence that any of these operations have resulted in either ground or surface fresh water pollution. With proper safeguards, fresh water in the area can be adequately protected from pollution. The Examiners recommend approval of the subject application.

DISCUSSION OF THE EVIDENCE

Sable's Evidence

Sable's Commercial Disposal Well Application

Sable is a salt water disposal water operator with five currently operating disposal wells within the Eagle Ford Shale area, which includes Karnes County. Sable has a current, active lease with the surface owner for a 10 acre tract of land where the well would be located.³ Sable's original Aust No. 1 application requested to inject fluids into the Wilcox Formation from 6,700 feet to 8,000 feet. Sable amended the permit application on January 29, 2014, listing the disposal formation as the Lower Cretaceous, and lowered the injection interval down to an interval from 12,000 feet to 14,000 feet.

Well Construction

The Commission's Groundwater Advisory Unit (GAU) identified the base of usable-quality groundwater (BUQW) at a depth of 5,800 feet at the proposed disposal well location. The base of the usable sources of drinking water (USDW) was identified at a depth of approximately 6,000 feet. The Aust No. 1 well has not yet been drilled. Mr. Kerry Pollard, Sable's expert engineering witness stated the drilling and casing program for the proposed well can be altered if deemed necessary by the Commission. The revised Form W-14 submitted for the proposed Aust No. 1 well listed the depth of the surface casing and the BUQW at the same depth, 5,800 feet. Mr. Pollard stated he has recommended to Sable to set the surface casing deeper than the BUQW, preferably in a shale below the BUQW, but the surface casing depth cannot be greater than 200 feet below the BUQW to be in compliance with Statewide Rule 13. The Examiners requested a late-filed exhibit with the revised wellbore schematic. On April 3, 2004, the Examiners received a revised wellbore schematic

³ See *Location of Proposed Aust No. 1 Well*, PFD pages 6-8.

showing that 9 5/8-inch surface casing will be set at a depth of 5,900 feet, 100 feet below the BUQW and the surface casing will be cemented in place with cement circulated to surface (Attachment A).

As proposed, a 7-inch long string casing will be set to a depth of 14,100 feet. Mr. Pollard has studied casing programs for wells in the area that have set casing in the Eagleford Formation. In Mr. Pollard's opinion, the long string of casing can be cemented in place with cement circulated to surface. However, if high porosity and high permeability intervals are encountered when drilling the well which would indicate that the hole may not hold a full column of cement, a multi-stage cementing DV tool would be set above the Austin Chalk Formation. Tubing will be run inside the long string casing and a packer will be set at a depth of 11,950 feet. There will be a pressure gauge to monitor the annulus pressure. In Mr. Pollard's opinion, there is no chance of contaminating fresh water with this proposed plan.

The injection interval listed on Form W-14 for the Aust No. 1 well is the Lower Cretaceous from 12,000 feet to 14,000 feet. Mr. Pollard stated that the Lower Cretaceous includes a number of different formations. "It starts right below the Eagleford (Formation), which is considered upper Cretaceous. Right below that you would find the Buda (Formation). Then you would find the Del Rio Shale and then the Georgetown (Formation), then the Edwards (Formation)...Then you would find the Glen Rose (Formation) below that...that is as deep as we would go into the Lower Cretaceous with this well. If we get to 14,000 feet, we will be in what is considered some shale and some non-penetrable formations".⁴

Impervious Layers to Confine Injected Fluids to Disposal Interval

Two offset well logs, the Buehring Gas Unit, Well No. 1, (Buehring No. 1), API No. 42-25530115, and the James M. Grunewald, Well No. 1 (Grunewald No. 1), API No. 42-255-30222, were used to construct a structural cross-section of the nearby area. The Buehring No. 1 is located approximately one mile south-southwest from the proposed Aust No. 1 location. The Grunewald No. 1 well is located approximately 7 miles southwest from the Buehring Gas Unit Well No. 1 and approximately 8 miles southwest from the proposed Aust No. 1 location.

The proposed disposal interval from 12,000 feet to 14,000 is located within the Lower Cretaceous (more specifically in the Edwards Formation), although the base of the disposal interval near 14,000 feet may be in the Glen Rose Formation. The offset Grunewald No. 1 log indicated a "good porosity and permeability section" in the Edwards Formation. In Mr. Pollard's opinion, the porosity and permeability in the Edwards Formation may limit the injection volumes. Mr. Pollard's opinion is based on the limited number of penetrations throughout the area in the middle zone of the Edwards Formation, as there is no production through the middle zone in at least a five-mile radius.

⁴ Testimony of Kerry Pollard, P.E. Tr. Vol. 1, 164.

The Georgetown Formation will act as an impervious boundary to prevent migration of injection fluids above the injection interval. The Grunewald No. 1 log indicated the Georgetown Formation located above the Edwards Formation is hard limestone, that is very tight with very low porosity and permeability, properties that are consistent across the seven mile log cross-section. Based on the offset well logs, Mr. Pollard estimated the thickness of the Georgetown Formation to be between 130 feet and 140 feet at the proposed location of the Aust No. 1. The offset well logs indicated the Del Rio Formation located above the Georgetown Formation consisted of 20 to 30 feet of shale which will also act as a barrier between the injection interval and the productive Eagleford Formation and fresh water zones above the Del Rio Shale. The lower depth of the disposal interval at 14,000 feet correlates to a shale section in the Buehring No. 1 well log.

Maximum Injection Volume and Surface Pressure

The maximum surface pressure requested is 6,000 psi based on the top of the injection interval at 12,000 feet. The Applicant has requested a maximum daily injection volume of 25,000 barrels per day (bpd) of salt water and RCRA-exempt waste.⁵ In Mr. Pollard's opinion, the 25,000 bpd maximum daily injection volume requested would not be attainable unless the formations authorized for injection are "really good, can take it." Mr. Pollard estimated 15,000 bpd to 18,000 bpd to be the upper average daily volume injected in the Aust No. 1. The Protestants cross-examined Mr. Pollard regarding Sable's request for a maximum permitted volume of 25,000 bpd if the formations are not expected to be able to handle the maximum requested daily volume. Mr. Pollard stated "(Sable) would not want to be limited to a 15,000 bpd maximum volume limit and then discover that the injection interval can accept more than that volume and have to apply for a permit for a higher daily disposal volume."

