STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

APPLICATION OF AGUA SUCIA, LLC TO REINSTATE DIVISION ADMINISTRATIVE ORDER SWD-559 FOR A SALT WATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO — Case No. 14411

APPLICATION OF BURLINGTON RESOURCES OIL & GAS COMPANY FOR COMPULSORY POOLING, SECTION 36, TOWNSHIP 27 NORTH, RANGE 8 WEST, SAN JUAN COUNTY, NEW MEXICO — Case No. 12276

APPLICATION OF BURLINGTON RESOURCES OIL & GAS COMPANY FOR COMPULSORY POOLING, SECTION 16, TOWNSHIP 31 NORTH, RANGE 11 WEST, SAN JUAN COUNTY, NEW MEXICO — Case No. 12277

APPLICATION OF COG OPERATING, LLC FOR CANCELLATION OF OPERATOR'S AUTHORITY AND TERMINATION OF SPACING UNITS, YESO ENERGY, INC. DOW "B" FEDERAL WELL NO. 1, EDDY COUNTY, NEW MEXICO — Case No. 14472

APPLICATION OF NEW MEXICO OIL CONSERVATION DIVISION. THE APPLICANT SEEKS AN ORDER AUTHORIZING THE OIL CONSERVATION DIVISION TO RECOGNIZE AN OPERATOR OF RECORD FOR WELLS CURRENTLY OPERATED BY YESO ENERGY, INC., OGRID 221710 — Case No. 14547

APPLICATION OF TARGA MIDSTREAM SERVICES LIMITED PARTNERSHIP AS OPERATOR FOR VERSADO GAS PROCESSORS, LLC FOR APPROVAL TO INJECT ACID GAS INTO TARGA'S EXISTING EUNICE GAS PLANT SALT WATER DISPOSAL (SWD) WELLS NO. 1, (API No. 30-025-21497), LEA COUNTY, NEW MEXICO — Case No. 14575

REPORTER'S TRANSCRIPT OF PROCEEDINGS
COMMISSIONER HEARING

BEFORE: MARK E. FESMIRE, Chairman
JAMI BAILEY, Commissioner
WILLIAM C. OLSON, Commissioner

December 9, 2010
Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Commission, MARK E. FESMIRE, Chairman, on Thursday, December 9, 2010, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

REPORTED BY: Jeannine K. Sims, RPR, NM CCR #12
Paul Baca Court Reporters
500 Fourth Street, NW, Suite 105
Albuquerque, New Mexico 87102

A P P E A R A N C E S

FOR THE OIL CONSERVATION COMMISSION:

Ms. Gail MacQuesten
ASSISTANT GENERAL COUNSEL
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

FOR THE APPLICANT, AGUA SUCIA:

Mr. James Bruce
ATTORNEY AT LAW
P.O. Box 1056
Santa Fe, New Mexico 87504

FOR ARMSTRONG ENERGY CORPORATION:

Mr. William F. Carr
HOLLAND & HART, LLP
P.O. Box 2208
Santa Fe, New Mexico 87504

FOR THE APPLICANT, TARGA MIDSTREAM SERVICES:

Mr. William Scott
MODRALL, ROEHL, HARRIS & SISK
500 Fourth St. NW, Suite 1000
Albuquerque, New Mexico 87102

ALSO PRESENT:
Ms. Florene Davidson
Ms. Cheryl Bada

CHAIRMAN FESMIRE: Okay. Let's go on the record. Let the record reflect that this is the Thursday, December 8th -- or December 9th, 2010 regularly scheduled meeting of the New Mexico Oil Conservation Division. The record should reflect that all three commissioners are present; Commissioner Bailey, Commissioner Olson, Commissioner Fesmire.

The first item of business before the Commission this morning is the adoption of the minutes of the November 4th, 2010 Commission meeting. Have the Commissioners had a chance to review the meeting minutes?

COMMISSIONER BAILEY: Yes, I have and I move we adopt them.

COMMISSIONER OLSON: Second that.

CHAIRMAN FESMIRE: All those in favor signify by saying "aye." Let the record reflect that the minutes were anonymously adopted by the Commission, signed by the Chairman, and conveyed to the Secretary for recording.

The next item before the Commission is Case No. 14411, it's the De Novo application of Agua Sucia LLC to reinstate Division Administrative Order SWD-559 for saltwater disposal well in Lea County, New Mexico. Are the attorneys present?

MR. BRUCE: Yes, Mr. Chairman. James Bruce

on behalf of the applicant.

MR. CARR: If it please the Commission, William Carr with the Santa Fe office of Holland and Hart and I represent Armstrong Energy Corporation, who was protesting the application.

CHAIRMAN FESMIRE: I understand you have an announcement for the record?

MR. BRUCE: Yes, Mr. Chairman. Armstrong Energy has agreed to withdraw its objection based upon the further review of the bond log. As a result there's no objection to this application. Yesterday Mr. Carr and I conferred on a proposed order which we e-mailed to you and to Commission counsel and Ms. Davidson for your review and possible change if necessary. All I would request is that order be entered as soon as possible.

CHAIRMAN FESMIRE: Okay. Commissioner Bailey, do you have any questions about the order?

COMMISSIONER BAILEY: No. I have reviewed it and I move that we adopt it.

CHAIRMAN FESMIRE: Commissioner Olson, I understand you had a question about it.

COMMISSIONER OLSON: I had one question about it. It's stating in the order that you're seeking to reinstatement Administrative Order SWD 559, but it doesn't really say in this, in the history why it needs

to be reinstated.

MR. BRUCE: Mr. Chairman, when there arose a casing problem with the well, the well was a -- ceased injection in January of 2008. And under Division rules after it had ceased injection for more than a year the order lapsed.

CHAIRMAN FESMIRE: Do we need to include that in the order?

COMMISSIONER OLSON: I just wonder if we need to include that under the history.

MR. BRUCE: You can do that and e-mail another copy to Ms. Davidson and Commission counsel if you so desire.

CHAIRMAN FESMIRE: Okay. Why don't you do that and we'll after -- I'm sure we'll go through lunch today, make sure you get a copy to Ms. Davidson that includes that in the findings or the history.

MR. BRUCE: I will do that this morning.

CHAIRMAN FESMIRE: And we'll continue this until later in the day and act on it at that time.

MR. CARR: Mr. Chairman, I'd like to just confirm that Armstrong Energy does withdraw its objection to reinstatement of the application or reinstatement of the permit. This case has been before you for a couple of years now. The objection was initially filed when the

well was operated by a prior operator, now it's a new operator. And as we move forward and you will recall half of the case was presented to you a month ago. Since that time we have reviewed the bond log, but more than that we have looked at the entire well boring, how it is completed with the liner cemented and the order provides that there will be an MIT test to confirm its integrity. And at this point in time we believe it's appropriate to go ahead and reinstate that permit.

CHAIRMAN FESMIRE: Thank you very much. At this time we'll go ahead and continue this case until later in this meeting today in this room.

MR. BRUCE: I will forward an order. I'm sure you will be busy, but you will have it before you break for lunch.

CHAIRMAN FESMIRE: Thank you very much, sir. The next case before the Commission is Case No. 12276, it's the De Novo application of Burlington Resources Oil and Gas Company for compulsory pooling, Section 36, Township 27 North, Range 8 West, in San Juan County. It has a related case which is also before the Commission, Case No. 12277, the application of Burlington Resources Oil and Gas Company for compulsory pooling in Section 16, Township 31 North, Range 11 West in San Juan County. I understand from the Secretary that the counsel in both of

these cases has requested that they be continued to the next regularly scheduled commission meeting; is that correct?

MS. DAVIDSON: That is correct.

CHAIRMAN FESMIRE: Okay. We will at this time continue both No. 12276 and 12277 to the next regularly scheduled commission meeting. Which is --

MS. DAVIDSON: January 13.

CHAIRMAN FESMIRE: January 13th of 2011. The next item before the Commission is the application of COG Operating, LLC for cancellation of an order -- of an operator's authority and termination of spacing units it Yeso Energy Dow "B" 28 Federal No. 1, Eddy County, New Mexico. This case because of the lack of time available to the Commission will be continued to the January 13th, 2011 regularly scheduled Commission meeting.

The next case before the Commission is Case No. 14547, the application of the New Mexico Oil Conservation Division seeking an order authorizing the Oil Conservation Division to recognize an operator of record for wells currently operated by Yeso Energy, Inc. It's related to the prior case. This too will be continued to the January 11th, 2011 commission meeting. I'm sorry, January 13th, 2011 meeting.

The last item before the Commission is Case

No. 14575, the application of Targa Midstream Service Limited Partnership as operator for Versado Gas Processors LLC for approval to inject acid gas into Targa's existing Eunice Gas Plant Salt Water Disposal Well No. 1 in Lea County, New Mexico. Are the attorneys present for that?

