

Middle Pecos Groundwater Conservation District  
Minutes of December 15, 2015

On this the 15<sup>th</sup> of December, 2015, a regular board meeting and public hearings were held by the Middle Pecos Groundwater Conservation District in the office located at 405 North Spring Drive, Fort Stockton, Texas, with the following members present, to-wit:

Jerry McGuairt	President, Precinct 1
M. R. Gonzalez	Secretary/Treasurer, Precinct 2
John Dorris	Vice President, Precinct 3
Janet Groth	Precinct 1
Weldon Blackwelder	Precinct 3
Ronald Cooper	Precinct 4
Vanessa Cardwell	City of Fort Stockton
Terry Whigham	At Large

Quorum Present.

Board members absent: Jeffery McMahan, Merrell Daggett and Alvaro Mandujano, Jr.

Others present: Paul Weatherby, Mike Gershon, Allan Standen, Gail Reeves, Ty Edwards, Harvey Gray, Melissa Mills, Brock Thompson, Jeff Williams, Ed McCarthy, III., Tommy Ervin, Alan Murphy, Chance Murphy, John Jansing, Bill Stein, Wayne Taylor, Matthew Marby, Jerry Whiteder, Gary Drgac, Craig Pearson, John Evridge, Chris Alexander, Billy Jackson, Gerald D. Lyda, Kenneth Heritage, Mark Harral, Marsha Wolfe, Ladonna Walters, Gil Van Deventer, Al Scott, Doug May, Robert Cox, Michael Thornhill, Don Burns, Jimmy Perkins, and Bob Beal/Fort Stockton Pioneer.

**PRODUCTION PERMIT HEARING for Ladonna Walters and Marsha Wolfe.**

I Call to order at 10:00 a.m. by President Jerry McGuairt.

Party representing application: Ladonna Walters and Marsha Wolfe.

Protestant to application: None

Public Comment: None

Ty Edwards presented the application to the Board. The application is for a Production Permit for 1 well located on GC&SF CO Block 194 Section 74 approximately ¼ mile west of 1901 on Nevill Rd, in Pecos County, Texas. The purpose of this well is for Industrial Use and requests 50 acre feet/year from the Edwards Trinity and Pecos Valley Aquifer. There are 5 owners of the property, and Ms. Walters and Wolfe have been given permission to proceed with the application on their behalf. They will report their usage monthly. The water will be used for the construction of a solar plant. The application is administratively complete.

II Adjourn hearing and consider and/or act on **Production Permit for Ladonna Walters and Marsha Wolfe**

Jerry McGuairt adjourned the hearing at 10:05 a.m.

Weldon Blackwelder made a motion to approve the permit application as presented for 50 acre feet/year from the Edwards Trinity and Pecos Valley Aquifer, for industrial use for 1 well. Motion seconded by John Dorris. Motion passed unanimously.

NOTE: Items may deviate from the posted agenda order.

### **REGULAR BOARD MEETING**

I Call to order regular Board meeting at 10:05 a.m. by President Jerry McGuairt.

II Comments from **public and media**: No comments.

III Consider and/or act upon **Minutes of November 17, 2015**.  
Ronnie Cooper made a motion to approve the minutes as presented for November 17, 2015. Motion seconded by John Dorris. Motion carried unanimously.

IV Consider and/or act upon **Accounts Payable and Treasurer's Report and Line Item Transfers for the Month Ending November 30, 2015**.

John Dorris made a motion to accept the Accounts Payable and Treasurer's Report for the Month Ending November 30, 2015. Motion seconded by Janet Groth. Motion carried unanimously.

VI Consider and/or act to approve **General Manager's Quarterly Report**

Vanessa Cardwell made a motion to approve the General Manager's Quarterly report as presented. John Dorris seconded the motion. Motion carried unanimously.

The regular meeting was recessed at 10:15 a.m.

### **CONSOLIDATED-DRILLING AND PRODUCTION PERMIT with AUTHORIZATION to EXPORT HEARING for STW Water Process & Technologies**

I Call to order at 10:15 a.m. by President Jerry McGuairt.

Party representing application: Alan Murphy, Chanceton Murphy, Bill Stein

Protestant to application: Kenneth Heritage, Tommy Ervin, and La Escalera Ranch (Gerald D. Lyda)

Public Comment:

**Bart Reid:** VIA email – he made public comment. He expressed concerns about the permit to pump from the San Andreas wells. While not opposed to the utilization of this resource, he asks that you proceed with caution and be very conservative to start out. We know almost nothing about the San Andreas and how it effects and interacts with the Pecos Alluvial and other aquifers in the area. I believe using the water that is currently flowing by artesian flow is safe enough with the little info we have, but heavy pumping resulting in lowering the pressure will have unknown effects.

**Mark Harral, appearing for the City of Fort Stockton,** expressed concerns about data sets and whether or not there is enough data about the communication between the San Andres and the Capitan Reef Complex Aquifer.

**Mike Cain:** VIA email – he made public comment. As a land owner here in Pecos, Texas, I here by object to the drilling by STW until I am provided guarantees that my land will not be affected by any adverse negative affects drilling can have on the natural land eco system ground water aquifer etc.

**Kenneth Heritage:** (Note – to begin with he only wanted to provide comment, but then decided to request party status.) He has property in the general local area. The amount of water is over whelming for the acreage.

**Tommy Ervin:** (Note – to begin with he only provided comment, but then decided to request party status.) He expressed concerns about the hydraulic communications between the Capitan Reef Complex aquifer and the San Andreas, and communications with the Diamond Y Springs. Mr. Ervin has wells for a shrimp farm in the Pecos Alluvium Aquifer and is concerned about the effect this permit for San Andreas wells would have on his quality and quantity.