Area of Review

Two wells have been drilled within a one-quarter mile radius of the proposed disposal well location. The Kolodzie-Hendricks Unit, Well No. 1 (API No. 42-355-30811) was drilled to a total depth (TD) of 8,500 feet. Records show a 100 foot plug above and below the BUQW. The total depth of the well is 3,500 feet above the top of the proposed injection interval for the Aust No. 1. The Holland-Brown Unit, Well No. 1H (API No. 42-355-31924) is a horizontal well with a surface location outside of a one-quarter mile radius, although the lateral section of the well is located in the Eagleford Formation within a one-quarter mile radius. Neither of these two wellbores have penetrated the proposed injection interval for the Aust No. 1 well.

There have been an additional seven wells drilled within a one-half mile radius of the proposed disposal well. These seven wells were drilled by Marathon Oil EF LLC and penetrate the Eagleford Formation but do not penetrate the proposed injection interval for the Aust No. 1 well.

⁵ Resource Conservation and Recovery Act: Examples of RCRA exempt oil and gas waste includes produced water, drilling fluids, frac flowback fluids, rigwash and workover wastes.

All seven wells have surface casing set through the BUQW, and casing is cemented to surface. There are no conduits for injected fluids in the proposed disposal well to pollute the usable quality water in the area.

Location of Proposed Aust No. 1 Well

The Aust No. 1 well would be centrally located with regards to oil wells, gas wells, and the mixed oil-gas well window of Eagleford Formation wells. Ms. Gaye Foster Aust is the surface owner of 20 acres of land and has leased 10 of the acres to Sable for the proposed Aust No. 1. Ms. Aust has a home on County Road 185 (CR 185) to the west of the acreage leased to Sable. The 10 acres of land leased to Sable is located up gradient from Ms. Aust's home. The front 10 acres of Ms. Aust's property where Ms. Aust's house is located shares a fence line with Mr. Tipton, Protestant. From Ms. Aust's porch, oil and gas operations in the area are visible, including two pump jacks, a drilling rig, and gas flaring. Ms. Aust has owned the property since 2008 and has not noticed any flooding on the 10 acres that have been leased to Sable. When there is flooding due to rain, the flooding has been on "the creek that goes through Mr. Tipton's place. The way he's got his pastures formed, they all slope down into that creek and it fills up his tank, that front water tank."⁶ There is a low point on CR 185 where the water stands that Ms. Aust described as being "below" Sable's leased property, further described to be towards Ms. Aust's house, west of Sable's leased property where "there is a dip in the road."⁷

The commercial disposal well facility would be located directly on CR185 with two separate entrances. Mr. Cody Bates, Vice President of Sable described the current CR 185 road use and truck traffic as "quite heavy", primarily oil field industry traffic. In the area surrounding the Aust No. 1 location are well pad locations operated by Marathon, as well as Marathon's commingling production facility. There are pipelines running in multiple directions that feed into the Marathon commingling facility. Flaring occurs at the Marathon commingling facility with a flame visible from a "long way."

Mr. Harold Von Dran, professional environmental engineer registered in the state of Texas analyzed the proposed Aust No. 1 location in order to design a surface facility for Sable. Mr. Von Dran did not have Sable's actual layout. Mr. Von Dran used a design that was approximately the same size and configuration as Sable's proposed plan, as both Mr. Von Dran's design and Sable's design incorporated "three lanes." In Mr. Von Dran's opinion, not using Sable's actual design would not make much difference in the overall layout. Mr. Von Dran testified that the design used could accommodate a disposal volume of 12,500 bpd to 18,000 bpd. On cross-examination, the Protestant asked Mr. Von Dran if it would be appropriate to limit the maximum permitted volume

⁶ Mr. Tipton has a water storage pit, sometimes referred to as a storage tank during the hearing that is used for hydraulic fracturing in the area.

⁷ Tr. Vol. 1, 96.

to less than 25,000 bpd due to the design used. In Mr. Von Dran's opinion, the footprint of the design used is expandable to 18,000 bpd without any further changes and opined the location could probably accommodate more tanks. On re-direct examination, Mr. Von Dran testified that maximum injection pressure limitations typically found in Railroad Commission permits were "really not my area of expertise" but surface pressures would be a factor with regard to the volume of water able to be disposed of at a facility.

There is an ephemeral stream bed located adjacent to the proposed location of the Aust No. 1. This stream only flows as a result of rainfall in the area and does not have a contributing source other than rainfall. This stream is a tributary of the Escondido Creek which flows into the San Antonio River and on into the Nueces River and then on into the Golf Coast. The stream bed is located eight to twelve feet below the land surface of the surrounding area.

Sable's facility will be located approximately 200 to 300 feet from the stream bed. The Aust No. 1 wellbore will not be located within a 100 year flood plain. In Mr. Von Dran's opinion, the wellbore could be located in the 100 year flood plain as it would not affect the function of the well since the well is designed as a closed system; "the wellhead is sealed, it is tight, it's under pressure, it is not open to the atmosphere."

In studying the area, Mr. Von Dram used the 100 year rainfall event, which he considered to be the national standard for planning purposes. In Karnes County, the 100-year rainfall event based on a 24-hour rainfall is approximately 10.9 inches. Mr. Von Dran developed a tentative, preliminary layout of a typical saltwater facility at the left-hand corner of CR 185 outside the 100-year floodplain. The entrance of the facility, departing from Highway 99 and traveling north on CR 185, is located approximately a half-mile north of Highway 99, in the lower right-hand corner of the Sable's leased property. At the corner of CR 185, traffic to the facility would not travel further to the west on CR 185 and would not pass by Ms. Aust's residence.

In Mr. Von Dran's professional opinion, the facility can be built up out of the floodplain as there is sufficient acreage east of the creek to construct and operate a sufficiently-sized surface facility. Mr. Von Dran compared this scenario to the building of homes and subdivisions and switchbacks of rivers. Mr. Von Dran's design uses the traffic lanes to help protect the tank battery. The traffic lanes would be built up to get them out of the floodplain and would wrap around the outside of the tank battery. "The proposed location of the outside traffic lanes do encroach on the 100-year floodplain, but as long as we build them up above the 100-year floodplain, which here is a couple of feet at the most, we would then be able to provide a third layer of protection" from any potential release from the facility in the event of a spill.⁸

Sable's tank batteries will be constructed with corrugated metal. Sable will use a 60 millimeter, high-density polyethylene liner underneath the facility to create a sealed containment.

⁸ Testimony of Mr. Von Dran, Tr. Vol. 1, 125.

There is no potential for waste to percolate through the bottom of the facility and no way for the groundwater to rise up inside the facility as long as the seals are maintained. Any water that hits the ground inside the tank battery is picked up through sump pumps and put back into the gunbarrel and disposed of into the disposal well.