MR. SCOTT: Yes, sir. William Scott of Modrall, Sperling, Roehl, Harris & Sisk for the applicant Targa Midstream Services as operator for Versado Gas Processors.

MS. MacQUESTEN: Mr. Chairman, Gail MacQuesten for the Oil Conservation Division.

CHAIRMAN FESMIRE: Okay. I guess we'll proceed with Targa's case. Mr. Scott, there are at least two people here I think that would like to make a comment, they provided written comments. Would that be amenable to you after your case we'll have them comment?

MR. SCOTT: That would be fine.

CHAIRMAN FESMIRE: Mr. Scott, are you prepared to begin?

MR. SCOTT: Yes, we are.

CHAIRMAN FESMIRE: Do you have any witnesses?

MR. SCOTT: I have two witnesses.

CHAIRMAN FESMIRE: Can you ask them to stand

and be sworn.

(Witnesses were sworn.)

CHAIRMAN FESMIRE: Mr. Scott, do you have an opening?

MR. SCOTT: I do.

CHAIRMAN FESMIRE: Begin, sir.

MR. SCOTT: Good morning. My name is Bill Scott and I represent Targa Midstream Limited Partnership as the operator for Versado Gas Processors, LLC. Targa operates gas gathering and process facilities in Southeastern New Mexico including the Eunice Gas Plant located five miles south of Eunice, New Mexico.

Targa had filed the present application with the Commission seeking permission to recomplete an existing salt water disposal well for use as a combined acid gas and wastewater injection well on that property. The well would be deepened and recompleted to provide injection through an open hole at an interval from 4250 feet to 4950 feet within the San Andres formation.

The proposed project has a number of safety and environmental benefits. Hydrogen sulfite gas would be piped away from the plant in Eunice, New Mexico five miles south to be disposed of underground.

The pipeline that would transport that gas would be a very low pressure, double walled pipeline

buried at least seven feet below ground surface. The hydrogen sulfide would be injected into a geologically sound zone where it would be contained safely. Targa has submitted an H2S contingency plan in conformance with Commission Regulation 11. That is being reviewed by Commission staff at this point. That was submitted to them in October of this year.

The project will allow Targa to shut down a sulfur recover unit that currently is emitting significant volumes of sulfur dioxide and carbon dioxide into the atmosphere. As a result of the injection permitted by this well, that will reduce 12226 tons a year of sulfur dioxide and 200 tons per year of carbon dioxide emission to the atmosphere.

Targa is undertaking this project as part of a broader agreement with the New Mexico Environment Department to address air quality. Targa has pursuant to that agreement with the Environment Department an obligation to begin injecting by January 15, 2011. If they don't meet that deadline there are certain penalties that kick in for their operations.

We have met with OCD staff to discuss this proposed injection well and have reviewed Mr. Jones' prefiled testimony concerning the proposed injection. Mr. Jones' central issue raised in his prefiled testimony

is the aerial extent of the injection plume after an extended period of time of injection.

As we will demonstrate the modeling that's been done concerning this project shows that after maximum injection for a period of 30 years, the radius of the plume will be no more than .2 miles from the site of the injection and will not threaten any of the existing wells that penetrate the San Andres formation.

Targa's -- the model that was used has a 500 percent safety factor. Mr. Gutierrez, one of our witnesses, will go into that in greater detail in his testimony. Targa's C-108 application also proposes a program of confirmatory data collection including geophysical logs, site wall cores collected during drilling, step tests, mechanical integrity tests, and other testing and evaluation that would be done during the process of drilling and recompleting the well.

The information -- Targa proposes that information be provided to the Commission with a certification that all work required has been completed and that Targa would also within one year of that certification provide a detailed analysis of that information and confirming the results of the earlier modeling as to the scope of plume from the injection.

Targa yesterday learned of two comment

letters that were submitted in connection with this application, and I am prepared to address those comments in the course of Mr. Gutierrez's testimony. We will call two witnesses today. First Mr. Clark White who is vice president with Targa. Mr. White will provide background information concerning Targa's properties, the proposed pipeline, Targa's experience operating other acid gas injection wells including a well in Texas and the environmental benefits to be derived from this project.

Our second witness will be Alberto Gutierrez who is the president of Geolex, Inc. Mr. Gutierrez is a certified petroleum geologist and hydrogeologist who has testified before the Oil Conservation Division frequently. He will testify about his preparation of the C-108, public notice of that application, and the technical aspects of the proposal including the geological factors and well design factors that will ensure the integrity and safety of the proposed project.

Targa requests that the Commission enter an order authorizing Targa to test and recomplete the well as specified in its C-108 application and authorizing injection of mixed acid gas and wastewater at a maximum rate of 4,075 barrels per day either for a duration of 30 years or until the cumulative 44.76 million barrels of product has been injected into the formation.

CHAIRMAN FESMIRE: Ms. MacQuesten, do you have anything?

MS. MACQUESTEN: We'd like to reserve our opening.

CHAIRMAN FESMIRE: Mr. Scott, why don't you call your first witness.

MR. SCOTT: I call Clark white.

CHAIRMAN FESMIRE: Mr. White, the record should reflect you have been previously testified in this case. Why don't you sit up here. The way we do it.

CLARK WHITE,

having been previously sworn testified as follows:

* * *

DIRECT EXAMINATION

BY MR. SCOTT:

Q. Good morning. Could you state your full name, please sir.

A. Clark White.

Q. And Mr. White, would you describe briefly your educational background.

A. I have a bachelor of science degree from the University of Texas in Austin in chemical engineering.

Q. And could you also describe your work history for us, please.

A. I have 30 years of progressive experience in

the natural gas processing industry both engineering operation and management.

Q. And where are you currently employed?

A. Targa Resources in Houston, Texas.

Q. And what is your position with Targa?

A. I'm the vice president and regional manager for the Permian Basin, Southeast New Mexico and North Texas.

Q. Okay. And in that position what are your responsibilities?

A. I'm responsible for the engineering and operations and commercial activities for those assets.

Q. Okay. And are you familiar with the South Eunice compressor station?

A. Yes, sir.

Q. And where is that facility located?

A. It's in Lea County, New Mexico, approximately five miles south of Eunice.

Q. And who owns the land that that plant is situated on?

A. Versado Gas Processors, LLC, which is a joint venture between Targa Resources who owns 63 percent and Chevron who owns 37 percent.

Q. And is Targa the operator of that facility?

A. Yes.

Q. And are you familiar with the proposal to recomplete an existing salt water disposal well on that property?

A. Yes.

Q. Who would be the operator of that well?

A. Targa Midstream Services.

Q. Could you provide a little background for the Commission on how this proposal to recomplete that well came about, please.

A. The background was basically we have been looking at ways to reduce emissions from our plants, and we had an administrative order from the New Mexico NED, and we voluntarily proposed as a settlement to inject acid gas and reduce emissions.

Q. And is there a deadline for you to have an acid gas injection well completed on the South Eunice station?

A. Yes. It's July of 2010.

Q. 20 --

CHAIRMAN FESMIRE: Little late.

A. 11. I'm sorry.

CHAIRMAN FESMIRE: Thank you, Mr. Scott, for picking up on that.

Q. (BY MR. SCOTT) Does Targa operate other wells in addition to the salt water disposal well in the

area?

A. Yes. We operate the existing salt water disposal well now on the South Eunice site. We also operate a salt water disposal site at the Eunice gas plant closer to Eunice, New Mexico.

Q. And were there some LPG wells in the area that Targa operated?

A. Originally on the south Versado side there was an LPG storage well.

Q. And what has happened with those wells?

A. We have plugged those wells. We applied for the acid gas injection permit several years ago, and then the NMOCC order, I believe it was R-12809, there was a requirement to plug the LPG wells and we did at that time.

Q. And have those plugs been reviewed and approved by Division staff?

A. Yes.

Q. To your understanding, Mr. White, will the recompleted salt water disposal well have a surface casing set at a depth that will protect fresh groundwater?

A. Yes. The surface casing will be to 300 feet, the deepest fresh water formation is somewhere around 180. So it's more than a hundred feet set below

the lowest fresh water interval.

Q. And will the well be equipped with a back pressure valve to maintain pressure of the waste stream?

A. Yes. It'll sit right before injection -- right before the wellhead.

Q. What do you understand the maximum injection pressure that is proposed for the well?

A. 1292 pounds.

Q. And will the gas and water be maintained in a liquid phase during the injection process?

A. Yes. When you compress acid gas to that pressure it becomes a dense phase which is a liquid when you mix it with water and inject it down the well bore.

