RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

PROPOSAL FOR DECISION

OIL & GAS DOCKET NO. 08-0297349

THE APPLICATION OF SBHES PECOS SWD, LLC, PURSUANT TO STATEWIDE RULE 9 FOR A PERMIT TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A POROUS FORMATION NOT PRODUCTIVE OF OIL AND GAS, SBHES PECOS SWD LEASE, WELL NO.1, REEVES-BLOCK 4 (DEL. 4430) FIELD, REEVES COUNTY, TEXAS

HEARD BY: Richard Eyster,P.G. – Technical Examiner
Ryan Lammert – Administrative Law Judge

APPEARANCES:	**REPRESENTING:**
APPLICANT:	SBHES Pecos SWD, LLC
Stephen Fenoglio	Attorney
Justin McIntosh	Consultant
James Cartwright	Project Manager
Kerry Pollard	Petroleum Engineer
PROTESTANTS:	Ava Gerke, Bret Walker, Jeff Rogers
Jay B. Stewart	Attorney
Wesley P. McGuffey	Attorney
Ryan McNeel	Attorney
Josh Tatum	Marketing Consultant

PROCEDURAL HISTORY

Application Filed:	May 05, 2015
Protest Received:	May 7, 2105
Request for Hearing:	July 10, 2015
Notice of Hearing:	December 15, 2015
Hearing Held:	January 4, & 5, February 6, 2017
Transcript Received:	February 21, 2017
Remanded to UIC Staff:	February 21, 2017
Closings:	March 13, 2017
Replies:	April 04, 2017
UIC Seismic Report:	July 05, 2017

Finacial Assurance Letter:	July 12, 2017
Record Closed:	July 25, 2017
Proposal For Decision Issued:	August 1, 2017

STATEMENT OF THE CASE

SBHES Pecos SWD, LLC ("SBHES") is seeking authority pursuant to Statewide Rule 9 (16 Tex. Admin. Code §3.9) to dispose of oil and gas waste by injection into a formation not productive of oil or gas on the SBHES Pecos SWD (Salt Water Disposal) Lease, Well No.1, (Well No.1) Reeves-block 4 (Del. 4430) Field, Reeves County, Texas. The proposed injection well is located on 29.4 acres, approximately 4.5 miles west of Pecos, in Reeves County.

SBHES seeks commercial authority to dispose of 25,000 barrels per day (bbls/d) of produced saltwater and RCRA-exempt waste fluids[1] into the Brushy Canyon Formation. SBHES had initially proposed to inject into the Brushy Canyon Formation from 6,250 feet to 7,510 feet. However, at the hearing SBHES stated that the top 150 feet of the injection interval from 6,250 to 6,400 feet is a highly cemented shaly limestone that will be used as the impervious cap above the injection zone. Therefore, SBHES has proposed lowering the top of the proposed perforated injection interval from 6,250 feet to 6,400 feet.

On May 1, 2015, notice of the application was published in *The Pecos Enterprise,* a newspaper of general circulation in Reeves County, Texas. On May 5, 2015, SBHES notified the Reeves County Clerk, adjacent landowners and the operators of wells within one half-mile of the proposed disposal well. The proposed well is not located in the city limits of any city or town. The SBHES Pecos SWD Lease, Well No.1, (Well No.1) Reeves-block 4 (Del. 4430) Field, is located on a 29.4-acre lease about 4.5 miles West of Pecos, Texas.

The Technical Examiner and Administrative Law Judge (collectively, "Examiners") conclude SBHES has met its burden of proof under Chapter 27 of the Texas Water Code and the Commission's Statewide Rule 9, and recommend the application be granted and the commercial disposal permit issued.

STANDING

As drafted, SWR 9 defines—but does not absolutely limit—who an "affected person" is that is entitled to party status as a protestant of a SWR 9 application.[2] The rule makes clear that surface owners of property on which the proposed well is located are entitled

[1] 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.

[2] *See* 16 TEX. ADMIN. CODE § 3.9(E)(ii).

to party status, as are Commission-designated operators of wells located within one-half mile of the proposed disposal well.[3]

Conversely, SWR 9 excludes certain classes of persons entitled to protest an application.[4] For instance, a person who has suffered or will suffer actual injury or economic damage *other than as a member of the general public* is entitled to standing as a protestant; the logical conclusion being that the person must have suffered or will suffer actual injury or economic damage *specific* to that individual—otherwise, the person would not meet the definition of an "affected person", as defined in SWR 9.

At the onset of the hearing on the merits, SBHES challenged three of the Protestants' standing on the basis that they are either competitors or members of the general public: Zane Kiehne, George Mendoza, and Jeff Rogers.[5] Protestants opposed the motion and argued that they are engaged in nearby agricultural activities or otherwise have a vested interest in the area solely as concerned residents.[6]

Counsel for the parties stipulated as follows:

> 1. Mr. Rogers owns an interest in the surface estate of a tract of land immediately adjacent to the proposed surface location of the subject well (counsel argued that Mr. Rogers resides on the property and is engaged in farming thereon);
>
> 2. Mr. Mendoza does *not* own an interest in the surface estate of a tract of land immediately adjacent to the proposed surface location of the subject well—but owns property approximately 1 mile from the proposed location; and
>
> 3. Mr. Kiehne does *not* own an interest in the surface estate of a tract of land immediately adjacent to the proposed surface location of the subject well—but owns property approximately 1 mile from the proposed location.[7]

The Examiners conclude Mr. Rogers successfully established standing, but Mr. Mendoza and Mr. Kiehne failed to demonstrate a justiciable interest in the instant docket. Consistent with previous Commission decisions, a property owner near a proposed injection well must establish that he has suffered or will suffer actual injury or economic damage other than as a member of the general public. Testimony (or, other evidence) relating to *general* safety/pollution concerns is insufficient to establish actual injury or economic damage *specific* to an individual.

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[3] *Id.*

[4] *Id.*

[5] Tr., Vol. 1, pg. 12, lns. 3 – 21; *see* Tr., Vol. 1, pgs 17 -19.

[6] *See* Tr. Vol. 1, pgs. 15 – 17.

[7] *See* Tr. Vol. 1, pgs. 17 – 19.

Therefore, SBHES's Motion to Strike is hereby granted as it relates to Mr. Mendoza and Mr. Kiehne. SBHES's Motion to Strike is hereby denied as it relates to Mr. Rogers.

The application is protested by three adjacent landowners, Ava Gerke, Bret Walker and Jeff Rogers (collectively the "Protestants"). One of the three adjacent landowners, Jeff Rogers, has a royalty interest in a saltwater disposal well on his property operated by Wilson Systems Inc., a competing saltwater disposal company. Mr. Roger's injection well is located within a mile of the proposed injection well.[8] The protestants assert the well is not needed due to excess permitted capacity in the area. The Protestants also assert that the proposed injection well will bring additional traffic to the local roads which will contribute to the roads deteriorating, causing safety issues, dust, and noise.[9]

APPLICABLE LAW

Statewide Rule 9, Disposal Wells, states:

> *Any person who disposes of saltwater or other oil and gas waste by injection into a porous formation not productive of oil, gas, or geothermal resources shall be responsible for complying with this section, Texas Water Code, Chapter 27, and Title 3 of the Natural Resources Code.*

Statewide Rule 9, Section (5) (B), Notice and Opportunity for Hearing, states:

> *In addition to the requirements of subsection (a)(5)(A) of this section, a commercial disposal well permit applicant shall give notice to owners of record of each surface tract that adjoins the proposed disposal tract by mailing or delivering a copy of the application to each such surface owner (emphasis added).*

Texas Water Code, Chapter 27, and Title 3 of the Natural Resources Code states; The Railroad Commission may grant an application for a disposal well permit under Texas Water Code §27.051(b) 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.*

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[8] Tr. Vol. I, pg. 15 lns,14 to 15. SBHES Ex. Nos. 15 & 18.

[9] Tr. Vol. I, pg 26 lns,7-9.

DISCUSSION OF THE EVIDENCE

APPLICANT'S EVIDENCE

At the hearing, SBHES offered evidence and testimony from Kerry Pollard, P.E., petroleum engineer, Justin McIntosh, site construction manager, and James Cartwright, project manager for SBHES.

Well Design and Operation

The SBHES Pecos SWD Lease, Well No.1 will be drilled, completed and operated as follows;

- Surface casing (9 5/8-inch) will be set at 2,400 feet and cemented to the surface with 725 sacks of Class H cement;
- Long-string casing (7-inch) will be set to a depth of 7,610 feet and cemented with 445 sacks of Class H cement to a depth of 3,672 feet;
- SBHES will set 4 1/2-inch tubing with a packer at a depth of 6,300 feet, 100 feet above the top of the injection interval;
- The injection interval will be from 6,400 feet to 7,510 feet in the Brushy Canyon Formation;
- The maximum daily injection volume will be 25,000 bpd;
- The maximum surface injection pressure will be 3,125 pounds per square inch gauge ("psig");
- Injected waste will be limited to produced salt water and non-hazardous oil and gas waste exempt from regulation under the Resource Conservation and Recovery Act.