The Need For Additional Disposal Capacity in the Area

Karnes County has been the highest oil and gas producing county in Texas over the past three years, attributed to the amount of activity in the Eagle Ford Shale area. The Aust No. 1 well would be centrally located in relation to oil wells, gas wells, and the mixed oil-gas well window of the Eagle Ford Shale production area. The number of producing wells in Karnes County has increased from 259 wells in 2010 to 1,350 wells in 2013. The average well count in 2013 was 1,350 wells and the early-2014 well count was approximately 1,600 wells. There were 213 drilling permits applications between January 1, 2014 and March 17, 2014 in Karnes County. In Mr. Pollard's opinion, the majority of new wells drilled are horizontal wells, over 95% of which are Eagle Ford Shale wells with multiple hydraulic fracture stimulation intervals per lateral, which produce large quantities of water during initial flow back that must be disposed of.

There are a total of 23 activated commercial disposal permits within a 20-mile radius of the proposed Aust No. 1, permitted for a total daily volume of 455,000 bpd.⁹ Within a 10-mile radius there are a total of 10 activated wells, permitted for a total daily volume of 220,000 bpd. Within a 5-mile radius there are a total of 3 activated commercial disposal permits, for a maximum total daily volume of 75,000 bpd.

Based on Sable's experience, there is a difference between permitted capacity and operational capacity (available capacity) in terms of permitted maximum daily volume and what facilities can actually do. The volume of water that the injection interval can accept on a daily basis is unknown until the well is drilled and the formation is tested.

Mr. Bates is not aware of any active commercial disposal wells within a 20-mile radius currently disposing of fluids into the Lower Cretaceous; all 23 activated commercial disposal permits inject fluids into the Wilcox Formation. The Aust No. 1 well will relieve some pressure on the Wilcox Formation, to help prevent over-pressuring the Wilcox Formation within Karnes County. Sable is aware of the additional costs associated with drilling a well to deeper depths and has experience drilling an Edwards Formation disposal well.

⁹ Mr. Pollard differentiated between activated and non-activated permits using the following determination: wells that are already accepting or can accept water are considered activated permits. This would include wells where: 1) either completion papers and an H-5 has been filed, which is a casing integrity test; 2) wells that have H-10s filed, which is the yearly reporting that is done to show how much water has been injected; 3) wells that have had P-18's filed, which is the monthly skim oil report.

Sable listed a total of 21 non-activated commercial disposal permits within a 20-mile radius of the Aust No. 1 location. Sable did not highlight the non-commercial disposal wells since they are not available for commercial disposal. Mr. Pollard acknowledged that any well shown as a non-activated permit may be a well that is drilled in the future. However, In Mr. Pollard's opinion, the non-activated permits are wells not currently available for disposal, and cannot really be considered as being available to accept water. Mr. Pollard is aware of one disposal well that will be completed soon, but for the most part, "these wells are not drilled and in some cases it is questionable whether they will ever be drilled."

Sable currently operates three active disposal wells in Karnes County. The operational capacity at Sable's two older facilities, the Karnes SWD Lease, Well No. 1 (KAR-25) and the Helena SWD Lease, Well No. 1 (KAR-10) are operating "right up against our capacity limit." Sable's third facility in Karnes County, the TE Kenedy SWD Lease, Well No. 1 (KAR-11) was only recently purchased and, at the time of the hearing, Sable had operated the facility for approximately 10 days.

Sable operates their disposal wells on a system of redundancy. The proposed Aust No. 1 fits into their business model as Sable's four disposal wells in the area would be within a 20-mile radius. Sable's reasoning for locating the facilities so close together is based on their business plan. Once Sable starts accepting water from a major exploration and production (E&P) operator they want to be able to guarantee all operators disposal capacity. Disposal wells "have to go down for maintenance...go down for work within the wellbore from time to time". If Sable had an isolated disposal well and guaranteed an operator disposal capacity and then had to take that well offline, Sable would have to turn customers away to other facilities. With the redundancy model, if Sable had to take one of their wells off-line for any reason, customers can be diverted to one of Sable's other facilities "without incurring too much hauling, too much over-the-road time, and not having to put them into someone else's hands...Sable has never had to send a trucker or one of their customers to someone else's facility...clients like that sense of security."

Sable entered into a two-year agreement with Murphy Oil and Gas (Murphy) to accept 100% of Murphy's water from their field in the Karnes County area. Murphy has a problem with disposal capacity in their East Tilden Field, located in eastern Atascosa County. As a result, Murphy had to choke back their wells because they can not dispose of all of the produced water. Sable has started accepting Murphy's water from the East Tilden Field. Sable is currently disposing of this water at their Kenedy facility. The proposed Aust No. 1 facility would reduce the overall truck time on the roads. Sable estimated daily disposal volumes of 13,000 bpd for Murphy from their East Tilden Field. Sable does not have sufficient capacity at this time to handle an additional 13,000 bpd. Both the KAR-25 and KAR-10 are operating at or very near capacity. As a result, Sable recently purchased the KAR-11 facility which has a 25,000 bpd permitted volume. However, this facility is unable to operate at that volume. In Mr. Bates opinion, the proposed Aust No. 1 would be in the public interest as there is a current demand for more disposal capacity. Sable has an immediate 13,000 bpd demand from Murphy at this time for disposal at the Aust No. 1.

Sable has numerous current SWD customers as well as haulers for all three of their active disposal wells in Karnes County. Current customers in Karnes County include Marathon, Murphy, Pioneer, Freeport-McMoRan, EOG Resources, and Devon Energy. One of the commercial haulers is Stephens Trucking. Scott Mellman, Senior Director of Operations with Stevens Trucking (Stevens) stated that there is a strong partnership with Sable due to Sable's footprint in the Eagle Ford area. In Mr. Mellman's opinion, Stevens use Sable's facilities based on their footprint, and Sable's reputation as an extremely safety-conscious company. Mr. Mellman stated that it is important when you provide a rate to a customer that there is available capacity nearby. If there is nowhere to dispose of that water, you incur additional mileage or a higher disposal costs because you can't control those costs any more.

Stevens operate between 20 and 25 trucks in Karnes County on a daily basis due to demand. Stevens currently hauls water for Murphy in the Tilden Field as well as the Caterina and Kenedy Fields. Stevens currently haul water to the Sable Kenedy facility from the Caterina Field. Stevens also currently hauls 100% of Murphy's water from the Kenedy Field. On a daily basis, Stevens takes in excess of 20,000 bbl of water from the East Tilden Field for disposal and estimated the volume will continue to grow. In Mr. Mellman's opinion, Stevens can operationally haul more water but there has been a disposal capacity issue and wells in the Tilden Field are being choked back "since there are not enough avenues to dispose of water." Mr. Mellman stated that Stevens currently hauls water from the Tilden Field on Highway 99 that bypasses the location of the proposed Aust No. 1 facility. If the Aust No. 1 permit were granted, it would save Stevens on truck travel time and mileage, while also preventing truck traffic from the Tilden Field through the towns of Kennedy and Karnes City. Mr. Mellman testified that the High Roller facility near the proposed Aust No. 1 was shut down for some time recently and this had a large effect on Stevens' hauling business, resulting in higher costs incurred by Stevens to continue servicing the E&P companies. In Mr. Mellman's opinion, the Aust No. 1 well is needed and in the public interest.