Q. As of today has Targa ever injected acid gas into the existing salt water disposal well?

A. No, we have not.

Q. Does Targa operate any other acid gas injection wells?

A. Yes. We operate one in Crane County, Texas, at our San Luis facility.

Q. And how long have you operated that well?

A. We installed it in 2001.

Q. Are there any similarities between that well and the well that's proposed for recompletion here?

A. They will both be an open hole completion,

the well in Crane County's approximately 5,000 feet to 5500 feet, it's sent to the Ellenberger formation. We're going to go to a depth of 4250 to roughly 4900 in the San Andres. Both wells will take basically up to 5000 cubic feet of acid gas and about 1500 barrels of water a day.

Q. Okay. In the nine or so years that you have been operating the well in Crane County, Texas, have you experienced any problems or malfunctions with that well?

A. No, we haven't. It's just primarily routine maintenance. We're scheduled and permitted through the state to routinely do maintenance on the engine and we have routinely had to do Bradenhead tests on the casing. We have never had any leaks or issues at all.

Q. Okay. What's the source of the acid gas and the water that would be injected in the well that's the subject of this proceeding?

A. It will be acid gas that will be removed from the gas stream for the gas going into the Eunice gas plant. We have an aiming plant that removes the CO2 and H2S from the natural gas.

Q. And the Eunice plant is located in the town of Eunice?

A. Just outside, just south of the town of Eunice.

Q. And how would the gas and water be

transported from the plant to the South Eunice facility?

A. There will be a three-inch pipeline for the water and a 16-inch pipeline for the acid gas. The 16-inch would be incased in a 22 inch pipeline, both constructed out of polyethylene.

Q. Let me back up a step. Have you acquired all the necessary right-of-way and approvals to construct the pipeline?

A. Yes. We are ready to begin construction.

Q. It's a "shovel ready" project as some might say?

A. Yes, it is. Each right-of-way agreement also specifically spelled, you know, out the contents of the pipeline that it was not typically natural gas, it's acid gas. So each landowner knew exactly what the composition of the gas would be.

CHAIRMAN FESMIRE: Mr. Scott, may I ask a here because it's relevant?

MR. SCOTT: Yes.

CHAIRMAN FESMIRE: You mentioned the composition of the double-wall piped. I know that is of concern to some of the people. It's polyethylene double-walled pipe rated at this pressure at this operating pressure?

MR. WHITE: The operating pressure is 50

pounds. It's more than rated for 50 pounds and we have got -- it's SDR-17. And it's a 16-inch poly that's going to be encased in a 22-inch poly.

CHAIRMAN FESMIRE: Okay. Will the annulus be monitored?

MR. WHITE: Yes, it will. We'll have valves on each end of the pipeline that can be shut off instantaneously. And we'll have air flowing in the annulus of the pipeline in the opposite direction of flow. And there will be H2S sensors on the opposite end of the pipeline to sense any H2S that might leak from the 16-inch but be encased in the 22-inch. So it would be continuously monitored.

CHAIRMAN FESMIRE: And it will be buried seven foot deep?

MR. WHITE: I'll make a correction there. The three-inch pipeline will be 36 inches from the surface. So you'll have three feet and you will have the three-inch pipe, then you'll go down another foot and you'll have the 22-inch pipe below that. So it was erroneous when we said seven feet. It's actually a little bit farther than four feet below the surface.

CHAIRMAN FESMIRE: Mr. Scott, continue. I apologize.

Q. (BY MR. SCOTT) And just to be clear, the

water pipe will be buried above the acid gas line?

A. Yes. We buried that above that so that if for any reason someone dug, the first thing they would hit would be the water line and be kind of a sacrificial warning before if they dig deeper they hit the 16-inch pipe.

Q. And would the right-of-way be labeled or bear any sort of placards?

A. Yes. The right-of-way obviously will be maintained and cleared and there will be a signs that say, "Danger. Poison gas" posted every approximately every 200 feet down the pipeline.

Q. You had mentioned that you're undertaking this project in connection with an agreement with the New Mexico Environment Department to address air quality issues. Could you describe some of the environmental benefits of this proposed project.

A. Well, we wouldn't be operating a sulfur plant. And in a sulfur plant you have got an incinerator for all the tail gas that goes through the sulfur plant where the sulfur is not completely a hundred percent recovered so you burn that sulfur to SO2. And those SO2 emissions are roughly 1226 tons a year. In addition to that, the CO2 goes straight through, it's removed from the aiming plant, goes straight through the sulfur plant

and straight up the incinerator. So that 200 tons a year of CO2 would be sequestrated in the reservoir instead of being environmentally emitted. That's kind of the focus going forward of all greenhouse gas emissions is to reduce that so it has some environmental benefits.

Q. All right. Has Targa submitted a proposed hydrogen sulfide contingency plan to the Oil Conservation Division?

A. Yes. It was submitted on October 8, 2010.

Q. And was that based on a template or model provided by the Division?

A. Yes, it was.

MR. SCOTT: No further questions of this witness.

CHAIRMAN FESMIRE: Ms. MacQuesten.

* * *

CROSS-EXAMINATION

BY MS. MACQUESTEN:

Q. Good morning, Mr. White.

A. Good morning.

Q. When did Targa enter into the settlement agreement with the Environmental Department?

A. It was approximately December of last year. December, January 2010.

CHAIRMAN FESMIRE: This is the witness.

A. Are you talking about the final completion of the settlement or beginning negotiations?

Q. (BY MS. MacQUESTEN) Let's start with when they began negotiations.

A. It was before that, I can't recall the exact date.

Q. Has it been several years?

A. It's been -- yes.

Q. Was the -- and that agreement was then resolved by saying that Targa would obtain approval for an acid gas injection well?

A. We proposed as a solution to the settlement we offered up an acid gas injection at both Eunice and the Monument plants.

Q. Was the OCD included in those negotiations?

A. No. It was with the New Mexico Environmental Division.

Q. You say that Targa operates an acid gas injection well in Crane County, Texas?

A. That's correct.

Q. Could you tell me how many wells are within the area of review for that acid gas injection plant? Say the -- start with half a mile area of review.

A. I cannot recall. I can get you the information. That's -- it's been since 2001 since we

went before the Commission in Texas to apply for that.

Q. Can you give me a rough number?

A. There's just like any oilfield, there's wells all around the plant. I cannot give you a number without looking at a map but we have that information.

Q. Do you have any idea how many would penetrate the injection zone?

A. There's several that go below the injection zone, go through it. I know that. The production in that area is generally deeper than 5,000 feet.

Q. Do you know how far away those wells are from the acid gas well?

A. I can't recall but here again, I can get that information that you want. It's been nine to ten years.

Q. Are there any monitored wells for the acid gas injection well in Crane County?

A. No.

Q. Could you explain for us what happens to the plume when it enters the formation? It enters in a liquid state; is that correct?

A. That's correct.

Q. What happens once it's in the formation? Does it maintain its liquid state?

A. For the most part, yes, it'll stay in the

liquid form. There might be -- I mean, it's going to go down in a liquid form and that is the reason we keep it under pressure and that's why we mix it with water. Because if there's any reduction in pressure those little bubbles of gas will come up and be absorbed into the water. That's the whole theory behind mixing it.

Q. So the key is to maintain the pressure --

A. Uh-huh.

Q. -- to make sure the pressure --

A. The injection, yeah.

Q. -- is consistent. At what point will it leave the liquid state?

A. I'd have to look at the model. Obviously when you get down really low pressure it will. But there is a point at which it will start to come out of the solution but then it's absorbed by the water but --

CHAIRMAN FESMIRE: Will the reservoir be operated above that -- the pressure, that temperature at which it comes out of the dense phase?

MR. WHITE: I would really rather Alberto address that. I'm not a petroleum engineer in that sense what's going on in the reservoir. But I would -- personally I believe it is going to operate above that pressure. Because you have got a static head of -- column of fluid it's going to maintain that pressure on

the well and down hole.

MS. MACQUESTEN: Okay. No more questions. Thank you.

CHAIRMAN FESMIRE: Commissioner Bailey?

COMMISSIONER BAILEY: You mentioned other salt water disposal wells that are on the property.

MR. WHITE: Yes.

COMMISSIONER BAILEY: How many other salt water disposal wells are there?

MR. WHITE: On the Eunice South site where the AGI is going, we are going to convert the existing SWD well to the injection well. After that's done there will be no other salt water disposal well on that particular site.

COMMISSIONER BAILEY: Okay. So only the one SWD well at the South Eunice Plant.

MR. WHITE: That's correct.

COMMISSIONER BAILEY: How about the area of review are there other SWD wells?

MR. WHITE: I can get -- I think -- I don't believe there are any within that half-mile radius that we're talking about.

MR. SCOTT: If I may, Commissioner Bailey. Mr. Gutierrez will be able to shed some light on that. He has complete information about the wells within the

area and the nature of those wells.

COMMISSIONER BAILEY: I'll wait for him then. Thank you.

CHAIRMAN FESMIRE: Commissioner Olson.