Facility Design

Mr. McIntosh stated that the facility would be designed to meet or exceed all Commission standards and will be able to adequately handle 25,000 barrels a day with the amount of tankage (14 tanks) planned for the facility. The facility will be able to unload four trucks at a time. Additionally, due to the size of the property, 30 to 40 trucks will be able to park on-site while waiting to unload which will prevent trucks from having to park on the the side of the county road while waiting to unload.[10] The proposed facility will also be able to take water by pipeline and eventually by rail.[11]

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[10] Tr. Vol. I, (Page 75. Lns,14 to 19. SBHES Ex. 7.

[11] Tr. Vol.1. pg 53, Ins, 5-14.

Geology and Resource Development

The proposed disposal zone is the non-productive Brushy Canyon Formation. There has been no production and no production tests that have been positive within five miles of the proposed location. There has been some oil and gas production within two miles from the Cherry Canyon Formation which is located above the Brushy Canyon Formation. There has also been some production from another zone called the Donaho Castille Formation, also in the Bell-Cherry Canyon. The Wolfcamp Formation from 9,957 feet to 15,000 feet is the predominant resource development in this area, and is sometimes referred to as the Wolfbone Formation.[12] The base of the injection zone at 7,510 feet is approximately 2,400 feet above the top of the Wolfcamp Formation. Mr. Pollard stated that at the base of the proposed injection interval, "there is a tight, dense shaly limestone. It's a limey top of the Bone Springs Formation, in my opinion, would be a very good seal for the base of this interval. The base of the injection interval is sealed by a minimum of 200 feet of tight limey shale."[13]

Groundwater

The Commission's Groundwater Advisory Unit (GAU) determined the base of usable quality groundwater (BUQW) to be at a depth of 2,300 feet, which includes the Rustler Formation. The base of the underground sources of drinking water, (USDW) is also at a depth of 2,300 feet. The gamma ray log of the Hermosa Unit 1-75 Well, which is located 0.4 miles from the proposed injection well indicates there is a minimum 150 feet of highly cemented limey shale starting at about 6,400 feet up to 6,250 feet. Mr. Pollard testified that SBHES will not perforate or inject into the top 150 feet of the proposed injection interval. The top of the actual injection interval will be 6,400 feet.[14] A packer will be set at 6,300 feet. The GAU concludes that, if otherwise compliant with Commission rules and guidance, drilling and using this disposal well and injecting oil and gas waste into the subsurface stratum will not endanger freshwater strata in the area. [15]

Seismic activity

When the application was filed, a review of the records of the U. S. Geologic Survey did not identify any seismic events with a magnitude greater than 1.0 within a 9.08-kilometer radius (100 square miles) of the proposed disposal well between January 1, 1973 and October 31, 2016.[16] However, between the January 5, 2017, and the February 6, 2017 hearings two seismic events occurred within the 9.08-kilometer radius of the proposed injection well. The first seismic event, a 1.8 magnitude event occurred on January 13, 2017 at 10:11:23 (UTC) at a depth of 2.9 km (9,514.44 feet) and was located

[12] Tr. Vol. I, pg. 92, lns 3-11 SBHES Exhibit No. 10.

[13] Tr.- Vol. I, pg 116. Lns 17 to 21. SBHES Ex. No.22.

[14] Tr. Vol 1. pg. 94, lns 1-10.

[15] SBHES Ex. No. 12

[16] SBHES Ex. No. 23.

12 km. west of Pecos. The second event, a 2.7 magnitude event occurred on January 26, 2017 at 03:46:04 (UTC) at a depth of 2.5 km, (8,858.27 feet) and was located approximately 4.0 km. WSW of Pecos Texas. Both events were a minimum of 1,000 feet below the base of the proposed injection zone of 7,510 feet.[17]

Due to seismic events occurring during the hearing period, the Examiners remanded the application back to the underground Injection Control (UIC) staff for review of on February 21,2017.

On July 5, 2017, UIC staff recommended the following special condition be added the the permit.

1. The permittee shall, in addition to standard Form H-10 Annual Disposal/Injection Well Monitoring Report, collect and record accurate daily injected volumes and maximum daily injection pressures and make this data available to the Commission upon request.

During the hearing the Examiners asked the Applicant if they would consider a special condition in their permit requiring SBHES to collect and record accurate daily injected volumes and maximum daily injection pressures and to make this data available to the Commission upon request to be adverse. The Applicant stated that they would not consider the special condition to be adverse.[18]

Area of Review

Statewide Rule §3.46(e)(1), Area of Review states: "Except as otherwise provided in this subsection, the applicant shall review the data of public record for wells that penetrate the proposed disposal zone within a 1/4 mile radius of the proposed disposal well to determine if all abandoned wells have been plugged in a manner that will prevent the movement of fluids from the disposal zone into freshwater strata. The applicant shall identify in the application any wells which appear from such review of public records to be unplugged or improperly plugged and any other unplugged or improperly plugged wells of which the applicant has actual knowledge. "

According to testimony given by Mr. Pollard, and as shown on SBHES Exhibit No.14, a 1/4 mile radius map centered around the proposed disposal well, there are no well bores within the 1/4 mile area of review.[19]

Beyond the one-quarter mile area of review and within a one-half mile radius of the proposed disposal well, are four wellbores. These wells are currently producing wells that are operated by ARRIS Operating Company LLC (ARRIS"). ARRIS is the only operator of wells within one-half mile of the proposed disposal well. The four wells are cased and

[17] Protestants Ex. No. 19. SBHES Ex. No. 23.

[18] Tr. Vol 3, pg., 121, Ins, 12-22.

[19] Tr. Vol.1, pg. 97, Ins,15-25. SBHES Ex. 14

cemented in a manner protective of fresh ground and surface waters and will not endanger or injure any oil, gas, or other mineral formations. [20]

Public Interest

SBHES will use the proposed disposal well to dispose of produced water, RCRA-exempt wastes, and fracture stimulation water generated as a result of production from area wells. SBHES presented evidence and testimony with regard to the need for the proposed well. Mr. Cartwright, construction manager for SBHES, testified that SBHES is currently trying to develop an area that is "extremely important right now, and bringing in a one-stop shop on the corner" with rail, brine, fresh water, and hopes to dispose of produced water brought to the location by truck, pipeline and eventually by rail.[21] Mr. Cartwright testified that it is his opinion that the area around the proposed well is the "hottest area in the state" and there is a need for the proposed injection well. He stated that there is going to be an increase in need due to the increase in rig commitments in the area. He testified that "there is always a need for me to have more capacity because a lot of these SWDs are breaking down in the area."[22] He also testified that in his opinion there is "a very big need (for additional capacity) and in the future much, much bigger (need) because of some of the acquisitions that have taken place in the area, much bigger operating companies are moving into the area."[23] He also stated that Arris Petroleum, which has wells surrounding the proposed well, is interested in piping their water to the proposed injection well. Mr. Cartwright stated that Arris Petroleum has a 10-inch water line for produced water that has a right of way through SBHES property connecting to all of the Arris adjacent wells in the area. [24]

SBHES Exhibit No. 23 is a production plot, that plots the oil, gas and number of wells for Reeves County from January 1938 through September of 2016. Mr. Pollard testified that "production started around 1950 in Reeves County. It picked up pretty quickly in the late '50s, but then slowly declined off until after 2010." He said that over the last six years, production has increased dramatically to where it's now producing almost 5 million barrels a month in Reeves County. In the last six years the number of wells in that period of time has also increased from a little over a thousand to over two-thousand wells. The number of wells has more than doubled, and gas production has gone up substantially as well. Mr. Pollard testified that "In my opinion, this is just the start of this increase. It will continue to increase for a number of years."[25]

A chart of of oil and gas production with the number of wells in a five mile radius of the proposed well was introduced as SBHES Exhibit No. 24. Mr. Polllard stated that

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[20] SBHES Ex. No.15.

[21] Tr.Vol 1, (Page 28:21 to 28:23) SBHES Ex. No. 2

[22] Tr.Vol 1, Page 46. Lns 15 - 23.

[23] Tr. Vol. I, Page 49. Ins. 14-17.

[24] Tr. Vol. I, pg. 48. Lns, 14-19.