Protestants' Evidence

The application is protested by adjacent surface owners: William Tipton, Tipton Land Holdings, LLC, Jimmy Ray Holland, and John Dupnik. Nearby landowners Eric Opiela, Jerry Vaidos, Teresa Vajdos-Belcher, Shirley Adams, also appeared at the hearing in protest of the application. The Protestants have two primary concerns: 1) Sable's application is not in the public interest as there is not an industry need for the well as there is already sufficient capacity in the area; and 2) this area is in a floodplain and Sable cannot show that the well will not harm surface water.

The Protestants expert engineering witness, Thomas Richter (Mr. Richter), a registered professional engineer in the State of Texas, conducted a study on disposal well permits and operations using the Commission's information and database. In Mr. Richter's opinion, the proposed Aust No. 1 disposal well is not in the public interest since there are 22 disposal wells in

active operation within Karnes County.¹⁰ In addition to the 22 active wells, there are an additional 12 active disposal well permits in Karnes County. In total, there are 34 permitted commercial saltwater disposal wells on Karnes County. The total permitted capacity of the 34 permitted commercial disposal well applications in Karnes County is 683,000 bpd. According to the H-10 and P-18 data Mr. Richter analyzed, the actual average daily disposal volume was 102,730 bpd which represented 15% of the current permitted capacity of all permitted commercial disposal well applications. This daily disposal volume represented approximately 24.3% of the current maximum permitted capacity of the 22 active commercial disposal wells in Karnes County.

In Mr. Richter's opinion, disposal well operators can inject up to the maximum permitted capacity and the only reason that facilities do not dispose of the maximum permitted capacity per day is due to an insufficient volume of water transported to the facility. As an example, the Enaqua Cat Kenedy Lease in Karnes County disposed of an average of 17,681 bpd or 71% of the maximum permitted disposal volume for the month of July, 2013.

In Mr. Richter's opinion, the tubing diameter in disposal wells affects the volume of water that can be disposed of, as well as the porosity, permeability, and total thickness, or height, of the injection interval. According to Mr. Richter, a well with 2 7/8- inch tubing can easily dispose of 10,000 bpd, a well with 3 1/2-inch tubing can dispose of 18,000 to 20,000 bpd, and a well with 4 1/2-inch tubing can dispose up to 30,000 bpd.¹¹ On cross-examination, Mr. Richter stated that wait time may have a bearing on disposal well operations in the field and wait time is affected by the number of bays available at a facility to unload water. Mr. Richter also acknowledged that the formations chosen for disposal also play a role in how much water can be disposed of.

There are a total of six commercial disposal wells in Atascosa County within a 12 mile radius of the proposed Aust No. 1, two of which are within 10 miles. The total permitted volume of the six wells is 125,000 bwpd. Of these six wells, three are actively accepting water (have a P-18 on file with the Commission). Based on a three month period, the per month average disposal volume was 8,950 bpd, which represented 7.2% of the total permitted capacity of the 6 permits. When only considering the three wells reporting P-18 volumes, the average volume reported represented 14.2% of the total permitted capacity for the wells with a P-18 on file.

In support, Mr. Richter noted that the Commission denied the Application of Karnes County Properties, LLC for a commercial disposal well for the KC SWD Lease, Well No. 1 in the Eagleville (Eagle Ford-2) Field, Karnes County Texas in Final Order No. 02-2788322.¹² Substitute Findings

¹⁰ Thomas Richter, P.E. defined disposal well in active operation as wells that have either filed an H-10 or a P-18.

¹¹ Tr. Vol. 2, 26.

¹² William Tipton Exhibit No. 8

of Fact No. 5 found that the well was not in the public interest. In Mr. Richter's opinion, Sable's current application and that of Karnes County Properties, "as far as statistics are concerned are almost identical" in terms of permitted commercial disposal wells and actual disposal volumes.¹³ Specifically:

- (A) Final Order No. 02-278322, Substitute Findings of Fact 5 (c):
 - (I) There are 17 permitted commercial disposal wells within 10 miles of the proposed disposal well location, whereas in the current application there are 20 permitted commercial disposal wells within 10 miles; and
 - (ii) actual disposal volumes are 5.2%, whereas in the current application it is 10.6%;
- (B) Final Order No. 02-278322, Substitute Findings of Fact 5 (d):
 - (I) There are 6 permitted commercial wells within 5 miles of the proposed disposal well location, the same number as the current application; and
 - (ii) The permitted daily capacity of the 6 permitted commercial wells within 5 miles of the proposed disposal well location is 150,000 bpd with actual disposal volumes of 8,000 bpd, or 5.2% of capacity. In the current case the permitted maximum daily capacity is 145,000 bpd, with an actual daily disposal volume of 5,980 bpd, or 4.1%.
- (C) Final Order No. 02-278322, Substitute Findings of Fact 5 (e):
 - (I) There are, on average, permitted commercial disposal wells every 25 square miles in Karnes County, in the current case this number is 22.3 square miles;
 - (ii) There are, on average, permitted commercial disposal wells every 18 square miles within a 10 mile radius, in the current case this number is 15.7 wells; and
 - (iii) There are, on average, permitted commercial disposal wells every 13 square miles within 5 miles of the proposed disposal well, the same number as the current application.

The proposed location of the Karnes County Properties, LLC disposal well in Final Order No. 02-278322 was 4.8 miles from the proposed location of the Aust No. 1 in the current application.

¹³ Tr. Vol. 2, 36.

In Mr. Richter's opinion, there is no difference between the application in Final Order No. 02-0278322 and Sable's current application.

On cross-examination, differences between the current application and the subject application in Final Order No. 02-0278322 were noted:

- 1) Substitute Finding of Fact 5(a) Karnes County Properties, LLC's sole owner had no experience with disposal wells and did not identify any knowledgeable management team.¹⁴ In Mr Richter's opinion "Sable knows what they are doing"¹⁵; and
- 2) Substitute Finding of Fact 5 (f) the proposed disposal well is within a few hundred feet of the Karnes City, city limit and within the extra territorial jurisdiction (ETJ) of Karnes City.