Protestants to the application seeking party status for a contested case hearing:

**Gerald D. Lyda, La Escalera Ranch** Requests party status to the contested hearing. Mr. Lyda was sworn in by President McGuairt. Mr. Lyda reported that the Capitan Reef Complex aquifer lies beneath the La Escalera Ranch, and that Steve Finch was hired to conduct a comprehensive study, and that the study shows that the San Andreas is hydraulically connected to the Capitan Reef Complex aquifer. Mr. Finch has reviewed the STW application and no hydraulic information was submitted in the STW hydraulic study on large pumping and drawdown that would occur with 9 new wells drilled into the San Andreas. Mr. Lyda requested that the Board reject the permit.

Allan Standen, MPGCD hydrogeologist, was sworn in. He confirmed that there is a hydraulic connection between the San Andreas and the Capitan Reef Complex aquifer. La Escalera is up dip from STW's location about 25 miles away. It would take considerable time to impact La Escalera wells.

Mr. Lyda disagreed that there would be little impact to La Escalera Ranch.

Paul Weatherby, General Manager of MPGCD, asked if he would be opposed if a lesser permit were granted.

Mr. Lyda said no, but they are opposed to the application as presented today.

John Dorris made a motion to grant Gerald D. Lyda/La Escalera Ranch party status. Motion seconded by Janet Groth. Motion carried unanimously.

**Kenneth Heritage:** Mr. Heritage applied for party status. He was sworn in by President McGuairt. His previous comments were inducted as sworn statements. Mr. Heritage has adjacent property and has flowing wells.

John Dorris made a motion to grant Kenneth Heritage party status. Motion seconded by Weldon Blackwelder. Motion carried unanimously.

**Tommy Ervin:** Mr. Ervin applied for party status. He was sworn in by President McGuairt. His previous comments were inducted as sworn statements. He has property approximately 2 miles away.

Paul Weatherby, General Manager of MPGCD, asked if he would be opposed if a lesser permit were granted.

Mr. Ervin said he would not protest a 3,000 acre feet permit.

Allan Standen, MPGCD hydrogeologist, agreed that a 25,000 acre feet permit would influence Mr. Ervin.

John Dorris made a motion to grant Tommy Ervin party status. Motion seconded by Janet Groth. Motion carried unanimously.

Paul Weatherby and Ty Edwards were sworn in.

Ty Edwards presented the application to the Board. The application is requesting Drilling/Production Permit with Authorization to Export from an 11 well system. The proposed wells are projected to be 2400-3500 ft in depth and drilled into the San Andres Limestone Formation. The wells are on H&GN Block 10 Section 37 and the North Half of H&TC Block 3 Section 21 approximately 4.5 miles South of Imperial on FM 1053 in Pecos County, Texas. The purpose of the proposed wells is for Public Supply (15,000 ac/ft) and Industrial use (10,000 ac/ft) totaling 25,000 acre feet/year from the San Andres Limestone Formation.

The following property has been leased for 30 years with water rights:  
Tract 1: 320 acres located in section 21, block 3, H&TC RR. Co.  
Tract 2: 626.86 acres located in section 37, block 10, H&TC RR. Co.  
Tract 3: 10 acres located in section 35, block 10, H&TC RR. Co. (Boehmer Lake area, only 1/2 of the lake area is included in the lease)  
Tract 4: 489.56 acres located in section 36, block 10, H&TC RR. Co.

Tract 1 and Tract 2 (listed above) are included in this permit application.  
Tract 3 and Tract 4 are not included in the permit application.

The hearing was recessed at 11:33 a.m., and the regular meeting was reconvened.

### **REGULAR BOARD MEETING**

VII Consider and/or act upon **Amending Abatement Agreement with East Pecos Solar, LLC.**

Allen Brisch, director project development, with First Solar, Inc. was present to represent the amendment to the abatement agreement. Doug May was also present to answer questions.

A tax abatement agreement with East Pecos Solar, LLC was signed on January 20, 2015 for a 103 MW facility. The facility is adding approximately 15.5 MW and would like to amend the previous tax abatement agreement to include the additions. The total valuation of the project will increase from \$170,000,000 to \$215,000,000. The solar project is planned to be in operation by December 2016. The addition will increase the total tax amounts as follows:

<u>Agreement Date</u>	<u>Tax Amount</u>	<u>Abated Amount</u>	<u>Non-abated Amount</u>
Jan. 2015	\$164,392	\$131,514	\$32,878
Jan. 2016	<u>\$447,240</u>	<u>\$179,508</u>	<u>\$267,732</u>
Amendment	\$282,848	\$ 47,994	\$234,854

Vanessa Cardwell made a motion to approve the amended agreement and authorize Jerry McGuairt to sign the agreement. Janet Groth seconded the motion. The motion passed unanimously.

VIII Consider and/or act upon **Accepting Application for Abatement from OCI Solar Tre, LLC.**

Robert Cox, a representative for OCI Solar Tre, LLC, was present for the tax abatement application and agreement. Doug May was also present to answer questions.