[25] Tr. Vol. I, pg. 121, Ins19 to 25. pg.122 Ins 1-20

the exhibit shows that around July 2010, oil production takes a dramatic increase from about a thousand barrels per month and as of July 2016, the area is now producing close to 200,000 barrels a month and the volume is still increasing. The number of wells has increased from approximately 100 wells within five miles of the proposed well in 2012 to approximately 630 wells in July 2016. Mr. Pollard said the production and well count is still increasing.[26]

SBHES Exhibit No. 25, a map of well completions and permits within a 20 mile radius of the proposed well, shows that in 2014, there were 675 well completions and 933 Exploration & Production (E&P) permits issued. In 2015, there were 476 well completions and 607 E&P permits were issued. In 2016, there were 381 wells completed and 524 permits issued. Mr. Pollard stated that oil prices are down from the 2014 prices and people are not inclined to get a drilling permit unless they plan on drilling a well, mainly because a drilling permit costs anywhere between $500 to $1,000. He testified that in his opinion, "the companies are serious about drilling these wells because they're permitting them currently, even with the low oil prices." [27] Mr. Pollard testified that according to the Baker Hughes website the rig count in District 8, which includes Reeves County, has increased from less than 100 drilling rigs in June 2015 to more than 176 in December of 2016.[28]

Mr. Pollard stated that "the two closest injection wells, (one of which is the Mountain Energy well, the second well is the Reeves County 43 No. 1) have increased their injection volumes. Since April 2016, the Mountain Energy Well increased over three times the amount of water it's been injecting. As of September 2016 it injected over 6,000 barrels a day. I think it may be up to 200,000 barrels a month. If you look at the other well that's close, the Reeves County 43 No. 1, it's located on Mr. Rogers' property and it's just to the east of our proposed location. You'll see in July that well had increased from (124,548 barrels) back in April 2016 and was putting (injecting) over 200,000 barrels a month into that well, which is 7,000 barrels per day."[29]

Mr. Pollard testified that "the newly discovered Alpine High play extends into Reeves County, and Interstate-20 (I-20) runs right through the heart of the field and runs right up towards the proposed disposal well. He also said that there's "not much infrastructure such as pipelines and disposal well facilities near the Alpine High as there are in other areas."[30] Mr. Pollard was asked by if he thought that water haulers from the Alpine High discovery will drive 20, 30, 40, 50 miles to an injection well in northern Reeves County to dispose of their water. He answered "Well, I think the edge of the Alpine High play, as they have shown, their acreage play is just outside 20 miles from this well. The majority of their play is more than 20 miles. But it is right down I-20, and if there is no

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[26] Tr. Vol. I, Page 123 Ins. 23-25 to Page 124, Ins.1-8. SBHES Ex. 24.

[27] Tr. Vol. I, pg. 128, Ins.10 – 20.

[28] Tr. Vol. I, pg. 142, Ins. 22-25, to Page 143, Ins. 1-4. SBHES Ex. 32.

[29] Tr. Vol. I, pg. 130, Ins 7-25. SBHES Ex. No. 25.

[30] Tr. Vol. I, (Page 139:10 to 139:20)

infrastructure there, there is no ability for them to easily put away their saltwater disposal, they may use this. But I'm not really relying on that for my opinion that I think this well will be used, and is necessary for the oil and gas development in the immediate area."[31]

SBHES Exhibit No. 31 is an article from the Midland newspaper. The article says that according to the Baker Hughes rig count, Reeves County surpassed Midland County as having the top rig count in Texas. Mr. Pollard testified that " As of November 2016, Reeves County actually topped Midland County having the most rigs running of any county in the state. In fact, they have more rigs than a number of states including Oklahoma and Louisiana and North Dakota, just in Reeves County. Mr. Pollard was asked if the purpose of the article is to confirm his understanding that Reeves County is a very active play? He replied "That's correct. In fact, (it's) the hottest play in North America."[32]

Mr. Pollard was asked if he had considered the disposal capacities of the existing SWDs and how much water the disposal wells are taking versus their permitted capacity in the 20-mile area surrounding the proposed injection well. He responded that he did not think the permitted volume would not be a valid number to look at because permitted volume has no relation to actual water that the wells can take and inject. He testified that "I have performed many analyses in the past, and you find that those numbers bear no resemblance to what actually could be injected, mainly because you have to look at all the tubings, you have to look at pressures, you have to look at the facilities they have, whether they can take that much water and that many trucks."[33]

SBHES Exhibit No. 32, is from the Baker Hughes website showing the active rig counts for District 8, which includes Reeves County. Mr. Pollard stated that in June of 2015 there were about 150 rigs running. The rig count in April 2016 dopped down to less than a hundred rigs in District 8. However, recently the rig count has had a substantial increase. The average rig count was 176 rigs in December of 2016. [34]

SBHES Exhibit No. 33, is a multi-page map from the Baker Hughes website showing where the rigs are located in District 8. The first page shows the proposed injection well is centrally located among a number of rigs. The second page shows where Pecos is and the location of the disposal well. Mr. Pollard testified that "the rigs are all running through this trend that are over here in this area. And then if we look at Reeves, Loving and Ward County on the third page, you can see down below is the rig count. It shows 40 in Reeves, 27 in Loving and five in Ward, a total of 72 rigs in this trend. You can see that there's a number of rigs running very close to this disposal well. Those are actually live rigs and running at this time." He also testified that "if you look on the third page of Exhibit No. 33 and you follow the highway, which is I- 20, to where it intersects with Interstate 10, the last part of that I- 20 is right through the Alpine High Field, and

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[31] Tr. Vol. I, pg. 171, Ins, 5 – 20.

[32] Tr. Vol. 1 pg 141 Ins 12-25. Pg. 142 Ins, 1-3. SBHES Ex. 31

[33] Tr. Vol. I, pg. 183, Ins 6-25, to Page 184, Ins 1-2.

[34] Tr. Vol. I, pg. 142 Ins,16 -25. pg.143 Ins1-10.

there's only a couple of rigs that are running down there. So the majority of the rigs are actually up in the northeastern part of Reeves County in the immediate vicinity of the proposed injection well."[35]

SBHES Exhibit No. 34 is a Baker Hughes rotary rig report showing the number of rotary rigs running in each state. Mr. Pollard stated that if you "look at Texas if you look down to District 8, that's where the 176 rigs running in December of 2016, the month that just ended, and if you look up and down there just in District 8, there's more rigs running than in any other state, in fact, most states combined. There's 310 rigs in Texas total, 176 of them are in District 8." [36]

Mr. Pollard was asked if in his opinion there was a need for the proposed injection well. He replied that due to the amount of drilling and the amount of water that will need to be disposed of in this area and his conversations with area operators, he believes there is a need for additional disposal capacity.[37]

Financial Assurance

SBHES has an active Organization Report (Form P-5, Operator No. 749821). Consistent with 16 Tex. Admin. Code § 3.78, operators of saltwater disposal facilities/wells must have on file with the Commission financial security in the form of an individual performance bond, a blanket performance bond, or a letter of credit or cash deposit. On 7/12/2017 the Examiners sent the Applicant and Protestant a letter stating that within 15 days of the date of the letter SBHES is directed to provide proof of financial security consistent with its proposed disposal operation. As of July 25, 2017 Commission records show that SBHES Pecos SWD, LLC has a $25,000 cash deposit on file with the Commission.

PROTESTANT'S EVIDENCE:

The Protestants assert that the proposed injection well is not in the public interest due to excess permitted capacity in the area, the proposed well will create additional traffic on local roads resulting in the further deterioration of the roads, creating more dust, and noise. [38]

At the hearing, the Protestants offered evidence and testimony from Mr. Josh Tatum.

The Examiners note that Mr. Tatum testified that he is a full time employee of Wilson Systems Inc. (Wilson) a competing saltwater disposal company with commercial

[35] Tr. Vol. I, pg 145, lns, 5-25. pg.146, lns 1-7.

[36] Tr. Vol. I, pg. 146, lns 18-25. pg. 147 lns 1- 8.

[37] Tr. Vol. I, pg. 152, ln. 25 to pg.153, lns 1-6.

[38] Tr. Vol. I, (Page 26:7 to 26:9)

disposal wells in Reeves County. He testified that his position is as "a field salesman for Wilson Systems Inc. where I develop business and market locations for an SWD (Salt water Disposal) company."[39] Mr. Tatum also testified that Wilson has a commercial disposal well "within very close proximity (< 1-mile) of the proposed injection well," the Reeves County SWD, LLC, Reeves County 43 Well." [40] He was asked if he was employed full time by Wilson to market Wilson's disposal wells. He replied "Correct".[41] He further testified that "My job is to generate business for Wilson Systems.