The Applicant asked the Examiners to take official notice of Oil and Gas Docket No. 02-0281299, in which the Commission granted Nor-Tex a disposal permit in November, 2013. Findings of Fact in Oil and Gas Docket No. 02-0281299 included:

- a) A significant percentage of area disposal permits are issued to speculators with no intention to build or operate;
- b) An additional percentage of the area permits are issued to operators that do not have the expertise or capital to build and operate facilities;
- c) There is no way to predict which, if any, permitted facility will be built and put into operation; and
- d) The Applicant had the facilities in place and had the expertise, capital, and commitment in ready demand.

After cross examination on the Findings of Fact in Oil and Gas Docket No. 02-0281299 and Commission's approval of the Nor-Tex permit application, Mr. Richer stated "I believe it supports your (Sable's) position."¹⁶

On re-direct examination, Mr. Ritcher reasoned that the Nor-Tex well had already been drilled and previously issued a permit, which may have been factors considered by the Commission

¹⁴ Final Order, Oil and Gas Docket No. 02-0278322

¹⁵ Tr. Vol. 2, 82.

¹⁶ Tr. Vol. 2, 88.

in granting the permit. In Mr. Richter's opinion, the current case is more analogous to the Karnes Property LLC case than the Nor-Tex case.

Mr. Richter studied the number of drilling permits issued in Karnes County on a quarterly basis from January 1, 2012, through the first two months of 2014. Over this time period there were 1,302 drilling permits issued and 1,112 well completions. In Mr. Richter's opinion, the number of drilling permits in Karnes County are declining. Mr. Richter interpreted the number of completions "being the same across the board," as there were 96 drilling permits issued from January 1, 2014, to March 1, 2014, and 96 wells were completed during this same time frame.¹⁷ Of these 1,112 well completions 256 were gas well completions, representing 23% of the total wells completed.

Mr. Richter compared the initial potential test data (IP test) reported on Form W-2 to the subsequent W-10 test for 25 wells in the Eagleville (Eagle Ford-2) Field. Based on Mr. Richter's analysis, the wells make a lot of water initially after hydraulic fracture stimulation, but the amount of water produced is largely dependant on how the operator completes the well in terms of volume of water; frac fluid type. In Mr. Richter's opinion, "these shales do release their frac water pretty quick and in a short period of time...the shale does not have the formation water that you would get with a sand... it just doesn't have the water in it because it is a shale."¹⁸ Of the 25 wells studied, 23 of the 25 wells experienced at least an 80% decline in water production based on water volumes reported on the IP test as compared to the W-10 daily water production reported. The time period between these two reporting test dates varied between one month to 14 months for these 23 wells. In Mr. Richter's opinion, most of the water disposed of is frac flowback water rather than native formation water.

Mr. Richter also studied 19 gas wells permitted in the Sugarkane (Eagleford) Field in Karnes County. Mr. Richter concluded that gas wells in the Sugarkane (Eagleford) Field flowed back less water than oil wells in Eagleville (Eagle Ford-2) Field and concluded that the primary source of water production in the Eagleford Shale Formation is frac flowback water. "The frac water flows back relatively fast...probably within a month to three months, four months...looking at 85% to 90% ... flowback water has declined to that point...tells me the shale does not contain a lot of formation water."¹⁹

In Mr. Richter's opinion, the volume of produced water in the area will "always be the same because as you've got these older frac job flowbacks diminishing over time, that water production

¹⁷ Tr. Vol. 2, 43.

¹⁸ Tr. Vol. 2, 51.

¹⁹ Tr. Vol. 2, 51

is now gone and going back down to what I call the baseline.. could be 10 barrels... 20... 30 barrels a day versus the newer wells coming on that do need to get the frac water.”²⁰

Regarding Sable’s inclusion of a spill protection control and countermeasure plan (SPCC) with the Aust No. 1 application, Mr. Richter stated he was not aware of any other cases he has participated in where the Applicant has submitted these documents. On cross-examination, the Applicant pointed out that Nor-Tex submitted an SPCC plan to the Commission for consideration in Oil and Gas Docket No. 02-0281299.

William Tipton’s Evidence

William Tipton is a Protestant in the case, both as an adjacent landowner to the tract where the proposed Aust No. 1 will be located, as well as representing Tipton Land Holdings, L.L.C in which William Tipton is one-half owner. Mr. Tipton owns property to the north, south, east and west of the proposed Aust No. 1 location. Mr. Tipton uses the surface of his property to raise cattle, as well as for family recreational use, including hunting and fishing.

In Mr. Tipton’s opinion, the Escondido Creek starts at CR 626, where it flows under the road, and the creek goes through the property lines between the Aust, Holland, and Tipton tracts.²¹ According to Tipton, water runs downhill and tends to aggregate at a water crossing on CR 185. Mr. Tipton estimated a “big flood” occurred every three years and Mr. Tipton is worried that contaminants from the proposed disposal well could get into surface waters and cause pollution.

Mr. Tipton has a water use agreement with Marathon that gives Marathon the right to use water from Mr. Tipton’s property for Marathon’s oil and gas operations. Mr. Tipton estimated as much as 100 acres of his 3,000-plus acres is located in a floodplain, and over half of Ms. Aust’s property is in the flood plain. On cross-examination, Tipton testified that he has not set foot on Ms. Aust’s property, but has walked around it, and has not personally performed a study in regards to what is and what is not in a flood plain.²²

In response to the flare described by Ms. Aust that is visible from her property, Mr. Tipton testified that “there is a ton of production going on in this area and with that production, one, they can’t use all the gas, so they are burning it. And it appears to me that it’s not consistently flaring up

²⁰ Tr. Vol. 2, 59.

²¹ The Applicant and Protestant differ on the definition of the stream bed that passes through the Aust and Tipton properties. The Protestants refer to this creek bed as the Escondido Creek, while the Applicant considers this to be an ephemeral stream and a tributary of the Escondido Creek.

²² Cross-examination testimony of William Tipton, Tr. Vol. 2, 171-173.

but it appears that when they bring on a new well in this chain of wells...that is when you will get a surge... so it does happen.”²³

Marathon operates a gas processing facility adjacent to Highway 99 on property that was purchased from Mr. Tipton.^{24,25} The gas facility is a centralized facility that services upwards of 40 wells, 18 of which, are wells on Tipton’s property. Mr. Tipton estimated he has six to seven pipeline easement agreements with Marathon. The pipelines run to the gas processing facility on the southwest corner of Tipton’s property. Tipton estimated receiving royalties on approximately 18 producing wells. The pipelines easements on Tipton’s property are buried and do not interfere with Mr. Tipton’s use of his property.