COMMISSIONER OLSON: Yes. You were mentioning the monitoring of the H2S on the double-wall pipe. Can you explain that again. You're saying -- were you saying that the detection is at the beginning and ends of the pipe; is that correct?

MR. WHITE: No, be it will be on one end because we're injecting air on one end in the annulus between the 16- and 22-inch pipe blowing the air towards the Eunice plant and there will be sensors there. And so it picks up a leak the air will carry the H2S to the point where the sensor is.

COMMISSIONER OLSON: So the flowing air in the --

MR. WHITE: Annulus.

COMMISSIONER OLSON: -- annulus at that point. That's all I have.

CHAIRMAN FESMIRE: Continuing along those lines, what's going to be the relative pressure differential across the 16-inch pipe wall? You said you will have air at a certain pressure going upstream and that's acid gas and water mix -- or acid gas --

MR. WHITE: Acid gas. The acid gas will leave the Eunice plant at 50 pounds. It should be down at the south plant around 40 pounds. The air pressure on the other side is minimal, just enough pressure to flow the gas or the air through the annulus back to the Eunice plant site.

CHAIRMAN FESMIRE: Depending on the size of the failure, couldn't failure in the 50 to 40 pound acid gas line overwhelm the air pressure and flow downstream with respect to the pipeline, with respect to the acid gas flow?

MR. WHITE: It could flow either direction. But it will flow -- if you have got air coming this way it'll flow with the air.

CHAIRMAN FESMIRE: So is the monitor a pressure monitor or an H2S monitor?

MR. WHITE: It's an H2s monitor. It'll detect H2S composition.

CHAIRMAN FESMIRE: So if you have a rupture the pressure in the annulus will increase but you won't be able to detect that until H2S gets to the upstream detector.

MR. WHITE: There will be pressure monitors too, but we're -- primarily with the airflow that you're describing, what we're trying to find is like a pinhole

leak or a small leak.

CHAIRMAN FESMIRE: Okay. You're not designing for a major rupture; that's not a fear in your -- you're looking for the minimal.

MR. WHITE: We're designing for minute leaks that we can pick up before a major rupture with the air flow --

CHAIRMAN FESMIRE: Okay. The major rupture you'd be able to pick up on the pressure --

MR. WHITE: On the pressure --

CHAIRMAN FESMIRE: -- on the system.

MR. WHITE: Yeah.

CHAIRMAN FESMIRE: I have no further questions. I'm sorry.

COMMISSIONER OLSON: Follow up on that? So if you do have a major rupture, does that just vent at the far end of the pipe?

MR. WHITE: Yes. If there's a rupture of the 16-inch it would flow through the annulus and as soon as that's picked up valves would be shut and the gas would be released to a flare environment. So basically you have got two valves on each end of the pipeline and then you've got -- and if we sense either a pressure or H2S those valves will close, the entire line will be vented to a flare and burned.

COMMISSIONER OLSON: The entire line including the annulus?

MR. WHITE: Yes. Everything would be -- will go to the flare environment.

CHAIRMAN FESMIRE: It'll take the annulus to burn it, won't it? It'll take an air supply from the annulus to burn the H2S, won't it?

MR. WHITE: No. The H2S is under pressure and it will flow to the top of the flare and we'll have a pilot that would ignite that and burn it off.

CHAIRMAN FESMIRE: Is H2S flammable? It's a very basic question and I apologize.

MR. WHITE: Yes, H2S is flammable.

CHAIRMAN FESMIRE: Burn without an oxygen source.

MR. WHITE: Yes. I mean, evening has to have oxygen to burn.

CHAIRMAN FESMIRE: Right.

MR. WHITE: But yes, it has --

CHAIRMAN FESMIRE: But with the oxygen --

MR. WHITE: -- and BTU and it will burn by itself. But there's also pilot gas to assist in the complete destruction of the S02 from H2S.

CHAIRMAN FESMIRE: Mr. Scott, do you have any redirect on that?

MR. SCOTT: No.

CHAIRMAN FESMIRE: Thank you very much, Mr. White.

MR. WHITE: Okay.

CHAIRMAN FESMIRE: Your next witness, sir?

MR. SCOTT: Alberto Gutierrez.

CHAIRMAN FESMIRE: Mr. Gutierrez, the record should reflect that you have been previously sworn in this case; is that correct?

MR. GUTIERREZ: Yes, sir.

MR. SCOTT: Mr. Chairman, Mr. Gutierrez has a PowerPoint presentation to assist with his testimony.

MR. GUTIERREZ: Just take me a second to set it up.

MR. SCOTT: May we have a minute to set up his computer?

CHAIRMAN FESMIRE: You may. Why don't we go ahead and take about a ten-minute break and reconvene at a quarter till.

(Break.)

CHAIRMAN FESMIRE: Go back on the record. The record should show that is a continuation of Cause No. -- anybody have the cause number? Cause No. 14575, the record should also reflect that all three Commissioners are present. And I believe we are about to

start with the direct testimony of Mr. Gutierrez by Mr. Scott. Mr. Scott, are you prepared?

MR. SCOTT: I am.

CHAIRMAN FESMIRE: Let's begin.

ALBERTO A. GUTIERREZ,

having been previously sworn testified as follows:

* * *

DIRECT EXAMINATION

BY MR. SCOTT:

Q. Good morning, Mr. Gutierrez.

A. Good morning.

Q. Would you state your full name, please.

A. My name is Alberto A. Gutierrez.

Q. And sir, could you describe your educational background for us, please.

A. Yes. I have a bachelor's degree in geomorphology from the University of Maryland, 1977. And I have a master's degree from UNM in geology, 1980.

Q. And could you please describe your work background for us.

A. Yes. I've been in the environmental geology and petroleum geology field since about 1975. Started out working for the U.S. Geological Survey. And following that I worked with Radion Corporation for a number of years, they are a environmental consulting

firm, and also subsequent to that I worked for a petroleum exploration company in southeast New Mexico, LHR Petroleum. And then in 1983 I started a consulting firm, environmental consulting firm called Geoscience Consultants Limited, which I ran until I sold it in 1994. And that firm had about 600 employees roughly when we sold the company. And subsequent to that I have -- I started Geolex in 1996 and have been operating that company since that time doing primarily environmental and petroleum geology.

Q. And do you hold any professional designations or certifications?

A. Yes. I'm a registered professional geologist with AIPG and then I'm registered in approximately 20 states including basically all the states around New Mexico. New Mexico doesn't have a registration program, so ...

Q. All right. And have you served as an expert witness before?

A. I have on numerous occasions in both state and federal courts and many times in front of the Oil Conservation Division.

Q. And have you authored any papers in the area of geology or geohydrology?

A. I have. I have a number of publications in

the area of environmental geology and remediation, as well as some publications in acid gas injection and design and operation of acid gas injection models.

Q. And with respect to acid gas injection wells have you been involved in the permitting or approval of those wells previously?

A. Yes.

Q. How many such wells have you been involved in?

A. Six.

Q. And where are those wells located?

A. Lea County, Eddy County, and San Juan County.

Q. All right.

A. In terms of ones in New Mexico.

Q. And the ones outside of New Mexico, where are those located?

A. In Texas, in Midland area, Goldsmith area.

Q. All right. And are you familiar with the proposal to recomplete the Targa salt water disposal well which is the subject of this case?

A. Yes, I am.

Q. And how is it that you're familiar with that?

A. We were retained by Targa to evaluate

originally the potential for a safe and appropriate acid gas reservoir in the vicinity of the Eunice plant, both the Middle Eunice Plant and South Eunice Plant.

Q. And did you have an involvement in preparation of the C-108 application in this case?

A. Yes. We prepared it. I supervised the preparation of it and/or prepared it myself.

Q. And could you just describe for us just very generally what the proposal provides.

A. Sure. Basically the proposal provides for the recompletion of an existing salt water disposal well to both deepen the well and to recomplete the well in a construction mechanism that is consistent with the operation of a combined acid gas injection and wastewater injection well.

Q. All right. Now, you indicated that you were involved in the preparation of the C-108 application here. Did you handle the mailing of notices to affected landowners and operators?

A. We did. We retained a land -- landman or land services firm in Roswell that did the tape-offs for us and identified all of the operators, lessees, and surface owners, as well as additional parties that the Division requested be notified. And based on that evaluation we developed a list of parties that had to be

notified and provided notice to those parties.

Q. All right. And is that list of individuals contained in Appendix D to the C-108 application?

A. It is.

Q. Was there also a map in there reflecting surface ownership within the area?

A. Yes, there is.

Q. All right. May I approach the witness?

CHAIRMAN FESMIRE: You may, sir.

Q. (BY MR. SCOTT) Hand you what I've marked as Exhibit 1, Mr. Gutierrez, and ask you if you recognize that set of documents.