- On 10-21-2014 West Texas Solar 1, LLC was granted a tax abatement for 10 years. The solar facility was to be constructed in two phases. Phase 1 would be 110 MW, and phase 2 would be for 50 MW. The Phase 1 total project value would be \$275,000,000. The total tax would be \$368,099. The abated amount is \$244,479; and the non-abated amount is \$123,620. Phase 2 did not have a value assigned.
- On 11-20-2014 a name change occurred and the new name is OCI Alamo 6, LLC.
- 12-15-2015 OCI Alamo 6, LLC is requesting to have Phase 2 language removed and the 50MW language transferred to OCI Solar TRE, LLC. The total project will be a 110 MW facility. The total valuation for OCI Alamo 6, LLC is \$275,000,000. The total tax amount is \$368,099. The abated amount is \$244,479; and the non-abated amount is \$123,620.
- 12-15-2015 OCI Solar TRE, LLC. The total project will be a 50 MW facility. The total valuation of the agreement is \$75,000,000. The total tax amount would be \$99,989. The abated amount is \$32,811; and the non-abated amount is \$67,179. This tax abatement would be abated for a 7 year time frame, because after 7 years, the value is estimated to be at or below \$25,000,000 tax valuation threshold meaning there would no-longer be an abated value to consider. The life of the project is estimated to be 25 years.
- The application fee of \$1,000 has been submitted with the application.

M. R. Gonzalez make a motion to accept to application. Motion seconded by John Dorris. Motion carried unanimously.

IX Consider and/or act upon entering into an **Abatement Agreement with OCI Solar Tre, LLC.**

Janet Groth made a motion to approve the agreement and authorize Jerry McGuairt to sign the agreement. M. R. Gonzalez seconded the motion. Motion carried unanimously.

X Consider and/or act upon **First Amended Tax Abatement Agreement between Pecos County, Texas And OCI Alamo 6 LLC as successor in interest of West Texas Solar 1 LLC.**

Terry Whigham made a motion to approve the amended agreement and authorize Jerry McGuairt to sign the agreement. Motion seconded by Weldon Blackwelder. Motion carried unanimously.

The Board recessed for lunch at 11:55 a.m.

The Board reconvened into open session at 1:00 p.m.

V Consider and/or act to approve **Upton County Water District Transport Agreement.**

Dr. Craig Pearson and Mr. John Evridge appeared before the before the Board on behalf of Upton County Water District.

John Dorris made a motion to approve the contract agreement for a term of 5 years, and 90 days prior to expiration the Board will review the agreement. The transport fee will be set at \$0.0249 per each thousand gallons actually transported. Janet Groth seconded the motion.

The vote: 7 FOR, 1 OPPOSE, 3 ABSENT. Motion carried.

Agreement highlights:

- set the transport fee at \$0.0249 per each thousand gallons actually transported;
- the annual payment for the groundwater transported during each calendar year is due to the MPGCD office by March 31<sup>st</sup> of the following year;
- June static aquifer levels of each well are due to the MPGCD office by July 30<sup>th</sup>, and December levels by January 30<sup>th</sup>;
- written meter reports of the groundwater transported for January 1 – June 30<sup>th</sup> shall be submitted to MPGCD office by July 30<sup>th</sup>, and July 1 – December 31<sup>st</sup> submitted by January 30<sup>th</sup>;
- Chemical analysis by certified laboratory of each well in June is due to the MPGCD office by August 1<sup>st</sup>, and December analysis is due by February 1<sup>st</sup>;
- the term of the fee agreement is 5 years (January 1, 2016 – December 31, 2020), and shall be reviewed for renewal by the MPGCD Board 90 days prior to expiration date of December 31, 2020.

The regular meeting was recessed at 1:27 p.m.

The consolidated drilling and production permit with authorization to export hearing for STW Water Process & Technologies reconvened at 1:27 p.m.

The following people were sworn in: Chance Murphy, Bill Stein, Alan Murphy.

Alan Murphy introduced Bill Stein, and Stein presented a power point presentation:

- Bill Stein, hydrogeologist with LBG-Guyton Associates
- John Jansing, Jr., TRE & Associates, LLC – Civil Engineer designing and constructing the plant

- Two historic flowing wells are reported open to the San Andres Limestone at a depth of 2,600 to 2,800 feet.
- The San Andres Limestone is not designated by the State as a major or minor aquifer.
- There does not appear to be anyone in the area that is utilizing the water from the San Andres Limestone.
- Near the project site, the San Andres is slightly less than 2,500 feet below land surface and has a total thickness of less than 700 feet.
- Water quality from the two wells indicate a sodium chloride and sulfate water with total dissolved solids over 7,000 mg/l.
- Flow from the two wells currently is in excess of 1,400 gpm and likely was much greater in the past. This correlates to about 2 million gallons per day or about 2,280 acre-feet per year.
- The wells have conservatively produce over 137,00 acre feet of water over the more than 65 years that the wells have been flowing.
- This report is a current compilation of available hydrogeologic information and is preliminary and subject to updating. As this project continues with new wells being constructed and tested onsite, a better understanding of this brackish water resource is anticipated and will be submitted to the District at a later date.

Mr. Murphy we have a plan to create a surface water treatment plant that has preliminary TCEQ approval. This will be an ultra filtration reverse osmosis (R.O.) plant. We anticipate 8,000 total dissolved solids will be ran through the R.O. process and then through a zero discharge system with a 99% recovery. A salt product will remain which will be sold to oil companies to make brine water. There will not be any type of injection wells, nor any type of evaporation ponds. A company will build a Co-Gen gas plant so we can create our own electricity.

A preliminary compilation of hydrogeologic information collected on the MRK wells in Pecos County has been completed by LBG-Guyton Associations and made available to the Board. With respect to the comments made regarding the Hydrogeological Report requirements, additional information needs to be developed. This initial report was intended as preliminary compilation of obtainable information on the MRK wells, which is based on available historic data and results from sampling the two existing flowing wells and measuring the current discharge from those wells. After new wells are drilled, constructed and tested on the site, information on aquifer parameters will be developed and simulations will be made to estimate the impacts to water levels from pumping the new well field. In LBG-Guyton's professional opinion, they do not believe there is current available information on the water producing capabilities of the San Andres in this area to make accurate speculations regarding aquifer transmissivities and storage coefficients needed to model the pumping and well interference effects from a well field in the San Andres. The current plan is to drill two to three new wells and perform testing to determine the aquifer parameters and submit an additional hydrogeologic report on those findings.