Mr. Tatum was hired as an expert witness by Mr. McNeel who is a member of the law firm of Brockett & McNeel representing the Protestants. Mr. McNeel is also the agent for service of process for Reeves County's SWD, LLC, a competing disposal well operator in Reeves County. [42] Wilson Systems Inc. is listed as the manager and an officer of Reeves County SWD LLC. Mr. McNeel is also the agent for service of process for Wilson Systems, Inc.[43]

Mr. Tatum was asked to look at Protestants Exhibit Nos. 4 and 4a and to describe the exhibits. Protestants Exhibit No. 4 is a map showing the locations of active disposal wells within a 25 mile radius of the proposed injection well and permitted disposal wells that have not been drilled. Mr. Tatum stated that there are seven active disposal wells within the five-mile radius surrounding the proposed location and roughly 20 disposal wells within a 10-mile radius of the proposed facility. Protestants' Exhibit No. 4a is a list of the wells shown on Protestants Exhibit No. 4.

Mr. Tatum testified that " When you look at the amount of water that these wells are capable of taking, even at peak times, many of them did not come close or reach their maximum potential in terms of permitted volumes."[44] Mr. Tatum opined "I do not think that there is a present need for this disposal well to go in for many reasons. One reason is that this particular area, as I said before,is completely saturated with commercial saltwater disposal wells. The well that is located nearby (to the proposed injection well) that I happen to market, the Reeves County SWD is listed as Well No. 1, which can be found directly next door to the (Applicants) proposed location."[45]

Protestants' Exhibit No. 5 is a complilation of the injection permits, H-10s and P-18s for the injection wells in a five mile radius of the proposed injection well. Protestant's Exhibit No. 6 is a complilation of the permits P-18s and H-10s for the injection wells in a 10 mile radius of the proposed injection well. The two exhibits indicate the wells are not injecting at their maximum permitted volumes. Mr. Tatum testified that based on

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[39] Tr. Vol. I, pg. 194 Ins 8 -10.

[40] Tr. Vo.l 2, pg 50, Ins 13-19. Pg52, Ins1-25

[41] Tr. Vol. 2, pg. 52, Ins 1-9.

[42] Tr. Vol. I, (Page 194 Ins:8 -10. SBHES Ex. No. 39.

[43] Tr. Vol. 2, pg. 51, Ins,18 – 25. SBHES Ex. No. 39.

[44] Tr. Vol. I, pg. 212 Ins,2 -7.

[45] Tr.Vol. I, pg. 216, Ins 3-12.

Protestants Exhibits 4, 5 and 6, he did not believe that there is a need for the proposed injection well.[46]

Protestant's Exhibit No. 7 is a chart purportedly indicating the approved drilling permits within a 25-mile radius of the proposed injection well. The chart shows that January 2011 to January 2017 there have been 3,645 approved permits. The chart purports to show that from July 2016 through January 2017 less than 50 permits were approved within the 25-mile radius. Page 2 of the exhibit shows that between July 2016 and January 2017 less than 15 permits were approved in a 25-mile radius of the proposed injection well. Mr. Tatum was asked what data bits did he utilize to have Protestant's Exhibit 7 generated? He replied that the chart "was generated under direction of the law firm and myself to Platt, Sparks. He testified that he did not view the data, the data was compiled under direction of the law firm.[47]

Protestant's Exhibit No. 8 is a chart showing what the Protestants claim is the number of completed wells in a 25-mile radius of the proposed well. The chart shows there were 2,368 wells completed from January 2011 to January 2017. The chart also shows that from July 2016 to September 2016 there were less than five (5) wells completed, and from September 2016 through January 2017 zero (0) wells were completed within 25 miles of the proposed injection well. Mr. Tatum was asked if he prepared Protestant's Exhibit No. 8. He stated that did not prepare the exhibit, he testified "I've asked the experts that I have access to about that information, that being Mr. McGuffey and Mr. Stewart and Mr. McNeel. He was asked "So you relied on the lawyers to tell you who the acknowledged experts are? Mr. Tatum responded "Yes".[48]

Protestants Exhibit No. 9 is a chart of well completions and produced water for the months of June-August of 2015. Mr. Tatum was asked if his graph on page two of Exhibit No. 9 showed that the three wells completed in June-August of 2015 produced no water. Mr. Tatum agreed that his graph did show zero water produced for the time period. Mr. Tatum testified that "I think we need to refer to the data supporting this graph to be sure of the exact number of the water." Mr. Fenoglio then asked, "But you agree with me your exhibit is showing zero water produced?" Mr. Tatum answered that he agreed.[49] Mr. Tatum was then asked, "So your data bits show no fracs, no water production from July of '15 to January of '17 in a 10-mile radius. Right?" He answered "This chart does not indicate that there was water frac treatments during that time, but I believe that there were. But again, looking at this chart, it doesn't appear that there were.[50] Mr. Tatum was then asked if he had seen the FracFocus reports that this Exhibit 9 was based on. He replied that he had not seen the underlying documents, he doesn't utilize FracFocus as

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[46] Tr. Vol 1, pg. 214, lns21-25. Pg 215, lns 1-5. Protestant's Exhibit Nos. 4, 5, 6.

[47] Tr. Vol. 1. pg. 218, lns, 19-25., pg. 219, lns,1-5.

[48] Tr. Vol. I, pg 224, lns:13-18.

[49] Tr. Vol. 2. pg 147:16-25. Pg.148, lns 1-25, pg 149. Lns, 1-21.

[50] Tr. Vol. 2, pg.151, lns15-22.

part of his daily business, and that he had never seen a FracFocus exhibit before.[51] Mr. Fenoglio asked Mr. Tatum if he had ever sponsored or prepared Exhibits like Protestant's Exhibits 7, 8 and 9 and the studies that he described in his testimony. He responded that he had not.[52]

The Protestants then introduced Protestant's Exhibit No. 10, a chart showing the H-10 and P-18 reports of injection wells included in a five-mile radius shown on Protestants Exhibit No. 4. Mr. Tatum was asked if he had reviewed the all the P-18 data that's reflected on Exhibit 10? He replied that had looked through the P-18s provided in these exhibits but that he did not confirm that the data reflected on Exhibit 10 is consistent with the underlying P-18 data.[53] Mr. Tatum testified "I did not compare the P-18s with the volume shown in this graph, but I trusted it to be accurate based on the information and review that's done with Platt, Sparks." He testified that his knowledge that Platt, Sparks is a respected company comes from his lawyers.[54]

Protestants Exhibit 11 is a series of graphs for 17 injection wells that purports to be visual representation of H-10 data compiled for the injection wells in a 10-mile radius with the backup H-10s contained- in Protestant's Exhibit No. 6. Mr. Tatum was asked if he had verified the P-18 data used to prepare pressure and volume graphs in Protestants Exhibit 11. He responded that "I reviewed the P-18s. I did not spot check the graph against the P-18s." He was then asked if he had ever created a chart like Exhibit 11 and if the disposal company he works for created charts like Exhibit 11? He replied "No" to both questions.[55]

Protestant's Exhibit No. 12 is a disk with the P-18s and H-10s the Protestants assert they used to prepare Protestant's Exhibits 7-11.

Protestant's Exhibit No. 13 is two graphs showing H-10 Injection volumes within a 10-mile and 25-mile radius of the proposed injection well. Both graphs show a decline in injection volumes. Mr. Tatum testified that in Protestant's Exhibits Nos. 7,8,9, 10, and 11 what he sees is a consistent decline in disposal volumes.[56]

Protestants Exhibit No.15 are Mr. Tatum's site visit reports for some of the injection wells within a 10-mile radius of the proposed injection well. The reports start on 11/22/2016. The first site visited is the NGL Pecos SWD (Salt Water Disposal), (API No.389-33158). Mr. Tatum arrived at 2:55 pm and stayed 10 minutes. He did not observe any trucks at the site when he arrived but saw one truck arrive when he departed at 3:05pm. The next well is the Reeves County SWD (API No. 389-31055), which is the

[51] Tr. Vol. I, pg 228, Ins,10-25. Pg. 229 Ins 1-19.

[52] Tr. Vol. 2, pg.169, Ins 22-24.

[53] Tr. Vol. I, pg. 23, Ins, 13-22

[54] Tr. Vol. I, pg. 238, Ins, 3 -14.

[55] Tr. Vol. I, pg. 257, Ins11-25. pg. 258, Ins 1-25, pg. 259 Ins, 1-17.