A. Yes.

Q. And what is that?

A. It is a stack of copies of the individual notice letters that were sent to the operators, surface owners, state and federal agencies requested by the Oil Conservation Division as well as municipality of Eunice which was another request, as well as residents within the one-mile area of review.

Q. And were those mailed certified mail, return receipt requested?

A. They were. And the receipts for that, for the original mailings are included here, the original receipts in the back of this exhibit.

Q. Let me show you what is identified as Exhibit 2. Do you recognize Exhibit 2?

A. Yes. These are the so-called green cards, not -- different kind of green card, but the certified mail return receipt cards that we received that indicated that the people who were noticed signed for their notices.

Q. All right. And did you receive a return receipt card from everyone that you mailed notice to?

A. We received one from every single surface owner, from the municipalities, and from the state and federal agencies and from all the operators and lessees with the exception of one that we haven't gotten back yet from Anadarko.

Q. All right.

MR. SCOTT: I would move the admission of Exhibits 1 and 2.

CHAIRMAN FESMIRE: Any objection?

MS. MACQUESTEN: No objection.

CHAIRMAN FESMIRE: Exhibits 1 and 2 will be admitted. Please make sure that the court reporter gets the exhibits.

Q. (BY MR. SCOTT) Mr. Gutierrez, have you analyzed the proposed recompletion and injection program that's at issue here for compliance with OCD standards

and requirements?

A. Yes, we have.

Q. All right.

A. In fact, we worked with Targa to develop the design and the procedures associated with the recompletion of the well.

Q. All right. And I understand, sir, you have prepared a PowerPoint presentation to assist in your description of that process?

A. Yes.

Q. Is that what is on the screen currently?

A. Yes.

Q. All right.

MR. SCOTT: Mr. Hearing officer, I have identified as Exhibit 3 a printed copy of that PowerPoint presentation which I would like to offer into evidence as Exhibit 3.

CHAIRMAN FESMIRE: Ms. MacQuesten?

MS. MACQUESTEN: I haven't had a chance to review the entire PowerPoint, hasn't been presented yet. I thought we already had an Exhibit 3.

MR. SCOTT: This is just an updated version to address some of the comments.

MS. MacQUESTEN: Okay. Still, could we wait until it's presented so I know what I'm --

CHAIRMAN FESMIRE: Okay.

MS. MACQUESTEN: -- responding to?

CHAIRMAN FESMIRE: We'll defer until later the admission of Exhibit 3. Please make sure that Ms. MacQuesten has the updated version.

MS. MACQUESTEN: I do. Thank you.

Q. (BY MR. SCOTT) All right. Mr. Gutierrez, before you begin to go through your presentation, could you explain how it was that the South Eunice site was selected as the site for this well.

A. Sure. We evaluated in general the geology in the area of both the Middle Eunice Plant as it's called, that's the plant that is immediately south of the town of Eunice, as well as the South Eunice Plant which is the plant that you see actually on this slide here, which is where the proposed recompleted SWD well is located.

And for a variety of reasons, the south plant was a more preferable location primarily because of the -- two things. One, the proximity of the Middle Eunice Plant to the town of Eunice, and at the south plant which is where all of the compression for the acid gas will be housed, is significantly farther away from the population center of Eunice. And also furthermore, there were quite a larger number of wells immediately in

the vicinity of the Middle Eunice Plant that penetrated the proposed injection zone.

Q. And did you discuss the relative merits of two locations with OCD staff in selecting the location for the well?

A. Yes, we did. Actually as far back as the original C-108 that was prepared for this acid gas injection project.

Q. And did staff indicate a preference as to the location for this well?

A. Yes. I mean, I think there's a clear indication that the farther away from the population center would be a better location.

Q. All right. Now, if you could turn to the second page of your PowerPoint presentation for us please, and generally describe the proposal that we're asking for and the analysis that you have undertaken.

A. Sure. Basically as Mr. White laid out in his testimony, Targa is requesting the authority to inject a total of 4075 barrels per day of combined acid gas and wastewater at a maximum pressure of approximately 1300 or 1292 pounds is what the actual calculation is.

CHAIRMAN FESMIRE: Mr. Gutierrez, the 1300 pounds occurs at the outlet of the compressor a short distance from the wellhead, right?

MR. GUTIERREZ: That is correct.

CHAIRMAN FESMIRE: Okay.

A. And for a duration -- one of the issues that was raised by the Division was a concern over the aerial extent of the plume, the acid gas and wastewater injection area that would be affected in the reservoir. And as a consequence to that we proposed a limitation of 30 years or 44.65 million barrels of fluid to be injected, whichever is greater.

That request we -- you know, after discussions with OCD staff and after looking -- going back and looking at the model that we used for predicting the area of the reservoir that would be affected, we feel confident that that request for a 30-year permit or maximum volume of 44.65 million barrels is a safe amount to inject given even the uncertainties in the plug model for the -- for the aerial extent of the reservoir affected.

CHAIRMAN FESMIRE: You said plug model. In essence, what you're telling us here is that your model shows at a perfect displacement .2 mile radius of the plume; is that correct?

MR. GUTIERREZ: Over 30 years at the maximum injection rate. Yes, sir.

CHAIRMAN FESMIRE: And that is a perfect

displacement, right?

MR. GUTIERREZ: That is correct.

CHAIRMAN FESMIRE: So what you're saying is the nearest San Andres penetration is a mile away.

MR. GUTIERREZ: No, I'm not saying that. The nearest San Andres penetration is more like about just outside a half mile away.

CHAIRMAN FESMIRE: Where do you get the 500 percent?

MR. GUTIERREZ: We'll go through that. But basically it is not a linear expansion. As you -- as you inject additional volume like for example to go from -- from .2 miles to .4 miles, you actually have to go up 400 percent in terms of the volume injected. So the 500 percent safety margin is in terms of --

CHAIRMAN FESMIRE: It's not linear, it's volume.

MR. GUTIERREZ: That's correct.

CHAIRMAN FESMIRE: Okay.

Q. (BY MR. SCOTT) All right. Turning to the next slide, Mr. Gutierrez, could you give us an overview of your presentation, please.

A. Yes. As -- the goal of the presentation today is to go through the C-108 in detail and to be able to demonstrate to the Commission the environmental

benefits and the overall safety features associated with this AGI SWD project at the South Eunice Plant. As part of that I will describe the site geology and the AGI system design and operating constraints on that system. And I will summarize all of the components of the C-108 as Chairman Fesmire and the OCD staff are well aware, over the last five or six years of working on these AGI applications with the Division, we have refined and continually improved the type of information that has to be submitted to evaluate these since the State doesn't have specific regulations or rules about how these wells are to be permitted.

And so the C-108 reflects that experience over that period of time. And then lastly but not least, I want to address the specific concerns and recommendations that the OCD raised in their prehearing statement and also didn't even make it into the PowerPoint here, but the comments and concerns that were expressed that we received yesterday from two adjacent landowners.

Q. All right. So if you could take us through the key elements of the C-108.

A. Sure. As Mr. White testified earlier, the AGI project has a substantial environmental benefit because of the reduction of greenhouse gas emissions from

the current process of removal of sulfur in -- at the Middle Eunice Plant, as well as it eliminates the SO2 emissions from the incomplete removal of sulfur from the SRU in the amounts that Mr. White testified to earlier.

So those gases which in effect came out of the ground with the field gas are going to be concentrated and put back into the ground. The nearby oil and gas wells, water wells, and surface water are going to be protected by the well design and the geologic factors that influence the potential for the injected fluid to migrate from the injection zone and we'll demonstrate that and I feel we have demonstrated that in our preparation of the C-108.

And then lastly, as I mentioned, the wells that are -- that penetrate the San Andres will be protected by this 500 percent safety factor based on the volume and the likelihood that that volume would expand to potentially impact those wells.

In addition, we're going to address the adequacy of the San Andres as an injection reservoir. Clearly we have history in terms of the well having received salt water over quite a number of years and its injection capability. Now, clearly that's in an upper zone of the well only part of which will be being used in the new recompletion, but we'll go through that.

But furthermore and equally important, we put into operation a AGI SWD well at the Jal No. 3 Southern Union Plant down near Jal also in the San Andres formation, a very similar kind of well to the one that's being proposed here.

It's -- the only difference being that it is not an open hole completion, it's a cased hole completion. But we will also go through the C-108 and make sure that the Commissioners understand what information has been submitted that is sufficient for the Division to evaluate and approve the -- and for the Commission to be able to approve the installation of the well.

One of the issues that came up is that in the -- as we were going through this process, is that as the C-115 records for the existing SWD well were being reviewed it was found that those records were not inadequate because instead of submitting those volumes in barrels, those volumes have been submitted in gallons in those C-115 records, and the Division requested that Targa go back and correct those records and those have been corrected and submitted and accepted by the Division in the C-115 process.

Furthermore, an H2S contingency plan has been submitted and is being reviewed by the Division.