Protestants:

**Gerald D. Lyda, La Escalera Ranch:** See Attachment A for his statement.

**Tommy Ervin:** Mr. Ervin questions the reliability of previous studies on the Capitan Reef Aquifer Complex formation, and the amount of recharge the San Andres receives from the Capitan Reef Aquifer Complex. He suggested the Board should either lift the moratorium on the Capitan Reef Aquifer Complex or wait for the Texas Water Development Boards report on the Capitan Reef Aquifer Complex before issuing any permits like this one.

**Kenneth Heritage:** He is concerned about the amount of water requested in this application. He has wells about a mile away and could adversely affect his direct potential use of or the value of his water in the immediate area.

**Manager Paul Weatherby:** Recommendation is drilling permits for 3 new wells, and one monitor well, and re-work or plug and/or drill a replacement well for the 2 existing flowing registered wells with 5,000 acre feet annually for industrial use with the authorization to export the water at a rate of \$0.0249 per 1,000 gallons.

- II **Adjourn hearing and consider and/or act on a Consolidated-Drilling and Production Permit with Authorization to Export for STW Water Process & Technologies.**

Jerry McGuairt adjourned the hearing at 3:15 p.m.

Ronald Cooper made a motion to approve the application for 5,000 acre feet per year from the San Andres Formation for industrial use. Authorization is approved to drill one exempt monitor well, drill 3 new wells, and either plug or replace the two existing flowing wells (MRK East well #2013110401 and MRK West well #2013110402). A performance bond must be secured, and the bond must be approved by Middle Pecos GCD before proceeding with drilling.

Once the monitor well is complete, the hydrogeological report shall be updated and provided to Middle Pecos GCD.

Authorization is approved to export up to 5,000 acre feet annually for industrial use with an export fee of \$0.0249 per 1,000 metered gallons produced.

Motion seconded by M. R. Gonzalez. The motion passed unanimously.  
(8 For, 0 Against, 3 Absent)

The meeting was recess at 3:20 p.m.

The regular meeting reconvened at 3:35 p.m.

XI Review status of ***Fort Stockton Holdings, L.P. v. MPGCD, Pecos County, City of Fort Stockton, et al. (Cause No. P-7047-83-CV; 83<sup>rd</sup> Judicial District, Pecos County) and/or act on matters involving settlement.***

MPGCD attorney Mike Gershon took the floor. On December 11, 2015, plaintiff Fort Stockton Holdings L. P. appealed the cause to the Court of Appeals for the Eighth District. Fort Stockton Holdings L. P. filed a supersedeas bond #46BSBHA3661 and acknowledges to be bound to pay MPGCD the maximum aggregate sum of \$147,364.71, plus post-judgment interest. The date the court sets will depend on the court docket.

The intervenors filed their own appeal to the court.

On December 14, 2015 Fort Stockton Holdings L. P. withdrew the settlement offered on September 8, 2015.

XII **Progress Reports: Well Registrations, Production Permits, Drilling Permits, Data Loggers, Drought Monitor Map and ongoing Water Quality Analysis.**

- Well Registrations: Progress report in notebooks.
- Water Quality Analysis: Ongoing.
- Data Loggers: Operations ongoing normally.
- Water Analysis Program: Normal operations ongoing.
- Drought Monitor Map: The current drought monitor map in their notebooks.

XIII Consider and/or act upon **General Manager's Correspondence.**

- Emails regarding consolidating/annexing a portion of Brewster County that overlays the Capitan Aquifer.
- Texas Water Development Board Financial Assistance Workshop attended by Paul Weatherby and Ty Edwards.

XIV **Directors' comments.**

Weldon Blackwelder: The Intentions of the performance bond should state that we require a performance bond to insure and guarantee cleanup in the event of any issues with new wells being drilled. The applicant will provide a surety bond and get MPGCD approval of the bond.

XV Consider and/or act upon **agenda for next meeting.**

- Transport agreements for Pecos SS, LLC and for STW Water Process & Technologies.
- Move the date of the next meeting to January 20, 2016 – Wednesday.

XVI **Adjourn.**

Weldon Blackwelder made a motion to adjourn the meeting at 3:50 p.m. Motion seconded by Ronnie Cooper. Motion carried unanimously.

\_\_\_\_\_  
M. R. Gonzalez, Secretary/Treasurer

\_\_\_\_\_  
Jerry McGuairt, President

Date Approved \_\_\_\_\_



LA ESCALERA  
LIMITED PARTNERSHIP  
FORT STOCKTON • SEYMOUR  
1100 NE LOOP 410 • SUITE 350  
SAN ANTONIO, TEXAS 78209  
WWW.ESCALERA.US

December 11, 2015

Middle Pecos Groundwater Conservation District  
P.O. Box 1644  
Fort Stockton, Texas 79735

Re: STW application for a Drilling/Production Permit with Authorization to Export

Gentlemen:

The *Capitan Reef Complex Aquifer (CRCX)* in *Pecos County* lies beneath a large portion of our family's cattle ranch known as *La Escalera Ranch*. As such, our family is a major stakeholder in the CRCX.

Last year, we authorized *John Shiomaker & Associates Inc. (JSAI)* of Albuquerque, New Mexico to conduct a comprehensive water study of the *Capitan Reef Complex Aquifer*. When the water study was completed, we immediately shared the study results with MPGCD. We understand that MPGCD water consultant Allan Standen has since examined that which we shared with the District.