[56] Tr. Vol. 2, pg 11 Ins, 24-25.

injection well owned by Wilson Systems, Inc., Mr. Tatum's employer. He arrived at 3:12 pm and departed at 3:32 pm for a total site visit time of 20 minutes, no trucks were observed at the site. The next well visited was the MTN- Mendoza well (API No. 389-33215). There was one observed truck at the site during his 13-minute visit from 3:47pm to 4:00pm. The Daco Operating El Diablo SWD No. 1 Well (API No. 389-34128) had one truck at the facility unloading during a 10-minute site visit. Mr. Tatum stated that he visited the Pyote Shurtliff Unit Well (API No. 389-01128) and the site was closed. The next well visited was the Pecos South 869 SWD No. 1 Well (API No. 389-33805). He stayed 12 minutes and noted four trucks with three trucks unloading and one truck waiting to unload. During Mr. Tatum's 10-minute site visit to the NGL Reeves SWD Well (API No. 389-34341) he noted one truck unloading. The Cypress-Pecos SWD (API No. 389-34270) had no trucks on site during the 12-minute site visit from 5:42-5:54pm. The next stop was the NGL- Hwy 17 S. Pecos SWD Well (API No. 389-33116). Mr. Tatum stated that this location was closed.[57]

Protestants Exhibit No. 16, on 11/28/2016 Mr. Tatum made additional site visits. Mr. Tatum arrived at the WTRGARD L.L.C. Pecos 4-31 Well, (No API No. given). There were no trucks observed at the site during his 12-minute visit. The next site was the WTRGARD LLC., Broken Hills SWD Well (API No. 389-33457). Mr. Tatum stayed 10 minutes and did not observe any trucks at the site. The next well is a WTRGARD LLC. Well, the Pecos C-18 (API No. 389-33116). Mr. Tatum stated that during the 10 minutes that he stayed at the site he observed two trucks at the site with one truck unloading.

Protestants Exhibit No. 17 is a record of site visits Mr. Tatum made on 12/13/2016. The first site visited was the MTN Barstow SWD (API No. 475-31564). One truck was observed unloading in the 15 minutes he stayed at the site. Next stop was the EnWater-Easy Jet SWD (API No. 389-34742) SWD. There was a workover rig on site. The second site visit was a 10-minute visit to the MAC Resources Inc. North Pecos SWD (API No. 389-33938) and there were no trucks visible at the site. The third site visit was for 10 minutes and no trucks were observed at the Oxy-Baptist Foundation SWD (API No.389-31396) during the visit. The fourth site visited was the private facility, the M&W SWD-Barstow North SWD (API No.475-31564), again no trucks were observed during the 10-minute visit from 12:50 to 1pm. The fifth and last site visit was to the RBJ-Clark SWD (API No. 389-30186). During the 20-minute site visit he observed seven trucks at arrival with four trucks unloading, three trucks waiting to unload. During the site visit three additional trucks arrived to unload.

Mr. Stewart asked Mr. Tatum to describe Protestants Exhibit No. 18. The exhibit is a record of Mr. Tatum's injection well site visits on 02/2/2017. His first stop was at the Wilson Reeves County SWD – Reeves – 43 where he observed one truck unloading and two additional trucks arrived during his 16-minute visit. The MTN Mendoza SWD had no trucks on site during his 15-minute stop. The third stop Silverback Broken Hill SWD where he observed that the entrance gates were closed and no trucks on location during his 2-minute visit. His fourth stop was the Cypress Pecos SWD where the gates were closed

[57] Tr. Vol.2 pg 20 lns 21-25. Pg 21-pg 27 ln 12. Protestants Exhibit No.15.

with no truck traffic observed during the 5-minute stop. The fifth stop was the NGL-Pecos SWD, Mr. Tatum testified that during his 15-minute visit he did not observe any trucks at the facility. His next stop was the Daco Operating – El Diablo SWD (API No. 389-34128). He stayed for 15 minutes and observed zero trucks. At the NGL Central Reeves 2723. Mr. Tatum stayed 15 minutes and observed two trucks unloading. Mr. Tatum's next visit was a return to the Shurtliff Unit where he stayed for 10 minutes and did observe any trucks at the facility. He noted that the site appears to be inactive. The next visit was a return to the RBJ- Clark SWD where he spent 17 minutes. When he arrived at the site he observed three trucks unloading, and during the site visit three new trucks arrived at the site to unload. At departure, there were four trucks unloading and one parked. During a return 15-minute visit to the Oxy- Baptist Foundation site he observed no truck traffic. He then proceeded to the Silverback Pecos SWD C18-24 Well (API No. 389-33116) where he stayed 2 minutes and observed that there were no trucks at the site and the gates were closed. The next stop was the NGL Reeves SWD (API No. 389-34697). There were four trucks upon arrival with two unloading. One truck arrived during his 17-minute stay. The next stop was a return visit to the Enwater Easy Jet where during his 15-minute visit he did not observe any truck activity at the site. At the next stop, the RBJ-Mosquito Lake SWD (API. No. 389-34933), he observed two trucks unloading during his 15-minute visit. His 15-minute stop at the Leroy SWD (API. No. 475-11160) where he observed zero trucks at the facility. A return trip to the MTN-Barstow SWD showed no truck activity during his 15-minute visit. A return to the private disposal site the M&W Hot Oil Barstow North SWD indicated no truck traffic at the site during his 15-minute stay. Mr. Tatum's final stop of the day was at the Probity- Pecos South 869 SWD (API. No. 389-33805). He stayed for 15 minutes and observed two trucks unloading at the site.

During cross examination by Mr. Fenoglio, Mr. Tatum was asked if he thought casing and tubing sizes control in part the volume of water that can be injected into a disposal well. Mr. Tatum stated that he agreed that there are variables that control the volume of saltwater a disposal well can take, other than the nominal capacity stated in the permit He testified "there are several different variables that come together when considering how much a well is capable of disposing of, I think that the casing size and the tubing size are a variable, but I think that there are many variables such as pressure, the size and number of the pumps, the storage that you have on hand in order to receive water before it pumps down."[58]

Mr. Tatum testified that he did not know the size of the casing, the tubing size, or the size and number of transfer and injection pumps of any of the wells listed in Applicants Exhibit No. 5, (injection wells and permits in a five mile radius). He also stated that he did not have any knowledge of the above ground tanks or the number of unloading bays for the wells he visited.[59]

Mr. Tatum was asked if he knew the capabilities of any of the injection wells in Protestant's Exhibit No. 6, (injection wells within a ten-mile radius of the proposed

[58] Tr. Vol. 2, pg 173, lns 24-25. pg 174, lns 1-25. pg. 175, lns 1-17.

[59] Tr. Vol. 2. Pg 176, lns 8-22.

injection well). He replied that "I don't know what their maximum capabilities are." [60] Mr. Tatum also testified he did not know the size of the casing, the tubing size, or the size and number of transfer and injection pumps, or the storage volumes of the above ground tanks of any of the wells listed in Applicants Exhibit No. 6.[61]

Protestant's Exhibit No. 19 is the USGS Earthquake Summary. During the three days of hearings two seismic events occurred within the 9.08-kilometer radius (100 square miles). The first seismic event, a 1.8 magnitude event occurred on January 13, 2017 at 10:11:23 (UTC) at a depth of 2.9 km (9,514.44 feet) and was located 12 km. west of Pecos. The second event, a 2.7 magnitude event occurred on January 26, 2017 at 03:46:04 (UTC) at a depth of 2.5 km, (8,858.27 feet) and was located approximately 4.0 km. WSW of Pecos Texas. Both events were below the base of the proposed injection zone of 7,510 feet.

Summary

The Protestants contend that there is excess permitted capacity in the area and stated that "there is absolutely no need for an additional disposal well at the proposed location at this time."[62, 63]

Applicants Rebuttal

SBHES's first rebuttal witness was Mr. James Cartwright. Mr. Cartwright performed site visits of some of the injection wells that Mr. Tatum visited during his drive-by site visits. These site visits and logs are SBHES Exhibits 45-50.

Applicant's Exhibit No. 45 is Mr. Cartwright's 01/10/2017 visit to the NGL Central Reeves SWD. Mr. Cartwright stayed from 2:06 pm to 3:06 pm. He observed a total of seven trucks in the hour that he was there, the unloading time was approximately 37 minutes.[64]

Applicant's Exhibit No. 46 is the 01/10/2017 site visit to the RBJ Clark SWD. Mr. Cartwright observed six trucks at the facility when he arrived at 4:10 pm and three trucks arrived during his visit. He observed a total of nine trucks during his 14-minute site visit.[65] SBHES Exhibit No. 47 is a three-day site visit to the Wilson Reeves 43 SWD. (1/17/2017,1/18/2017 and 1/19/2017). The site was shut down all three days due to a lightning strike.[66] SBHES Exhibit No. 48 is the 1/19/2017 site visit to the RBJ Mosquito

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[60] Tr. Vol 2. pg 177, Ins, 17 -25.

[61] Tr. Vol. 2, pg 178. Lns 9-25. Pg 179, Ins1-25. pg 180, In 1.

[62] Protestants Closing Remarks. Pg. 8, Ins 19-20.

[63] Tr. Vol. 2, pg, 42 Ins 2-4.