And the adjacent operators support the project and as we mentioned, all of the surface owners within the area of review have received proper notice.

Q. All right. And if you could take us now through the location of the well, the area of interest wells in that area, and the geology of the proposed injection zone.

A. Sure. As part of the C-108 process, clearly we in concert with the Division we established an area of review of one mile for the well which is essentially double the radius of the normal area of review for a salt water disposal well.

This is just a location map, I don't -- unfortunately I don't have a pointer, but the yellow blob in the top right-hand corner of the map is the town of Eunice and the Middle Eunice Plant is located just at the south margin of that yellow blob. Down five miles south where the red dot is, is where the South Eunice gas plant is located and where this proposed well is located.

So the pipeline will follow that distance from the Middle Eunice Plant down to the South Eunice Plant where the acid gas compression will take place as well as the mixing prior to injection.

Just to quickly review for the Commissioners, what is it that we're looking for in a

reservoir for CO2 and acid gas sequestration. One, it's a geologic seal that permanently will contain that gas. So we want the cap rock that will allow that gas to remain in the sequestered formation. We want to clearly isolate not only the acid gas but any wastewater or salt produced water from any fresh groundwater. And that is being taken care of by the routine design of the well itself and we'll go into detail in that in just a moment.

We clearly cannot have an effect on correlative rights or existing or potential production. And so we are wanting to do a injection project that is not in a zone that is currently being used for production, although these kinds of injection projects are routinely done in zones that are used for production, they are just called CO2 floods.

And as a matter of fact, even acid gas flooding for a second or tertiary recovery is being done in Canada right now, but typically we try to avoid that kind of a situation and avoid a -- injecting into an existing reservoir. We want a reservoir that is laterally extensive, is permeable and has good porosity because basically you need space to put the gas away. And lastly but not least, we want a compatible kind of fluid chemistry in that reservoir zone.

So let's take a quick look at what the

summary of key points of the geologic evaluation that we did. We identified the background regional geologic data that was presented in Section 4 of the C-108. I don't know if we -- I guess we don't really have that as an exhibit, but it has been submitted to the -- both the Division and to the Commission.

The -- we identified and located and evaluated all of the wells within the one-mile area of review and both oil and gas wells plugged and active, as well as water wells within that area of review.

We did a detailed evaluation of the stratigraphy in the area to confirm it meets the basic geologic criteria that I laid out earlier. That has been completed and is included in Section 4 of the C-108 and in Figures 5 through 10 of the C-108. We constructed cross-sections with available logs and looked at the porosity of the proposed zone and the wells in the nearby area. We reviewed the SWD well the way it's currently constructed and what would have to be done in order to make it appropriate for AGI SWD disposal.

There was -- Targa prepared an H2S contingency plan and submitted it to OCD for approval. And then just as the -- just as a point of history for the Commission, the OCD previously had approved this project originally as a separate acid gas injection well,

under order R-12809 and 809A and then it was modified to be a recompletion of this AGI SWD in Order 1161.

CHAIRMAN FESMIRE: 12809, wasn't that a different zone?

MR. GUTIERREZ: No. It was the same San Andres zone, it just included a larger vertical section of the San Andres.

CHAIRMAN FESMIRE: So the original application was greater than the one that you are applying for now.

MR. GUTIERREZ: That's correct. And that's driven, Chairman Fesmire, by the fact that the existing well is drilled into the top of the San Andres and in order to complete it properly we're going to sleeve it and run new casing inside of that. And so the very upper portion of that zone is going to be cemented off.

CHAIRMAN FESMIRE: Okay.

A. Okay. So let's take a quick look first at the identification and characterization of wells and the stratigraphy in the area. There are a lot of producing wells in the area of review. Most of those wells are located in the Langlie Mattix unit which overlies the San Andres.

We used the Targa SWD well in an injectivity evaluation to just get a sense of locally whether the San

Andres is capable of taking the kind of fluid that we anticipate. We based on the stratographic analysis and that evaluation of the existing well and our previous AGI experience, we feel the San Andres and in fact it's been demonstrated that the San Andres is an excellent acid gas and wastewater reservoir. The stratographic analysis resulted in this recommended recompletion of the SWD well rather than drilling a whole new well and plugging the existing SWD well, which was the original -- which is what was included in the original R-12809 order.

The -- we calculated from the data from the existing well and then similar data that we got from the operation of the Suggs well, which we permitted and completed for Suggs, that this well will be able to take this fluid under the maximum permitted pressure of 1292 PSI and that's the pressure that we calculated based on -- using the NMOCD formula for what is a maximum injection pressure without having to do a separate step-rate test. But we're quite comfortable that we will be able to put the amount of gas away that we're looking at with that pressure.

Q. (BY MR. SCOTT) Let me stop you there for one second, Mr. Gutierrez. Earlier Commissioner Fesmire had raised a question about whether the fluid once it was injected into the reservoir would be maintained at the

pressure to keep everything in a liquid phase. Could you respond to that question?

A. Absolutely. As a matter of fact, in our C-108 application, in Appendix A, there are -- which is the appendix that deals with the San Andres formation fluid and analysis of injection fluids, there on the second page of that appendix there's a phase envelope diagram that shows what the critical point is, which is essentially 1,101 PSI at 96 degrees Farenheit.

So in other words, at any pressure above that -- at that temperature or at a slightly higher pressure at a higher temperature, that gas will stay in a liquid phase. And then if I can direct the Commissioners' attention to Table 1 which is the first table in the C-108, is a printout of the software that we used to model what happens to the acid gas as it is injected into the reservoir under equilibrium conditions. And what you can see is that at equilibrium conditions at that reservoir we have a pressure of 2439 pounds reservoir pressure. And so that will certainly keep that gas in its liquid phase.

CHAIRMAN FESMIRE: Mr. Scott, this might be a good place to ask a question.

MR. SCOTT: Sure.

CHAIRMAN FESMIRE: Mr. Gutierrez, your 500

perfect volumetric safety factor, that includes basically is a 20 percent displacement efficiency, right?

MR. GUTIERREZ: That's correct. It includes the displacement efficiency based on the average porosity of the formation.

CHAIRMAN FESMIRE: Okay. Have you done any work on the mobility ratio of the in situ fluids which I assume are produced water or natural water and the injectate, the dense phase gas liquid mixture that you're going to be injecting at reservoir pressure and temperature? Do we know that what that mobility ratio is going to look like?

MR. GUTIERREZ: We don't really. We have not done that work because we really don't have I think the data to be able to do that without doing some injection testing which we are proposing to do as part of the recompletion of the well.

CHAIRMAN FESMIRE: Okay. So you will be able to do enough pressure testing that essentially you will be able to at least back calculate a mobility ratio, make sure your mobility ratio wouldn't give you a 20 percent or worse or so, I'm talking about enhanced recovery here, less than 20 percent --

MR. GUTIERREZ: Displacement.

CHAIRMAN FESMIRE: -- displacement

efficiency.

MR. GUTIERREZ: Yes, sir.

CHAIRMAN FESMIRE: Go ahead, Mr. White [sic], I apologize.

Q. (BY MR. SCOTT) Go ahead, please.

A. Let's take a quick look. You can see this is a map that shows the proposed -- the location of the proposed AGI SWD. And two circles on the map. The first circle being the half-mile radius, the second circle being the one-mile radius. You can see there are a lot of wells within that area. However, the majority of those wells are Langlie Mattix wells which are above the injection zone, those are the wells shown in green.

And then if we move to this next map you can see this is the map that shows the wells that actually penetrate the injection zone. There's a significantly lower number of wells and they are located primarily in the northeast direction away from the proposed Versado well. In fact, the two closest wells that penetrate the formation, the injection formation, are shown in the upper right, these two blue wells. One of them we have our cross-section drawn through, but they are wells that are Wantz and Abo producers and they are sitting essentially right at the half mile line.

CHAIRMAN FESMIRE: Are they cased and

cemented through the San Andres?

MR. GUTIERREZ: They are. Those two in particular. There are some wells that are further outside of that which were pointed out by Mr. Jones in his prehearing statement which we'll address in a little bit that are poorly cemented or not cemented through the San Andres because there's a thief zone really as Mr. Jones has referred to it, but basically a zone where you have a high chance of having lost circulation in the base of the San Andres and at the top of the Glorieta.

But that zone lies about 150 feet above the bottom of our proposed injection zone. So we think we have got some additional safety beyond just the lateral extent issues vertically in that way. And that was in fact one of Mr. Jones' recommendations was to stay at least a hundred feet above that potential thief zone.

This map also shows if you will see from A to A prime, the next slide is going to show a cross-section a schematic cross-section of the wells that penetrate the San Andres across that cross-section line and our proposed recompletion.