JSAI examined all aspects of the SWT permit application and found that the uncontrolled flows from the two wells completed in the *San Andres Foundation* were less than 3,000 ac-ft/yr. In addition, JSAI found that no analysis was submitted of the hydrologic impact on the *Capitan Reef Complex* due to large volume pumping as proposed. Nor was there submitted any plan by which the drawdown impact of drilling nine (9) new wells and extraction of 25,000 ac-ft/yr. could be measured.

For these reasons, *La Escalera Ranch* respectfully requests that the *Middle Pecos Groundwater Conservation District* reject the STW production permit for 25,000 ac-ft/yr. We do not object to MPGCD issuing a production permit to STW for 3,000 ac-ft/yr. We feel strongly that more than that amount can not be justified.

Respectfully,

LA ESCALERA RANCH

A handwritten signature in black ink that reads "Gerald D. Lyda". The signature is written in a cursive, flowing style.

Gerald D. Lyda  
President - La Escalera Limited Partnership

Copy: Langley & Banack (Ruben Barrera)



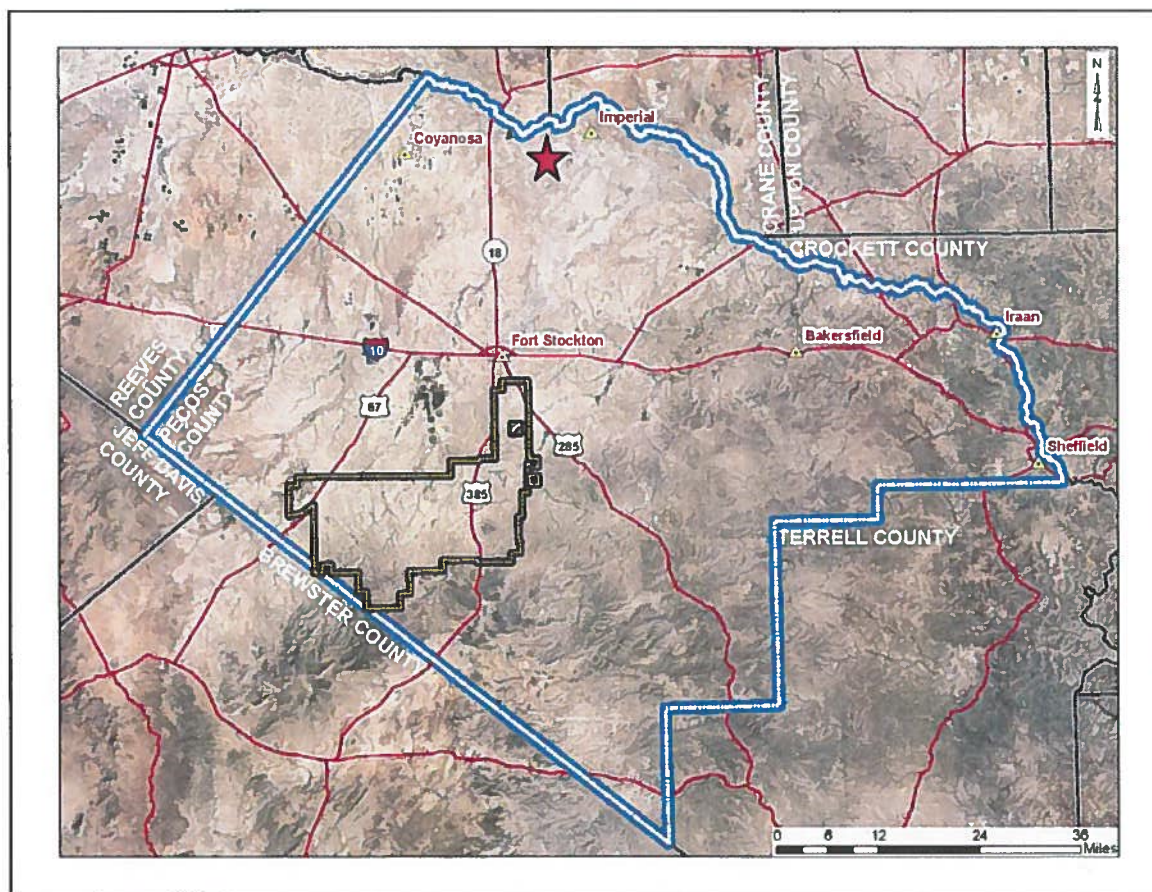
December 11, 2015

La Escalera Board  
La Escalera Ranch Limited Partnership  
Pecos County, Texas

**Re: Evaluation of STW San Andres Formation production permit application in northern Pecos County**

Board Members:

John Shomaker & Associates, Inc. (JSAI) has received an electronic copy of the STW production permit application from the Middle Pecos Groundwater Conservation District (Middle Pecos GCD). The STW production permit application is for 25,000 acre-ft per year (ac-ft/yr) from existing and proposed wells completed in the San Andres Formation near Imperial, Texas (northern Pecos County). These wells are located approximately 25 miles north to northeast of Fort Stockton (see figure below).



The purpose of the JSAI review is to complete the following:

- Determine if the STW production permit application would adversely affect La Escalera Ranch in southern Pecos County.
- Provide a description of La Escalera interest that would be affected.

### **Summary of Production Permit Application Package**

JSAI reviewed the following documents related to the STW production permit application:

- STW application for a consolidated drilling and production permit with attachments.
- Report by LBG-Guyton Associates titled *Preliminary compilation of hydrogeologic information collected on the MRK Wells, Pecos County, Texas*, November 13, 2015, 6 p.
- Notice for a consolidated drilling and production permit with authorization to export public hearing, December 4, 2015.