[64] Tr. Vol. 3. Pg, 48, Ins 13-25. Pg 49, Ins 1-25. Pg, 50, Ins1-25. Pg 51. Lns 1-4. Applicants Exhibit No. 45

[65] Tr. Vol. 3. Pg. 51, Ins 20-25. Pg 52, Ins 1-25. SBHES Exhibit No.46.

[66] Tr. Vol. 3, pg 54, Ins19-25. Pg 55, Ins 1-11. SBHES Exhibit No. 47.

Lake SWD. Mr. Cartwright arrived at 1:52 pm and departed at 2:40pm. During his fifty-minute visit he observed twelve trucks unload at the facility. Mr. Cartwright testified that the average time each truck was at the facility was approximately 25 minutes.[67]

Exhibit No. 49 is Mr. Cartwright's 2/02/2017 site visit to the NGL Pecos SWD. Mr. Cartwright's visit to this site occurred on the same day as Mr. Tatum's visit. Mr. Tatum's visit was from 1:06 pm to 1:21 pm. Mr. Cartwright arrived at 2:15 pm. Mr. Cartwright stated that "When I arrived, there were four trucks. I noticed the same thing as Mr. Tatum noticed, that three of the lanes were shut down with cones. He left at 3:16pm. He observed a total of 8 trucks at the facility during his one-hour visit.[68]

SBHES Exhibit No. 50 is Mr. Cartwright's 2/02/2017 visit to the NGL Reeves SWD. He arrived on-site at 3:24 pm and departed at 4:07 pm. He observed 6 trucks during his one-hour visit.[69]

Mr. Cartwright testified that in his opinion that oilfield (drilling) in Reeves County is accelerating. He stated that from the proposed injection well location he could see eight drilling rigs and a couple of frac jobs.[70] Mr. Cartwright testified that, "I believe the area right now at this time needs additional capacity and in the very short future (the area) will need a substantial amount of additional capacity."[71]

During cross examination, Mr. Stewart asked Mr. Cartwright if he had discussed utilizing the proposed injection well with any of the water haulers currently utilizing other disposal wells in the area. Mr. Cartwright testified that he had spoken with Reliable and J&J Trucking companies and they were in favor of the proposed injection well.[72]

Mr. Cartwright was asked if Silverback (Centennial) was closing their three injection wells to the public. He replied that as of January 1, 2017 that the wells had been closed. He went on to say that the wells would only be taking water from Centennial and that Centennial is in discussion with SHBES to utilize the proposed well. Mr. Cartwright also testified "the whole problem is they're (Centennial) the ones that have five rigs going to seven by June. They know that 2017 and beyond they will run out of (disposal) capacity. That's why they shut them down to the public because they want to retain the capacity that they already have, but they need additional capacity. They explained to me why it would be advantageous for them to pipe (water) straight into our facility because their spider web of pipelines completely surrounds us." [73]

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[67] Tr. Vol. 3, pg. 56, lns, 2-8. SBHES Exhibit No. 48.

[68] Tr. Vol. 3, pg 57, lns 20-25. pg. 58, ln 1. SBHES Exhibit No. 49.

[69] Tr. Vol. 3, pg 58, ln,25, pg 59 lns1-4. SBHES Exhibit No. 50.

[70] Tr. Vol 3. pg. 60. lns14-22.

[71] Tr.Vol. 3, pg. 63, lns 2-5.

[72] Tr. Vol. 3 pg. 64, lns 2-25

[73] Tr. Vol. 3 pg. 68, lns 12-25. pg. 69, lns 1-25.

Mr. Cartwright was asked about Arris Petroleum, (now PDC Energy). He replied that PDC completely surrounds SBHES and has a 10-inch water pipeline running through the SBHES property. He testified that "PDC Energy is talking to me now about piping into our facility because they have problems with the SWDs they're piping their water into now, that they're shut down periodically. So, they need additional capacity also. They're going to be drilling a three-well pad several hundred yards from us, and then a two-well pad right behind it."[74] Mr. Cartwright went on to discuss logistics of water disposal. He said that "if you can eliminate your logistics (trucking water), which is the biggest cost. So, if you're able to pipe it in instead of having the trucks go over the roads, your liabilities, you know, decrease and your (disposal) costs decrease."[75]

Mr. Cartwright was asked if based on his conversations with the Centennial and PDC Energy representatives, was it his opinion that there will be substantially increased need in disposal capacity. He replied "Yes, sir."[76]

SBHES Exhibit 51 is a map showing the number and locations of the drilling permits approved in 2016 in a 25-mile radius of the proposed injection well. The map shows that from 1/20/16 through 6/2016 there were 198 drilling permits issued. The number of permits issued in the second half of 2016 from 7/2016-12/2016 was 279 for a total of 477 drilling permits issued in 2016.

SBHES Exhibit No. 52 is a map showing the number and locations of the drilling permits approved in January 2017 in the 25-mile radius of the proposed well. There were 98 drilling permits approved in January 2017. The second page of the exhibit lists the API numbers, lease name, well numbers, operators, the wells' status, county, and the date the wells were permitted.

SBHES Exhibit No. 53 is a bar graph comparing the number of approved drilling permits approved from January 16, 2016 to January 2017, in the 25-mile radius of the proposed well. The graph shows the difference in the Applicant's count of approved drilling permits compared to the Protestant's count of drilling permits. The graph is based on information from DrillingInfo.com as received from the RRC. Mr. Pollard testified that "Exhibit 53 is a tabular form of the data we've been discussing. In the hearing, there was a graph put on by the Protestants that showed the number of permits, and I think the testimony from it was they had still been decreasing from 2015 and there was no increase in activity." [77] SBHES Exhibit No. 53 shows a marked increase in drilling permits.

SBHES Exhibit No. 54 is a table highlighting the difference in the Applicant's count of approved drilling permits (575) compared to the Protestant's count (87) of drilling permits for the same time frame. The reporting period was from 1/1/2016 through

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[74] Tr. Vol. 3, pg 70 lns, 7-25.

[75] Tr. VOL3, pg. 79, lns.10 -16.

[76] Tr. Vol. 3, pg. 80, lns, 1-5.

[77] Tr. Vol 3. Pg 89, lns 6-11. SBHES Exhibit No. 54.

1/31/2017. (see Attachment No.1). SBHES Exhibit No. 55 is the same graph of approved drilling permits as SBHES Exhibit 53 except that December and January were added. Mr. Pollard stated that "I think it confirms my opinion that the drilling permits are still increasing. I think this area is booming. This is the most active county in the United States as far as number of rigs, the entire area with trucks and pads being built."[78] "My experience being out there on Friday was that it is extremely busy and there's a very big boom going on in this area. And I can confirm that standing on the location of where this disposal well would be located that you don't need binoculars to see oil and gas drilling rigs."[79]

SBHES Exhibit No. 56 is a printout of the January 2017 Baker Hughes count of Rotary Rigs Running by State. The exhibit shows that Texas has the most drilling rigs running (336) with District 8, which includes Reeves County, having 186 rigs running on January 06, 2017, and 199 rigs running on January 27, 2017.

SBHES Exhibit No. 57 is a map showing the general locations of the rigs currently running. The exhibit shows that the majority of rigs in Texas are in District 8 with a cluster of rigs in the Pecos area. Mr. Pollard testified that he had a conversation with Mr. Crawford, a representative for Centennial Energy Resources, the company that had bought Silverback and their injection wells. He stated that the Centennial representative told him that they had five rigs running and were expecting to drill more than 20 wells in Reeves County. Mr. Pollard testified that, "In my discussions with him, most of their water is piped into those disposal facilities." He stated that Centennial had concerns that they have a limited capacity of their wells and that they were going to run out very shortly in their capacity. Mr. Crawford said they wanted some ability to have other injection wells, and he felt there was not enough in the area."[80]

Mr. Pollard went on to say "When you look at down in south Reeves County there's not a lot of activity right now in the Alpine High area where Apache has confirmed a major discovery. Part of that is they don't have the infrastructure to get things like saltwater disposed of if they would have a drilling permit there. So, they're still developing that. In this particular area, if you waited until you needed it, shut down drilling and then waited a year to get disposal wells, that would have a huge (negative) impact on the operations."[81] Mr. Pollard also stated that "In this particular area, especially with Centennial, the operators like Arris, which is now PDC Energy, that are in the immediate vicinity of this disposal well, they would prefer to pipe it because it would cut a dollar to $2 a barrel that it cost to truck the water."[82]

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[78] Tr. Vol. 3, pg. 92, lns 8 -19. SBHES Exhibit No. 55.

[79] Tr. Vol. 3, pg. 92: lns, 22-25. Pg. 93 lns, 1-3. SBHES Exhibit No. 55.

[80] Tr. Vol. 3, pg.102, lns 9 -17.