The Targa well is shown there in the San Andres as you can see, it currently extends to about 4450 feet in the open hole in the San Andres. I mean, it is cased through to the top of the San Andres but then it's

got from about 4 -- trying to remember the exact open hole now. But it's basically from about 4100 feet to about 4400 feet in the San Andres open hole now.

And what is proposed is that we will deepen that well to 4950 feet and use the injection interval from 4250 to 4950 feet, that 700 feet of the San Andres as an injection zone. And as you can see, the base of that is going to be located above the -- that thief zone or that zone of concern that is at the base of the San Andres.

Furthermore, one thing I will mention is that and you will see this in our next -- well, not in this figure but the next one, that right in this area where the -- that thief zone lies, that's the area where not the Santa Rita 2 well, but some of these further out wells have had some problems in cementing the San Andres.

But one of the things that you will see as I mentioned in another slide that I've got coming up is that the bottom part of the San Andres here is also a pretty effective barrier to flow because it has a very significant drop in porosity at the basal portion of the formation.

One of the other things that we looked at and we have done a lot of work on it using all of the available data from the wells that penetrated the San

Andres and that had logs in the area, is that the porosity within the San Andres in this area is not uniform. I mean, that's no surprise to a geologist. That you wouldn't expect it to be very uniform per se. But it does based on all of the data we have got it ranges from about seven to 12 percent and there does appear to be a porosity trend that is in -- pretty much in this kind of an alignment where you have higher porosity in this direction in this San Andres than you do in the east -- than in the transverse direction here.

Q. (BY MR. SCOTT) When you say "this direction" you're saying --

A. Northwest to southeast, yes. That's correct. So that's probably -- although it is difficult given the data that we currently have to predict what exact effect that will have on the migration of the plume or the aerial extent of the reservoir that is effected. But it will tend to -- to extend more in that direction of the porosity trend.

Q. In relation to that porosity trend, where are the wells that Mr. Jones identified as wells of concern?

A. As we saw in that earlier -- and I can shift back if we want to, see if I can find my little cursor here. As you can see most of those wells are located

here in the northeast direction and then there's two injection wells into the San Andres located out here in the extreme northwest or west direction.

Q. So then most of the wells that Mr. Jones identified as being of concern would be perpendicular to your expected porosity trend?

A. That's right. They were located in this area here.

Q. All right.

A. Okay. So let's take a look at what do we know about the San Andres. This is the well log for the existing Targa SWD well. It is currently logged down to about 4100 feet and you can see that that correlates pretty well to this is the closest well where we have a porosity log that penetrates the San Andres.

It's the Santa Rita No. 12 well which is located in this area right here. You can see that we have got some pretty high porosity in the very upper portion of the San Andres and we have a zone of a little bit lower porosity, some variable zone, and then we have got this zone that has an average porosity of about ten percent and that's our proposed injection zone.

And then this basal portion of the San Andres that has pretty low porosity and then you can see that below that you get some pretty significant porosity

increase in the Glorieta and this is the area where that thief zone is that Mr. Jones referred to is located in some of these wells in this area.

What we're proposing is that we will inject into this zone which, like I mentioned, is about 150 feet above the base of the San Andres and of course, I mean, we don't know exactly what our well log is going to look like when we drill that zone out, but we do as I will discuss in a little bit, have a pretty detailed coring and logging program to collect the data and injection testing program to collect the data to better characterize that zone prior to initiating injection.

And in fact, prior to making a final decision on the exact injection interval. Although we believe that this is the most likely interval, this 700 feet with approximately ten percent porosity.

Just as a point of reference, one of the other wells that was discussed by Mr. Jones in his prehearing statement is this Laura J May No. 1, which is one of the wells where we found a porosity log and that had more of an average porosity of about seven percent as opposed to a ten percent porosity. So we know that it's variable, there's some areas where it goes up as high as 12 or 13 percent. Our best estimate based on all of the data is that we are looking at about ten percent in our

injection interval.

We'll obviously have to confirm that as we drill and recomplete the well. So that brings me to discussing a little bit about our confirmatory data collection program. We intend to take side wall cores of San Andres in order to be able to calibrate our logs. We will do a full and rather expensive log -- suite of geological logs through the San Andres and the injection zone that will include what we call platform express or gamma resistivity and porosity log. And importantly, also a formation microimaging log through the injection zone.

And that micro -- that's a log that we have been doing on a routine basis in the last five or so AGI wells that we have done because what it does is it gives you the ability to understand structural trends or potential fracture trends in the injection formation and gives you a good sense of where fluid may be moving and how that reservoir will behave in terms of the aerial extent of its injection.

CHAIRMAN FESMIRE: I'm going to be showing a little bit of my age with respect to the oilfield here. But the formation microimaging log is a magnified video picture?

MR. GUTIERREZ: No.

CHAIRMAN FESMIRE: What is it?

MR. GUTIERREZ: It is essentially a -- it has a four-point radial tool and it is a log that essentially gives a very detailed view of the immediate vicinity of the well bore and the processing gives you the primary stress directions and any kind of fracture directions.

CHAIRMAN FESMIRE: What does it measure physically I mean?

MR. GUTIERREZ: That's a good question.

CHAIRMAN FESMIRE: It's a black box that they use now --

MR. GUTIERREZ: Well, it is somewhat of a black box, but it does provide a fairly good view of the stress directions and the -- in the well.

CHAIRMAN FESMIRE: Okay.

A. The -- and typically by the way, in all of the AGI wells that we have completed and that the Division has permitted, we have as we will this well at the end of the well we provide OCD with a detailed end of well report that has all of this process data, our analysis of it, as well as all of the raw data including all of the logs.

And it's actually been giving some good information to other people that are wanting to

characterize those formations because not very many people do this kind of log imaging. Furthermore, in terms of injection testing, we will be doing a injection test with a temperature survey, warm back data, and a step-rate test to look at the injectivity of the formation.

The temperature survey will allow for a termination of what areas within that injection interval are more permeable, if you will, than others and it will give some idea of what zones within the injection zone are going to take relatively more or relatively less of the injection fluid.

All of those data will be used in refining our understanding and in better answering the kinds of questions that Chairman Fesmire that you raised regarding the accuracy, if you will, of the displacement model.

Q. (BY MR. SCOTT) You talked about the geology generally. Can you talk now a little bit about the design of the proposed well.

A. Sure. This design as was included in the C-108 is shown on Figures 3 and 4 of the C-108 application. We'll go through those, but just to hit the highlights it will have a lined injection tubing that is fiberglass lined and it is basically to prevent corrosion of the tubing itself.

It will have an automated subsurface safety valve which is set at depth of about 250 feet in the well that is a valve that allows the well to be shut in automatically if there's any kind of a failure or pressure drop as a result of let's just say someone drives over the wellhead. Which is a highly unlikely situation, but these -- this valve shuts off automatically.

We will also have a choke and a pressure regulating valve to assure that the -- that injection fluid is kept in a liquid phase and that the maximum allowable injection pressure is not exceeded at the wellhead. Also the annulus between the casing and the tubing will be loaded with an inert fluid; for this well we will use brine not diesel.

We use diesel in wells that are dry AGI wells because it is what would prevent any small amount of acid gas that would leak out from being released in the annulus. But in a case of a well where you're already mixing the gas with brine we use brine as that fluid. And that annulus is also monitored, pressure monitored so that if there is any change in the pressure in that annulus that would indicate a potential tubing leak we could take appropriate action, shut the well down and check out the tubing leak prior to any real problem.

And then the brine is just designed to keep any fluid that got out of the well from being able to escape once you're in the process of trying to work it over if you have a tubing leak. There will be meters of course that will record the volume of acid gas and water injected separately as well as the total injection volume fluid because that has to be reported on a monthly basis to the OCD on a C-115.

So there will also be -- there's a layout of the plant and the injection site as well as the H2S monitors that Mr. White described associated with the pipeline. Those are all included in the H2S contingency plan which is currently being evaluated by the Division.

Q. And that plan was included as Appendix E to the C-108, correct?

A. It was -- it was submitted independently from the C-108 in October, but yes, a copy has been included in the C-108. And a copy was sent along with the C-108 to all of the people who were noticed.

Let's just look at it schematically because to me, I always can see things better in -- in -- visually than just by points. We'll just start with there will be a tie-in to the proposed -- the approved pipeline that has been -- that is coming from the Middle Eunice Plant that will take the acid gas in through --

there will be an automatic safety valve prior to the compression, there will be a meter on that line and then you go into the compression facility.

The compressed acid gas will come out of the compressor and as you can see up there there will be a tie-in to the wastewater line and those will be -- sorry. This will be metered and then flow into the mixing chamber. There will then be a choke downstream of the mixing chamber which will reduce the pressure that -- that comes out to --

CHAIRMAN FESMIRE: Why do you need to choke it down to about 190 pounds here? That seems like a bit of a waste. Why do you need the extra 200 pounds?