The following were concluded from review of the application and supporting documents:

1. The applicant intends to use uncontrolled flows from two existing wells completed in the San Andres Limestone and put the water to beneficial use. The uncontrolled flows are currently measured at 1,415 gallons per minute (2,280 ac-ft/yr). In addition, the applicant proposes to drill nine new wells for total production of 25,000 ac-ft/yr.
2. The applicant intends to export water out of the county for municipal and industrial use. The applicant claims "The San Andres is not utilized as a water source in the District and therefore is not anticipated to impact existing water availability in the District."
3. The applicant proposes to treat brackish groundwater produced, but there is no plan presented for disposal of brine waste or salt residue.
4. The drilling plan provides no detail on how applicant will protect the overlying aquifers or prevent uncontrolled artesian flow. The engineered well detail does not appear to be applicable for a San Andres well at the proposed location.
5. The hydrogeologic report provides no analysis or technical information regarding the potential hydrologic effects of the permit on other aquifer systems such as the Capitan Reef Complex (CRCX) aquifer.
6. The applicant does not provide a monitoring plan to evaluate effects of diverting 25,000 ac-ft/yr. Applicant states "a better understanding of this brackish water resource is anticipated and will be submitted to the district at a later date after the wells are drilled."

### JSAI Analysis of San Andres Limestone Aquifer in Pecos County

The San Andres Formation grades into the Capitan Reef Complex, and therefore is effectively the same aquifer, particularly where well yields are high. This connection between the San Andres and the Capitan Reef Complex has been well documented by previous researchers (Armstrong and McMillion 1961; Hiss, 1975; Hiss, 1976; Standen et al. 2009). Standen et al. (2009) concluded the following:

“In the Delaware Basin, the San Andres Formation transition from shelf carbonate to reef environments is approximately 3 miles long and trends parallel to the Capitan Reef front (Hill, 1996; Hiss, 1975). In the reef margin, the San Andres Formation grades up into the Capitan Reef.”

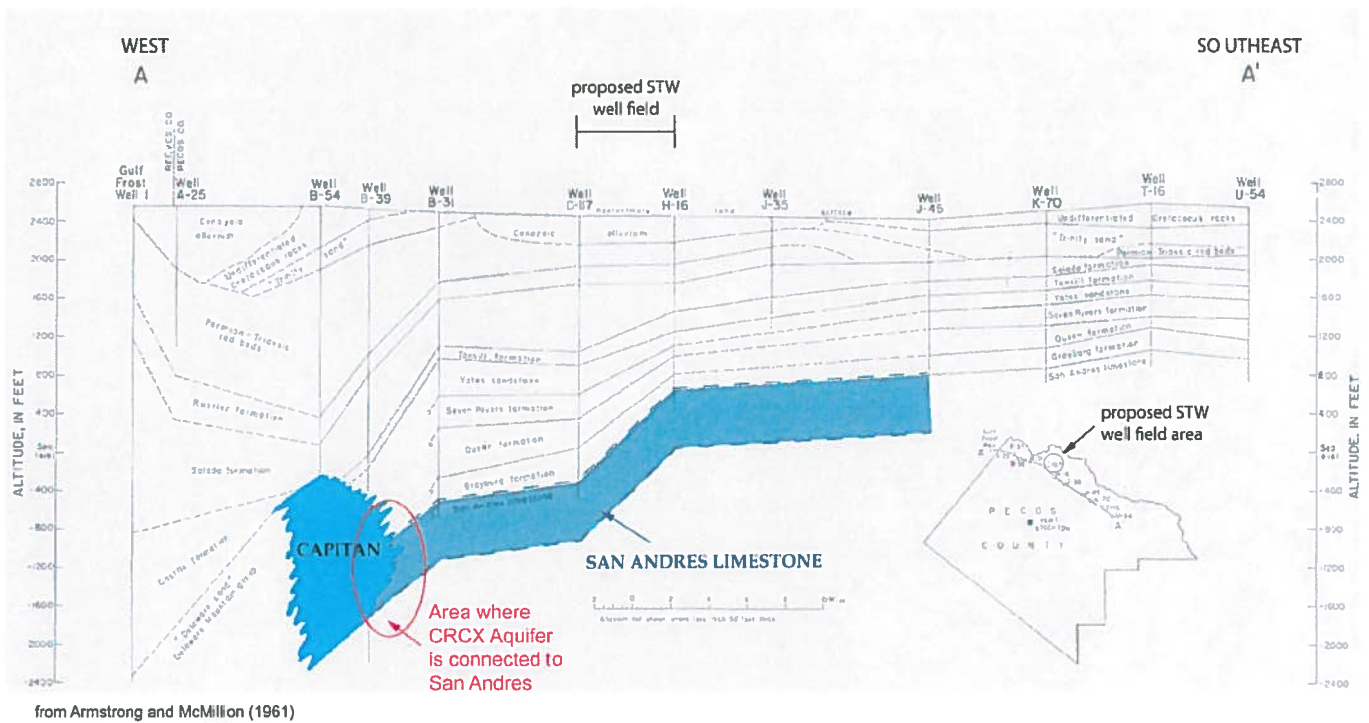
“The undifferentiated San Andres Formation is locally interbedded with the Capitan Reef Complex and may locally be part of the base of the back-reef lateral boundary. The San Andres would have good hydraulic communication with the Capitan Reef Complex in these locations”

The two attached geologic cross-sections provide examples of the connection between the Capitan Limestone and the San Andres Limestone in northern Pecos County. Cross-section A to A' is from Armstrong and McMillion (1961), and cross-section E' to E is from Hiss (1975) and Standen et al. (2009).