[81] Tr. Vol. 3, pg. 103. lns, 21-25. pg 104. lns,1-6.

[82] Tr. Vol. 3, pg. 104, lns,13-25. Pg.104, lns 1-18.

Mr. Cartwright testified that the drilling activity "that is currently going on and the heavy drilling and the majority of the rig count is directly where we sit and directly surrounding, our area.[83]

SBHES Exhibit No. 59 is a seismic activity map. During the three-day hearing two seismic events occurred within the 9.08-kilometer radius (100 square miles). The first seismic event, a 1.8 magnitude event occurred on January 13, 2017 at 10:11:23 (UTC) at a depth of 2.9 km (9,514.44 feet) and was located 12 km. west of Pecos. The second event, a 2.7 magnitude event occurred on January 26, 2017 at 03:46:04 (UTC) at a depth of 2.5 km, (8,858.27 feet) and was located approximately 4.0 km. WSW of Pecos Texas. Both events were below the base of the proposed injection zone of 7,510 feet.

The Protestants asked the Examiners to take official notice of Oil and Gas Docket No. 09-0296411, which is the XTO Energy, Inc. PFD and Final Order. The final order relates to seismic activity in the Azle area.[84]

Mr. Pollard stated that it is his opinion that there is going to be an extreme increase of disposal demand due to the changes in technology which allows drilling mile-long laterals. Some of these laterals are going to have upwards of 70 to 120 frac stages in one well bore. Mr. Pollard stated it was his opinion that due to the use of multiple frac stages in a single well bore the disposal needs are going to "far exceed what they even were a couple of years ago when the prices of oil were high."[85]

Mr. Pollard testified that "It is my opinion that based on the increased drilling, based on the increased size of frac jobs or number of frac jobs per well, on the operators that I have had conversations with, saltwater hauling companies I have had conversations with, that this area needs additional saltwater capacity.[86]

EXAMINERS' ANALYSIS

The Examiners conclude the evidence in the record demonstrates SBHES has met its burden of proof and that the proposed disposal well application meets the requirements of Chapter 27 of the Texas Water Code and Statewide Rule 9.

There is no disagreement between the parties regarding Texas Water Code § 27.051(b), (2), (3) and (4), (i.e., protection of fresh water, hydrocarbon resources, and financial assurance). The dispute in this case centers on Texas Water Code § 27.051(b)(1), which states: *The use or installation of the injection well is in the public interest.*

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[83] Tr. Vol. I, pg. 56, lns, 6-9.

[84] Tr. Vol. 3, pg.109 lns:5-9.

[85] Tr. Vol. 3, pg.152 lns, 9 – 20.

[86] Tr. Vol. 3, pg. 153, lns, 9 -14.

The Examiners conclude that the proposed injection well is in the public interest as there is a continuing need for fluid disposal options in the area. The Applicant has identified significant ongoing development in Reeves County, and there is evidence in the record that development is growing towards the proposed SWD location. The well will be drilled, completed and operated in a manner that will protect both usuable ground and surface water from pollution, and the use or installation and operation of the injection well will not endanger or injure any oil, gas, or other mineral formation. The four required elements of the Texas Water Code § 27.051(b) will considered sequentially.

Public Interest

The Examiners give little weight to Protestants' Exhibits 7, 8, 9, 10 and 11 due to the fact that Mr. Tatum testified that he did not create or check the accuracy of Protestants Exhibits 7, 8, 9, 10 and 11, which the Protestants assert indicates excess permitted disposal capacity, so an additional disposal well in the area is not in the public interest,[59, 87, 88, 89, 90].

In general, an applicant makes a case that a well is in the public interest by evidence that there is a need for the well and that it will provide a more efficient and economical disposal option for nearby operators of producing wells. More disposal options allows producers to lower their operating expenses, produce longer, increase cumulative hydrocarbon production to the benefit of the public and the State. The legitimate concerns of adjacent private property owners regarding the adverse impact an adjacent disposal well might have on their private use of their own property are generally not sufficient.

To drill, complete and operate oil and gas wells there is a need for produced water disposal. In the instant case, the drilling, completion and operation of horizontal wells with multi-stage fracturing in Reeves County and District 8 is ongoing, generating a continuous need for water disposal.

SBHES proposes to use the subject well for the commercial disposal of produced water and waste liquids produced from producing wells in the area. The proposed well will be connected by pipeline to area wells, and will also dispose of trucked in water. Eventually, SBHES plans on accepting water brought in by rail. SBHES entered into evidence Exhibit No. 56, the January 2017 Baker Hughes running rotary rig count by state. The exhibit shows that Texas has the most drilling rigs running (336) in the United States with RRC District 8, which includes Reeves County, having 186 rigs running on January 06, 2017, and 199 rigs running on January 27, 2017. The number of wells has more than doubled, and gas production has gone up substantially as well. In the last six

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[87] Tr. Vol. 1. pg. 218, lns, 19-25., pg. 219, lns,1-5.

[88] Tr. Vol. I, pg 224, lns:13-18.

[89] Tr. Vol. I, pg. 23, lns, 13-22

[90] Tr. Vol. I, pg. 257, lns11-25. pg. 258, lns 1-25, pg. 259 lns, 1-17.

years the number of wells has increased from around a thousand to over two thousand wells in the area. [91]

Mr. Pollard testified that, "In my opinion, this is just the start of this increase. It will continue to increase for a number of years." [92] SBHES provided evidence that 575 drilling permits were issued from January 1, 2016 through January 31, 2017 within a 25-mile radius of the proposed injection well.[93] Mr. Pollard testified that "When you look at down in south Reeves County there's not a lot of activity right now in the Alpine High area where Apache has confirmed a major discovery." He stated that one of the reasons there is not a lot of activity in the Alpine High area is Apache doesn't have the infrastructure to get things like saltwater disposed of if they would have a drilling permit there."[94] The proposed injection well is approximately 20 miles north of the Alpine High Discovery.[95]

Mr. Cartwright stated that Arris Petroleum, which is now PDC Energy, (PDC) has horizontal wells surrounding the proposed well, is interested in piping their water to the proposed injection well. He stated that PDC has a 10-inch water line for produced water that has a right of way through their property connecting to all the PDC adjacent wells in the area. [96] Mr. Pollard stated that "In this particular area, especially with Centennial, and operators like PDC, that are in the immediate vicinity of this disposal well, would prefer to pipe water instead of trucking it because it would cut a dollar to two-dollars a barrel in disposal costs." [97]

The Examiners have determined the Protestants' use of permitted capacity as proof of excess capacity is not persuasive. There are many factors affecting an injection well's ability to take its permitted volumes such as pump and tubing size, on site storage including the number of storage tanks and truck unloading bays, down hole pressures, and the ability of the formation to take fluids. Without knowing the setup of each well and associated facilities it is not possible to make a conclusion as to whether an individual well has excess capacity.

A disposal permit issued by the Commission for a prescribed maximum injection capacity is no guarantee that the permitted capacity will be realized, either because the well or facility may not be built, the well may not be equipped with the pumps and or tubing that would be necessary to inject at the permitted volumes, or the formation may not be able to accept the permitted volume of fluid. Subsequently, there is no reasonably accurate means of quantifying the available capacity of fluid disposal in an area. For example, Protestants Exhibit No. 10 shows a pressure and volume graph for several

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[91] SBHES Ex No. 56.

[92] Tr. Vol. I, pg. 121, lns19 to 25. pg.122 lns 1-20

[93] Tr. Vol. 3, pg. 89 ln 25. pg. 90, lns, 1-12. SBHES Ex. No. 54.

[94] Tr. Vol. 3, pg. 103. lns, 21-25. pg 104. lns,1-6.

[95] Tr. Vol. 1, pg 108, lns 1-5. pg. 133, lns 6-22., SBHES Exhibit Nos. 20, and 26.

[96] Tr. Vol. I, pg. 48. Lns, 14-19.

[97] Tr. Vol. 3, pg. 104, lns,13-25. Pg.104, lns 1-18.

injection wells including the Mendoza SWD No. 1 Well which is located within 2 miles of the proposed injection well. The Mendoza well is permitted to inject 20,000 bbls/d at a maximum injection pressure of 2,000 psi. The exhibit shows that the well started injection in December 2012 and reached its maximum injection pressure in May 2013, while only injecting around 3,000-5,000 bbls/d, which is approximately 15,000 bbls/d below its maximum permitted capacity.