Tipton acknowledged benefitting from oil and gas operations in and around Karnes City, and would not want to hinder these operations. When Hillcorp, the predecessor to Marathon approached Mr. Tipton, he responded “I will be a tag-along with you folks because I know you’re here to build the infrastructure for a really huge process in Karnes County. So whatever I can do, willing and able I will do it.” Mr. Tipton has provided land to Hillcorp for a pumping station. Mr. Tipton also provided a water storage pit to Hillcorp, and now Marathon, to store water to use for hydraulic fracturing for which Mr. Tipton is compensated.

Mr. Tipton has observed oil and gas trucks on his property, usually traveling on CR 99. Mr. Tipton described the traffic on CR 185 as “light” and if the disposal well is permitted, the increase in truck traffic on CR 185 “would be an intrusion of our quality of life.” Mr. Tipton agreed that some saltwater disposal wells are necessary in the oil and gas industry. Mr. Tipton’s particular concerns with the proposed Aust No. 1 well are that he and his family enjoy their property and the recreational uses it provides. Mr. Tipton is concerned about the diminishing the value of both the surface and subsurface of his property. Mr. Tipton is also concerned that injected fluids might encroach into the subsurface of his property.

Protestant Jimmy Ray Holland owns 57.65 acres adjacent of the Aust lease to the north. Mr. Holland bought the land in 1972, and moved there in 1980. According to Mr. Holland, if truck traffic increases to 192 trucks per day he will not be able to stay on that road.²⁶ In Mr. Holland’s opinion, the proposed disposal well will decrease the value of his land. Mr. Holland has observed

²³ Tr. Vol. 2, 142.

²⁴ Tipton sold 8 plus acres to Hillcorp, the predecessor to Marathon, approximately in 2011 for the gas processing plant.

²⁵ In October, 2013 Tipton sold more than two acres of land to Marathon next to the gas processing plant location as Marathon needed to expand their pumping facility.

²⁶ Tr. Vol. 2, 187.

approximately 10 occurrences since he's owned the land where the water has been "4 feet deep for about 60 yards crossing the road" and has seen water crossing the road for "about 200 yards on Mr. Opiela's property."²⁷

Mr. Holland counted the number of trucks on CR 185 between 8 am and 8 pm between the first and second hearing dates (March 19 and March 24, 2014) on the subject case. Mr. Holland concluded that most of the trucks were pick-up trucks, and observed one "18-wheeler" and one water truck. On cross-examination, it was established that Mr. Holland lives further north on CR 185 than the facility will be located and in the Applicant's opinion, trucks will be traveling from CR 99 to the facility on CR 185 and will not pass by Mr. Holland's house. Mr. Holland owns an interest in six producing wells in the area.

Observer Jerry Vajdos lives on CR 209, which is parallel to CR 185. Mr. Vajdos' home is approximately 500 yards west-northwest of the proposed Aust No. 1 location. Mr. Vajdos' main concerns are pollution from noise, traffic, dust, odors, and lights at night, as well as groundwater pollution. According to Mr. Vajdos, there are two saltwater disposal wells in the neighborhood already, one approximately 3.5 miles east of Aust No. 1 site on FM 99, the other is approximately 2.5 miles north of the Aust No. 1 location on FM 99. From Mr. Vajdos's personal observation, neither disposal wells "do much business and (there is) no need for an additional saltwater well in the area."²⁸ Mr. Vajdos's family has owned, operated, and lived on this ranch for 100 years and does not want to move due to pollution or any other reason. On cross-examination, it was established that Mr. Vajdos property is across from Mr. Tipton's property. Mr. Vajdos has an interest in four wells in the nearby area and is receiving royalty checks as a result of production.

Observer Eric Opiela testified in both a personal capacity as well as trustee of the Rose Trust, which is the owner of approximately 300 acres on CR 185, north of the proposed disposal well location. One concern is the large increase in traffic on CR 185 if application were to be approved. In Mr. Opiela's opinion, there are two "very hard" to negotiate water crossings on CR 185. One is located due south, or near, the proposed disposal well location. "It is not a bridge, it is a concrete, paved-over area in the bed of a creek that floods every time it rains."²⁹ There is another bridge adjacent to Mr. Opiela's property that has flooded in the past. Mr. Opiela has personally observed the creek leave its banks south of the subject application location on CR 185 as well as across from Mr. Opiela's property.

Mr. Opiela is also concerned that any traffic related to proposed facility could have the potential to create spills along the roads if a truck were to navigate the roads in a rainy or flooded

²⁷ Tr. Vol. 2, 187-188.

²⁸ Tr. Vol. 2, 193.

²⁹ Tr. Vol. 2, 198.

condition. Mr. Opiela is also concerned with the potential for surface water contamination, as according to Mr. Opiela, the county has no ordinances related to preventing surface water contamination and development in a floodplain.³⁰ In Mr. Opiela's opinion, if the facility is not properly designed to properly contain oil field waste during flood conditions, the waste could flow downstream in the Escondido Creek, impacting adjacent landowners as well as the water supply of Kennedy.

Marathon operates approximately 12 wells on Mr. Opiela's property. According to Mr. Opiela, Marathon has been a very responsible operator. Mr. Opiela also testified that there is water recycling, estimated at 10,000 bpd, occurring at the Marathon's Sugarhorn Facility on Mr. Tipton's land. Therefore, other options are available for disposal that are actively utilized by Marathon and other operators in the area. Mr. Opiela does not believe there is a public need for this facility and is concerned about the close proximity to Escondido Creek.

Motion to Reopen Record for Additional Evidence

On May 29, 2014, the Examiners received a *Motion to Reopen the Record for Additional Evidence* from William Tipton and Tipton Land Holdings, LLC (Tipton) which sought to have admitted an affidavit in support of five photos documenting a rainfall event which occurred "across County Road 185" and "around Escondido Creek" on May 9, 11, and 27, 2014.

On June 3, 2014 the Examiners received Sable's Response to the *Motion to Reopen Record for Additional Evidence* and Sable's additional responsive evidence. Sable also sought to have admitted an affidavit in support of five photos taken by Sable documenting the condition of the same locations depicted in the Tipton photos. Sable's photos were taken on June 1, 2014.

On June 5, 2014 the Examiners issued a ruling on the admission of post-hearing exhibits and reopened the hearing for the limited purpose only of admitting the affidavits and photos submitted by the two parties.

EXAMINERS' OPINION

The Examiners recommend that the application for commercial disposal authority pursuant to Statewide Rule 9 for the for the Aust Lease, Well No. 1, Eagleville (Eagle Ford-2) Field, Karnes County, Texas, be approved.