**“Capitan Limestone Aquifer”** as defined in the MPGCD rules adopted 5-20-2014 *“means the Capitan Reef Complex consists of the Capitan Reef and associated reefs and limestones which were deposited around the perimeter of the Delaware Basin during Permian time.”* By MPGCD definition, the San Andres Limestone should be considered part of the Capitan Limestone aquifer, but the San Andres Limestone is out of the defined TWDB CRCX aquifer extent and treated as a separate system.

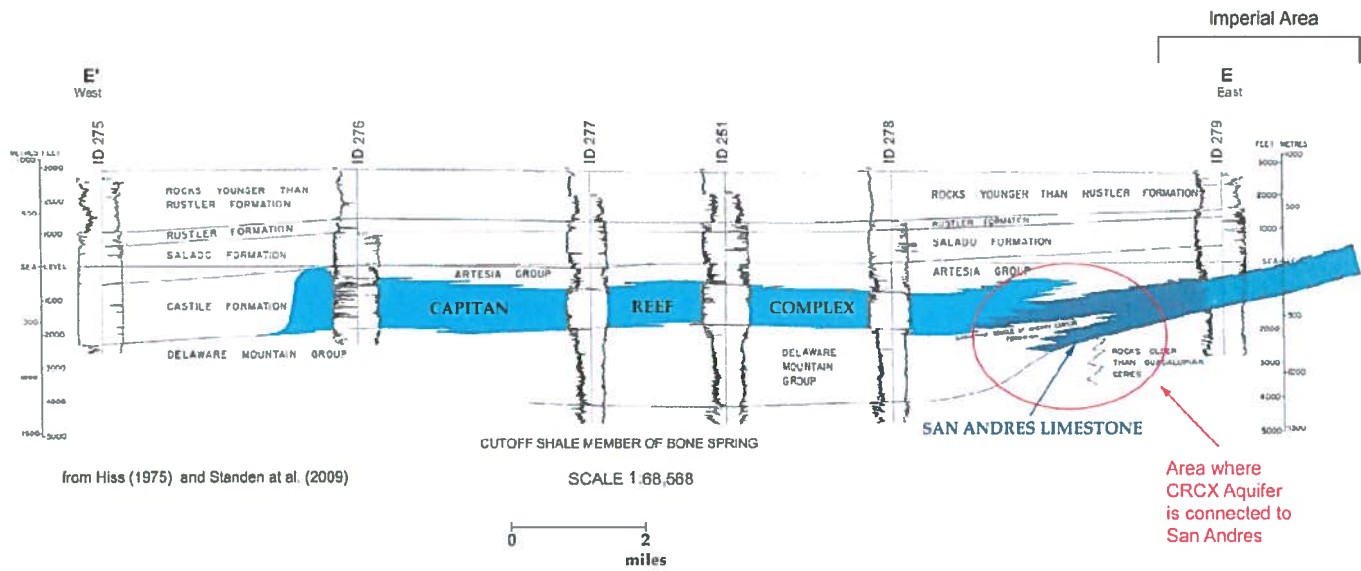
STW implies they are putting to use brackish groundwater that has historically gone to waste from uncontrolled artesian well flow. However, the uncontrolled artesian flow from the San Andres wells is nowhere near the 25,000 ac-ft/yr amount STW is requesting. Armstrong and McMillion (1961) reported a maximum of 3,000 ac-ft/yr of uncontrolled flow, but much of this has been reduced by collapsed and plugged wells.

The effect of pumping 25,000 ac-ft/yr from the San Andres wells in northern Pecos County on the CRCX aquifer is unknown until a hydrogeologic analysis is performed.



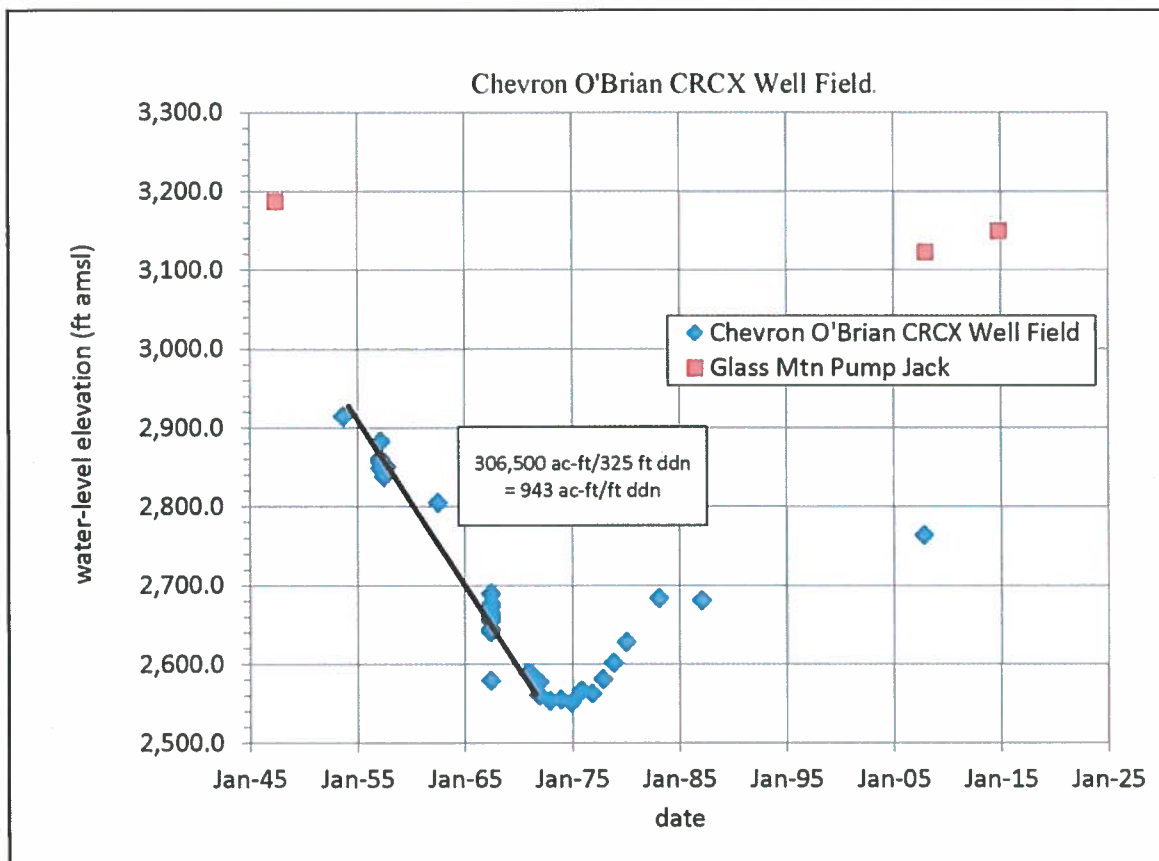
A to A' geologic cross-section of Capitan Reef Complex (CRCX) aquifer, northern Pecos County, Texas.