In the instant case, the Protestants expert witness agreed with the Applicant that permitted volume is not indicative of what a disposal well is capable of taking. "Mr. Tatum testified that he agreed that there are variables that control the volume of saltwater a disposal well can take, other than the permitted capacity stated in the permit.[98] He testified "I think that when assessing whether or not a well can take certain volumes, it's contingent upon many variables. Mr. Tatum further testified that he did not know the size of the casing, the tubing size, or the size and number of transfer and injection pumps of any of the injection wells listed in Applicants Exhibit No. 5 and 6. He also stated the he did not have any knowledge of the above ground tanks or the number of unloading bays for the wells.[99]. Mr. Tatum stated "You can't just drill a well and say, Hey, it's going to take every bit of what it's permitted for without looking into what kind of pumps we have, what kind of downhole pressure we're working against.[100] What I'm getting to is that when Mr. Pollard said earlier that the permitted volume is not always indicative of what the well is capable of taking; I agree with that." [101] Therefore, the Examiners give little weight to the Protestants' claim that Protestants' Exhibit Nos. 5 and 6, are proof of excess capacity.

Addtionally, due to the fact that Mr. Tatum did not create or check the accuracy of Protestants Exhibits 7, 8, 9, 10 and 11, which the Protestants assert indicate there is additional permitted disposal capacity, the Examiners give little weight to the exhibits. [102, 103, 104, 105.]

The Examiners conclude that the Applicant has entered evidence into the record supporting their position that the proposed injection well is in the public interest.

The Protestants are also concerned that the additional traffic on local roads will cause damage and dust. The Railroad Commission does not have jurisdiction over road construction or maintenance. Traffic safety concerns are properly dealt with by the Texas Department of Transportation and/or local governmental entities that do have jurisdiction

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[98] Tr. Vol. 2, pg 173, lns 24-25. pg 174, lns 1-25. pg. 175, lns 1-17.

[99] Tr. Vol. 2. Pg 176, lns 8-22.

[100] Tr. Vol. I, pg. 251, lns,12-18.

[101] Tr. Vol. I, pg.251, lns 24-25. pg. 252, lns 1-2.

[102] Tr. Vol. 1. pg. 218, lns, 19-25., pg. 219, lns,1-5.

[103] Tr. Vol. I, pg 224, lns:13-18.

[104] Tr. Vol. I, pg. 23, lns, 13-22

[105] Tr. Vol. I, pg. 257, lns11-25. pg. 258, lns 1-25, pg. 259 lns, 1-17.

to directly address these issues. Such definition of the Commission's jurisdiction, and its limits, has been upheld by the Texas Supreme Court.[106]

Endanger or Injure Any Oil, Gas, or Other Mineral Formation

SBHES proposes to inject water into the Brushy Canyon Formation, which is not productive in this area. The evidence in the record demonstrates the proposed disposal well be drilled, completed and operated in such a manner that the well will not endanger or injure any oil, gas, or other mineral formation pursuant to Texas Water Code § 27.051(b)(2). Surface casing (9 5/8-inch) will be set at 2,400 feet and cemented to the surface with 725 sacks of Class H cement. The 7-inch long-string casing will be set to a depth of 7,610 feet and cemented with 445 sacks of Class H cement to a depth of 3,672 feet. SBHES has entered evidence into the record that the top of the proposed disposal zone is confined by at 150 feet of dense, shaly limestone that's highly cemented.[107] The base of the injection interval is confined by over 200 feet of a tight shaly limestone.[108] The base of the injection interval is approximately 2,400 feet above the top of the productive Wolfcamp Formation.

Area of Review:

Within a one-quarter mile radius of the proposed disposal well there are no wellbores that penetrate the disposal interval. There are no wells within one half-mile of the proposed injection well that are uncemented through the proposed injection zone.

Prevent Pollution of Ground and Surface Fresh Water

The proposed disposal well will be cased and cemented in such a way as to prevent the migration of injected fluids from the disposal interval. The 9 5/8-inch surface casing will be set at 2,400 feet and cemented to the surface with 725 sacks of Class H cement. The base of usable quality groundwater is at a depth of 2,300 feet, which includes the Rustler Formation. The base of underground sources of drinking water, (USDW) is also at a depth of 2,300 feet. There is adequate geologic confinement separating the disposal interval from the BUQW and USDW. The top of the injection interval is confined by at 150 feet of dense, highly cemented shaly limestone.[109] The GAU concludes that, if otherwise compliant with Commission rules and guidance, drilling and using this disposal well and injecting oil and gas waste into the subsurface stratum will not endanger freshwater strata in the area.[110]

Demonstrate Financial Responsibility

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[106] Railroad Commission of Texas v. Texas Citizens for a Safe Future and Clean Water, 336 S.W.3d (Tex. 2011).

[107] Tr. Vol 1, pg. 115, lns16-21. SBHES Exhibit No. 22.

[108] Tr. Vol. I, pg 116 lns,17-21. SBHES Exhibit No. 22.

[109] Tr. Vol 1, pg. 115, lns16-21. SBHES Exhibit No. 22.

[110] SBHES Ex. No. 12

SBHES has an active Organization Report (Form P-5), the applicant has made a satisfactory showing of financial responsibility as required by Texas Water Code § 27.073 pursuant to Texas Water Code § 27.051(b)(4).

FINDINGS OF FACT

1. Notice of the application was published in *The Pecos Enterprise*, on May 1, 2015.

2. On May 5, 2015 SBHES notified the Reeves County Clerk, and operators of wells within one-half mile of the proposed disposal well.

3. The Application was protested by three adjacent landowners.

4. The proposed well will be located 4.5 miles west of the City of Pecos in Reeves County, Texas

5. The proposed disposal well will be a commercial disposal well and will be completed and operated as follows:

    a. Surface casing (9 5/8-inch) will be set at 2,400 feet and cemented to the surface with 725 sacks of Class H cement;

    b. Long-string casing (7-inch) will be set to a depth of 7,610 feet and cemented with 445 sacks of Class H cement to a depth of 3,672 feet.

    c. SBHES will set 4 1/2-inch injection tubing with a packer at a depth of 6,200 feet, 50 feet above the top of the injection interval.

    d. The injection interval will be from 6,400 feet to 7,510 feet in the Brushy Canyon Formation.

    e. The maximum daily injection volume will be 25,000 bpd.

    f. The maximum surface injection pressure will be 3,125 pounds per square inch gauge ("psig").

    g. Injected waste will be limited to produced salt water and non-hazardous oil and gas waste exempt from regulation under the Resource Conservation and Recovery Act.

6. The base of usable quality groundwater (BUQW) is at a depth of 2,300 feet, corresponding to the Rustler Formation. The well will be cased and cemented to isolate the BUQW from the injection interval.

7. A minimun of 150 feet of tight shaly formations are present immediately above and below the disposal interval, effectively isolating the top and bottom of the injection interval.

8. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation.

    a. The Brushy Canyon Formation is not productive of oil or gas in this area.

    b. The nearest production is from the Wolfcamp, Formation, which is more than 2,000 feet below the base of the proposed disposal interval. The base of the disposal interval will be 7,510 feet, and the top of the Wolfcamp Formation is at 9,957 feet.

9. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution.

    a. There are no abandoned wellbores within the one-quarter mile area of review.

    b. There is a minimum of 150 feet of impermeable strata both above and below the proposed disposal interval.

10. SBHES has an active Organization Report (Form P-5, Operator No. 749821).

11. The applicant has made a satisfactory showing of financial responsibility in the form of a $25,000 cash deposit as required by section 27.073 of the Texas Water Code.

12. The permittee shall, in addition to standard Form H-10 Annual Disposal/Injection Well Monitoring Report, collect and record accurate daily injected volumes and maximum daily injection pressures and make this data available to the Commission upon request.

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 use or installation of the proposed disposal well is in the public interest. Tex. Water Code §27.051(b)(1).

4. The use or installation of the proposed disposal wells will not endanger or injure any oil, gas, or other mineral formation. Tex. Water Code §27.051(b)(2).

5. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution. Tex. Water Code §27.051(b)(3).

6. SBHES has made a satisfactory showing of financial responsibility. Tex. Water Code §27.051(b)(4).

7. SBHES 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 the Commission enter an order granting the application of SBHES Pecos SWD, LLC for a permit to dispose of oil and gas waste by injection into the Brushy Creek Formation, a porous formation not productive of oil or gas, for the Reeves-Block 4, (Del. 4430) Field, Well No.1, Reeves County, Texas.

Respectfully,

Richard Eyster, P. G.
Technical Examiner

Ryan Lammert
Administrative Law Judge

Attachment No. 1.

Date	SBHES Permit Count	Protestant Permit Count
Jan - 16	46	13
Feb - 16	28	10

Mar - 16	19	3
Apr - 16	24	6
May -16	32	14
Jun - 16	49	8
Jul - 16	36	5
Aug -16	40	10
Sep -16	46	5
Oct - 16	59	5
Nov -16	13	8
Dec -16	55	No info.
Jan - 17	98	No info.
Total	**575**	**87**