Pursuant to Texas Water Code § 27.051(b), the Commission has authority to permit disposal and injection wells if it finds:

³⁰ Tr. Vol. 2, 201.

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

In the Examiners' opinion, Sable has met its burden to demonstrate that the proposed disposal well satisfies these four statutory requirements.

Protection of Oil, Gas, or Other Mineral Formations

The well construction of the Aust No. 1 and the impervious formations between the disposal interval and hydrocarbon-bearing formations will ensure that the use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation. The 9 5/8-inch surface casing will be set below the BUQW, but not more than 200 feet below the BUQW in accordance with Statewide Rule 13. The surface casing will be cemented in place with cement circulated to surface. Either 5.5-inch or 7-inch long string casing will be set to a depth of 14,100 feet. The long string of casing will be cemented with cement circulated to surface, unless high porosity and permeability sections are encountered when drilling through the Edwards and Glen Rose Formations which indicate the formations may not hold a full column of cement. In this scenario, a multi-stage cementing DV tool will be used to ensure zonal isolation behind the long string casing. Tubing (4.5-inch) will be run inside the long string casing and a packer will be set at a depth of 11,950 feet.

Injection in the Aust No. 1 at a depth of 12,000 feet to 14,000 feet will be into the Edwards Formation and possibly the Glen Rose Formation. The Del Rio and Georgetown Formations will be confining layers to keep injected fluids from the productive Eagleford Formation, which is being hydraulically fracture stimulated in the area. The hard, tight characteristics of the Georgetown Formation were consistent across a seven mile well log cross-section. Offset log analysis indicates the thickness of the Georgetown Formation to be between 130 feet and 140 feet at the proposed location of the Aust No. 1 well. The offset well logs show the Del Rio Formation located above the Georgetown Formation consists of 20 to 30 feet of shale which will also act as a barrier between the injection interval and the productive Eagleford Formation. Examination of all wells drilled within a one-quarter mile and a one-half mile radius of the Aust No. 1 well reveals that no wellbores have penetrated the disposal interval from 12,000 feet to 14,000 feet that could act as a potential conduit for injected fluids to migrate to the productive Eagleford Formation.

Protection of Ground and Surface Water from Pollution

(I) Groundwater

In the Examiners' opinion, with proper safeguards, groundwater can be adequately protected from pollution. The GAU identified the BUQW at a depth of 5,800 feet at the proposed Aust. No. 1 location. As detailed in the previous section, surface casing will be set below the BUQW in accordance with Statewide Rule 13. Long string casing will be set at a depth of 14,100 feet and cemented in place. The Del Rio and Georgetown Formations will be confining layers above the injection interval of 12,000 feet to 14,000 feet to keep injected fluids confined to the injection interval. Tubing will be run inside the long string casing and a packer will be set at a depth of 11,950 feet.

(ii) Surface Water

In the Examiners' opinion, with proper safeguards surface water can be adequately protected from pollution. The Protestants are concerned that the Aust No. 1 will cause pollution of surface water. In the Examiners' opinion, with proper safeguards surface fresh water can be protected from pollution. The Aust No. 1 will be located approximately 200 to 300 feet from an ephemeral stream bed, located eight to twelve feet below the land surface of the surrounding area. The ephemeral stream is a tributary of the Escondido Creek. The stream bed does not have a contributing source other than rainfall. The Aust. No. 1 wellhead is designed as a closed system in which the wellhead is sealed and therefore, the functionality is not affected by outside factors or conditions. As an additional level of protection to prevent the pollution of surface water, the wellhead will not be located within the 100 year flood plain.

Sable's environmental engineering expert witness stated that the design of the facility will incorporate a further protective measure in that the facility lanes will be raised above the 100-year flood plain level. Protestant Mr. Tipton testified that Marathon's gas processing plant site is surrounded by the flood plain on two sides, and that the site of the plant is elevated. Other oil and gas-related operations have been conducted in the area including landfarming, drilling and completion of wells, water pits located on well pad locations, as well as gas flaring at well sites. There is no evidence in the record that any surface water pollution has occurred as a result of any oil and gas activities in the immediate area surrounding the Aust property. The Examiners recommend Sable's proposed raising of the facility lanes above the 100-year flood plain be included as a permit condition.

Protestant Mr. Tipton opined that over half of Aust's property is located in the 100-year plain, but has not stepped foot on the Aust property and has not performed an actual study. Surface owner Ms. Aust testified that she has owned the property where the Aust. No. 1 will be located since 2008. During this time. Ms. Aust testified that she has never seen flooding on the 10 acres of her

land that is leased to Sable. This 10 acres is located to the west and up-gradient of Ms. Aust's 10 acres of land to the east that shares a common fence-line with Protestant Mr. Tipton.

Tipton Exhibits A-1 to A-5 did not indicate where the proposed Sable location was in relation to the photographs admitted into the record. These exhibits only referenced the Aust property as a whole, of which only the western 10 acres are leased to Sable. A low water crossing on CR 185 has been acknowledged by both Applicant and Protestants' witnesses. Sable's witness testified that trucks entering the facility from FM 99 headed north on CR 185 will not cross this low water crossing. In summary, in the Examiners' opinion, surface water can be adequately protected from pollution with proper safeguards.

Public Interest

In the Examiners' opinion, the Aust No. 1 disposal well is in the public interest.³¹ The Applicant's evidence included a client list of both current SWD haulers and SWD customers that Sable currently work with at their existing facilities in Karnes County. The Applicant has entered into a two-year agreement with an operator to accept 100% of all water produced from this operator's wells in a field in the Karnes County area. The Applicant's witness testified that this producing well operator had to choke back producing wells in the East Tilden Field due to a lack of available disposal capacity in the area. The Applicant's witness testified that there is an immediate need for an additional daily disposal volumes of 13,000 bpd for this particular operator in the Karnes County area. The Applicant does not have sufficient capacity to handle an additional 13,000 bpd with its existing facilities in the Karnes County area. A water hauler in the Karnes County area testified that their hauling costs had increased as a result of a single nearby disposal well encountering down time due to well issues.

The Applicant and Protestant provided different Commission Final Orders to support their position regarding a need for additional commercial disposal capacity in the Karnes County area. The Protestant compared the current case to that of Karnes County Properties, LLC as evidence to show that additional capacity is not needed in the area.³² In the Examiners' opinion, the current case differs from the Substitute Findings of Fact in the Karnes County Properties, LLC case. In particular, Substitute Findings of Fact 5(a), where the sole owner had no experience with disposal wells and did not identify any knowledgeable management team, as well as 5(f), where the proposed disposal well was within a few hundred feet of Karnes City's city limit and within the city's extraterritorial jurisdiction. In this application, Sable is an established disposal well operator with experience operating disposal wells. The Applicant also has an existing need for an additional disposal volume of 13,000 bpd in this particular area. This location is not located within the ETJ

³¹ The "public interest" finding required by Texas Water Code 27.051(b) is limited to matters related to oil and gas production, and does not include issues such as traffic safety and road conditions.