E' to E' geologic cross-section of Capitan Reef Complex (CRCX) aquifer, northern Pecos County, Texas.

The O'Brien CRCX Well Field in neighboring Ward County consists of production wells in the transition zone between the Capitan Limestone and San Andres Limestone. Historical pumping and water-level data show that pumping an average of 15,000 ac-ft/yr caused 300 ft of regional drawdown between 1950 and 1970 (see graph below). The drawdown effects from this pumping extended along the CRCX aquifer from New Mexico to northern Pecos County, Texas.

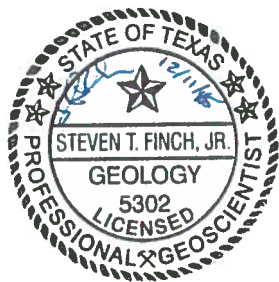


La Escalera groundwater-flow model of the CRCX aquifer is near completion, and includes the CRCX aquifer from Brewster County to the Pecos River. Preliminary findings strongly indicate CRCX recharge from the eastern side of La Escalera supplies the San Andres Limestone portion of the aquifer. La Escalera Well 73 is in this flow path.

The same artesian pressure found at San Andres Limestone wells near Imperial is also observed in CRCX wells at the Enstor Waha CRCX well field approximately 8 miles to the west. Wells at both locations have high flows and brackish groundwater with high sulfur content.

### Summary of STW San Andres Application Evaluation

- Using uncontrolled flow from existing San Andres Limestone wells would be beneficial for the District, and La Escalera Ranch would not be affected by diversion of a hydrologic effect that has already been established.
- Past research has indicated the San Andres Limestone near Imperial, Texas is part of the CRCX aquifer. The Middle Pecos GCD and all CRCX permit holders should consider the San Andres Limestone as part of the CRCX aquifer until proven otherwise.
- The degree of connection to the CRCX aquifer is unknown, and most importantly has not been evaluated. Pumping 25,000 ac-ft/yr is a lot of water to approve by a management district for such a high risk of unknown effects.
- Granting a permit for more than 3,000 ac-ft/yr goes against the CRCX aquifer permit moratorium, and is contradictory to the District's claim for better understanding the aquifer until permits are allowed.
- If the San Andres Limestone turns out to be connected to the CRCX aquifer, the 25,000 ac-ft/yr STW permit could significantly affect the amount of groundwater that could be permitted from the CRCX aquifer. Basically STW would have grandfathered in 25,000 ac-ft/yr before the CRCX moratorium was lifted. This could significantly affect La Escalera's plans for existing CRCX permits and future developments.
- The STW application for brackish groundwater from wells completed in the San Andres Limestone near Imperial should be limited to historical flows (3,000 ac-ft/yr). Any amount greater than 3,000 ac-ft/yr should be tabled until the effects of the application on the CRCX aquifer can be evaluated.
- The application should include a detailed hydrogeologic analysis of the potential effects of pumping more than historical discharges. Also, a permit for more than historical discharges should be conditioned with a monitoring plan to assess effects.



Sincerely,

JOHN SHOMAKER & ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read "Stefh".

Steven T. Finch, Jr.  
V.P., Principal Hydrogeologist-Geochemist

STF:sf

Enc: References

**References:**

- Armstrong, C.A., and McMillion, L.G., 1961, Geology and ground-water resources of Pecos County, Texas: Texas Board of Water Engineers Bulletin 6106, Volumes 1 and 2, 241 and 295 p.
- Hill, C.A. 1996, Geology of the Delaware Basin Guadalupe, Apache, and Glass Mountains New Mexico and Texas: Permian Basin Section-SEPM Publication No. 96-39, 480 p.
- Hiss, W.L., 1975, Stratigraphy and ground-water hydrology of the Capitan aquifer, southeastern New Mexico and western Texas: Ph.D. Dissertation, Department of Geological Sciences, University of Colorado, 396 p. (JSAI library).
- Hiss, W.L., 1976, Structure of the Permian Guadalupian Capitan Aquifer, southeastern New Mexico and western Texas: U. S. Geological Survey, Open-file Report 760053, 338 p.
- [MPGCD] Middle Pecos Groundwater Conservation District Rules, 2014, adopted May 20, 2014.
- Standen, A., Finch, S.T., Williams, R., and Lee-Brand, B., 2009, Capitan Reef Complex Structure and Stratigraphy: contract report by Daniel B. Stephens and Associates Inc., Texas Water Development Board, 53 p.