³² Final Order, Oil and Gas Docket No. 02-0278322, May 7, 2013.

of Karnes City. This location is surrounded by oil and gas operations with gas flaring visible from the proposed location.

The Applicant referred to a more recent Commission approval of Nor-Tex Resources, L.L.C.'s application of a commercial disposal permit in Karnes County to support its application in the current case.³³ The Protestants opined that this application may have been approved due to the fact that the well had already been drilled. The Examiners disagree with this opinion. Any operator may drill a well if issued a drilling permit by the Commission. All disposal well applications must meet the requirements of Statewide Rule 9 and Chapter 27 of the Texas Water Code. Regardless whether a well has already been drilled, the well must meet the requirements set forth by the Commission in order to be granted a permit.

Lastly, in the Examiners' opinion, injection into the Edwards and Glen Rose Formations as opposed to the Wilcox Formation is in the public interest. The Applicant's evidence showed that the majority of disposal wells in the area are permitted for injection into the Wilcox Formation, which is located above the productive Eagleford Formation. Granting this permit to inject fluids into the Edwards and Glen Rose Formations would reduce the potential of over-pressurization of the Wilcox Formation in the future. If the Wilcox Formation were to become over-pressured at some point in the future it could result in additional well construction costs and considerations.

Financial Responsibility

The Examiners conclude that Sable has made a satisfactory showing of financial responsibility as required by Section 27.073 of the Texas Water Code. Sable has the expertise to build and manage the proposed well as well as experience operating commercial disposal wells. Sable has a current approved Form P-5 (Organization Report) and a \$25,000 cash deposit for financial assurance. There is no evidence to suggest any current active enforcement matters involving Sable.

FINDINGS OF FACT

1. Sable requests commercial disposal authority pursuant to Statewide Rule 9 for the Aust Lease, Well No. 1, Eagleville (Eagle Ford-2) Field, Karnes County, Texas.
2. Notice of the Sable's original application was published in the *Karnes Countywide* a newspaper of general circulation, in Karnes County, Texas on May 22, 2013. On January 29, 2014 notice of Sable's amended application was published on page 38 of the *Karnes Countywide*.

³³ Final Order, Oil and Gas Docket No. 02-0281299, November 26, 2013.

3. Notice of the application was sent to the Karnes County Clerk, offset operators within one-half mile, the owner of the surface tract where the proposed disposal well will be located, and adjacent surface owners to the tract where the proposed disposal well will be located.
4. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution.
 - a. The Commission's GAU recommends that useable-quality water be protected from the land surface to a depth of 5,800 feet. In conformity with this recommendation:
 - i. 9 5/8-inch surface casing will be set at 5,900 feet, 100 feet below the BUQW, in accordance with Statewide Rule 13 and the surface casing will be cemented in place with cement circulated to surface;
 - ii. 7-inch long string casing will be set to a depth of 14,100 feet with cement circulated to surface or a multi-stage cementing tool will be set above the Austin Chalk Formation and casing will be cemented in place with a multi-stage cement job;
 - iii. 4 1/2-inch tubing will be run inside the long string casing and a packer will be set at a depth of 11,950 feet;
 - iv. Injected fluids will be confined to the Edwards and Glen Rose Formations with a permitted interval from 12,000 feet to 14,000 feet;
 - v. There are no wellbores within a one-quarter mile or one-half mile radius of the proposed disposal well location that penetrate the proposed disposal interval;
 - vi. The maximum surface injection pressure will be 6,000 psi; and
 - vii. The maximum daily injection volume will be 25,000 bpd.
 - b. The Aust No. 1 wellbore will not be located within a 100 year flood plain;
 - c. The wellhead is designed as a closed system and not open to outside factors or conditions; and

- d. There is no evidence of surface pollution occurring as a result of various oil and gas operations in the area surrounding the proposed disposal well location.
5. The use or installation of the disposal well will not endanger or injure oil, gas, or other mineral formation.
 - a. Injected fluids will be confined to the Edwards and Glen Rose Formations between 12,000 feet and 14,000 feet;
 - b. The productive formation in the area is the Eagleford Formation, located above the disposal formations; and
 - c. The Georgetown Formation is 100 feet to 130 feet thick and the Del Rio Shale is 20 feet to 30 feet thick at the Aust. No. 1 location that will act as barriers between the disposal interval and the Eagleford Formation to confine injected fluids to the disposal interval.
 6. The use or installation of the injection well is in the public interest.
 - a. Sable has an immediate need for an additional daily disposal volumes of 13,000 bpd for an operator in the Karnes County area.
 - i. Sable does not have sufficient capacity to handle an additional 13,000 bpd with its existing facilities in the Karnes County area;
 - ii. Sable has first-hand knowledge that one of their disposal wells in the Karnes County area can not dispose of the maximum daily permitted volume;
 - iii. A disposal well permit may be granted before a well is drilled;
 - iv. There are 21 commercial disposal permits within a 20-mile radius of the Aust No. 1 location that have not been activated. This permitted disposal volume is unavailable until the well and permit are activated;
 - v. Disposal well injection rates are limited by the maximum permitted surface pressure to ensure injection rates are below fracture initiation pressures;

- vi. Maximum permitted disposal well volumes are not based on actual measured volumes.
 - b. A single disposal well down for maintenance in the Karnes County area resulted in increased water hauling costs for Stevens Trucking.
7. Sable has made a satisfactory showing of financial responsibility.

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 § 3.9.
3. The proposed fluid disposal operations will not cause the pollution of freshwater strata and will not endanger oil, gas or geothermal resources. 16 TEX. ADMIN. CODE § 3.9.
4. The installation and use of the proposed commercial disposal well is in the public interest. Texas Water Code § 27.051(b)(1).
5. Sable Environmental, LLC 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 Sable Environmental, LLC for commercial disposal authority pursuant to Statewide Rule 9 for the Aust Lease, Well No. 1, Eagleville (Eagle Ford-2) Field, Karnes County, Texas, be approved, as set out in the attached Final Order.

Respectfully submitted,


Karl Caldwell
Technical Examiner


Laura Miles-Valdez
Legal Examiner

Attachment A

Proposed
Wellbore Sketch
Sable Environmental, Inc.
Aust #1
Karnes County, Texas

1