MR. GUTIERREZ: Well, I think it's because the compression facility may have some variable pressure and it could have pressure spikes. I mean, we're just saying 1482 is the maximum that it could spike to and we don't want to exceed the maximum allowable injection pressure. So that's --

CHAIRMAN FESMIRE: So what you have is a regulator.

MR. GUTIERREZ: It's a regulator in effect. So those -- then as I mentioned earlier, we will have a subsurface safety valve and that's the automatic safety valve that will shut off the tubing here in the event

that there's any problem at the wellhead so that if there was a problem at the wellhead the maximum amount of acid gas or fluid that could be released is what is in the pipe between this automatic safety valve and the safety valve that is located here in the area downstream of the mixing chamber or at the compression facility itself.

Then there is as I mentioned, the annulus between the tubing and the well is filled with brine. We have a packer that is set in a corrosive-resistant alloy joint at the base of the well, and then we have got the open hole injection zone at the base of that well.

Let's take a look at what we have got and where we're going. The figure on the left-hand side is the existing configuration of the SWD well. This is what I couldn't remember off the top of my head earlier. It is open from 4010 to 4550 right now in terms of the completion of that well.

There's a packer set at the -- about 4010 level and so currently that well has been injecting into the top 540 feet of the San Andres. The current well is going to be recompleted in a form that you see on the right-hand side of the diagram. And this is, by the way, Figure 3 in the C-108.

The well is going to be deepened to a total depth of approximately 4950 feet, there will be a inner

casing of five-and-a-half inch casing that will be set with a corrosion-resistant alloy joint at the base of that casing from 4190 to 4210. The new packer will be set in that corrosion-resistant joint. That casing will be cemented to the surface and then the injection will occur in the open hole beneath the 4250 zone.

Now, clearly there's a -- some extension of the current casing that goes down in that open hole interval. Basically that casing isn't going to last very long once we start injecting acid gas because of the corrosive nature of the fluid in that immediate location.

Q. Having discussed the well design and configuration can you talk a little bit about the volume of fluid we're proposing to inject and its impact on the reservoir.

A. Yes, I will, but I want to go back. There was one point that I missed I want to emphasize. The existing well as we -- as I mentioned earlier, has got surface casing set to about 300 feet. As Mr. White testified and I'll show in a subsequent slide here, the deepest fresh water in the red beds at this location is about 180 feet.

So this surface casing which is at 300 feet which is cemented to the surface and for which there has been a bond log and there's never been any kind of

leakage detected in that well is what protects the fresh water.

Q. All right.

CHAIRMAN FESMIRE: You made a statement that the existing casing was going to be subject to corrosion. You are going to cement that -- you are going to hang that liner off and tie it -- side the cement back, right?

MR. GUTIERREZ: Yes.

CHAIRMAN FESMIRE: How is the old casing going to be exposed to the CO2 injection, to the acid gas injection?

MR. GUTIERREZ: Well, it will probably be exposed to it to the degree that there is some vertical communication in the San Andres there outside of the well bore.

CHAIRMAN FESMIRE: Okay. So you're -- it's not within the well bore, you're expecting it to communicate up into the San Andres where the shoe is --

MR. GUTIERREZ: It could. It could.

CHAIRMAN FESMIRE: Okay. What's the top vertical extent of that communication?

MR. GUTIERREZ: Well, if we look back -- I can't answer that definitively because in fact we don't obviously have the well drilled yet to have that -- that understanding of the log. But it is certainly a

potential. It's not necessarily that that will occur but it could occur.

CHAIRMAN FESMIRE: Okay. So I guess what I'm asking is, if we're expecting that to occur, we would assume that would occur, how high is that corrosive effect going to go? Have we, I mean, any engineering in that respect?

MR. GUTIERREZ: Well, based on our experience most of the -- in the San Andres, you will have a relatively limited communication in a vertical sense and we are a good 250 feet below that zone. But I guess what I'm trying to say is that at this point it's not possible to rule out that it could be affected.

CHAIRMAN FESMIRE: Okay. I guess what I'm saying is, we're going to cement the liner in there.

MR. GUTIERREZ: That's right.

CHAIRMAN FESMIRE: Are you going to cement the liner and then drill out?

MR. GUTIERREZ: Yes.

CHAIRMAN FESMIRE: Okay. And you're concerned about the shoe, the original casing shoe and the corrosion in that first joint because of the information communication, not -- not through the annulus.

MR. GUTIERREZ: That's correct.

CHAIRMAN FESMIRE: How far, you know, can it go to the top of the San Andres? What's on the top of the San Andres that will keep it from going farther up hole?

MR. GUTIERREZ: The Grayberg and extreme top of the San Andres is very low porosity and it has been shown to be an effective cap to -- and we as a matter of fact -- clearly it's at Jal 3 not very far. But we have cored that and it's extremely low porosity and it's created an effective seal.

And actually, one of the things I'll address when I talk about the OCD's concerns, there was an earlier order in this area where there was a water flow issue that occurred back in the '70s. And interestingly enough, this well in particular was a well that was tested and evaluated during the development of that order and it specifically was found not to have any kind of leakage out of the San Andres.

CHAIRMAN FESMIRE: Okay. So we've got an effective seal at the top. How much of the -- I guess what concerns me is the diagram shows a good cement sheathe on the old casing. Are we sure we've got that if you're concerned about losing that bottom joint?

MR. GUTIERREZ: We have a -- I'm not concerned about losing the bottom joint. I am -- I am

saying that we can't definitively say that it might not be affected but we have a good bond log for the well --

CHAIRMAN FESMIRE: So we have cement all the way from there back up to the top of the San Andres.

MR. GUTIERREZ: Yes, sir. Yes, sir.

CHAIRMAN FESMIRE: Okay. Sorry. The way you phrased that scared me.

MR. GUTIERREZ: Sorry. That wasn't my intent.

A. The -- the volume that we are intending to inject is a total of 2500 barrels a day approximately of acid gas mixed with 1575 barrels a day of wastewater and produced water coming from the Middle Eunice Plant.

That may vary somewhat depending on the production both of the acid gas and the wastewater, but that is the amount that we are requesting. As I mentioned earlier, in this 1975 order, while it was found clear and it's documented in the order that the -- there was no leakage out of San Andres in the vicinity of this well because there was a nearby -- several nearby LPG wells right on the South Eunice plant in the salt overlying the San Andres, there was a limitation of 1500 barrels a day in -- imposed on that well in that area.

However, that limitation's no longer relevant because those LPG wells were all plugged in 2008

as a result of OCD's request associated with this redevelopment of the AGI well.

Okay. Here's where we talk about our plug model and how we arrived at the safety factor. As Chairman Fesmire characterized, this plug model is a displacement model that is an approximation of the area that is going to be affected in the reservoir over a 30-year injection period with the proposed rate of 4075 barrels a day of fluid.

Now, when we calculate using that plug model and we clearly understand that that is an imperfect or idealized model, we get a -- at that volume injected over 30 years, that's why this is at Unit No. 1, a hundred percent. That is a hundred percent of that volume injected over 30 years gives us -- given the effective porosity that we had assumed of ten percent, it gives us the radius of about .2 miles.

Now, what I was trying to explain is that as you inject more and more and more which we're not proposing to do but I'm just trying to show what the effect would be if here what we're talking about is 4075 barrels a day over 30 years gives us this kind of displacement here. If you double that it gives us this kind of displacement in terms of the 30-year footprint. If you basically triple it, it gives us this kind of

displacement here, and quadruple it, it gives us this kind of displacement.

So that if you look at this graph you can see that in order to even get to the half mile circle our model would have to be basically 500 percent wrong or it would have to underpredict the amount of reservoir that would be affected by five times.

Now, clearly, there are factors that affect this area that was going to be affected. One of them is obviously the porosity. The other is as Chairman Fesmire indicated, that the mobility ratio. But, you know, given the data we have, we feel comfortable especially that we're talking about a injection period of over 30 years that we are not going to see any kind of an effect anywhere near even these Santa Rita wells, which are located at the half mile, which are not the ones that OCD indicated concerns about relative to the cementing.

Now, one of the other things I want to mention too that has to be considered that is an additional safety factor is that the injection formation a dolomite. It's essentially limestone and dolomite so it's got a significant amount of buffering capacity for that low pH fluid that is being injected.

Not only the neutral -- relatively neutral fluid that is existing brine in that zone, but the rock

itself provides a significant buffering capability as that injection plume expands. Because you in effect do dissolve some of that rock in a geochemical sense as that plum expands.

CHAIRMAN FESMIRE: Mr. Gutierrez, is that dense phase gas liquid, the dense phase gas, is that going to be able to react with the rock under those pressure and temperature conditions?

MR. GUTIERREZ: Well, the dense phase gas itself will not react significantly with the rock. What will react significant with the rock is whatever portion of that gas ends up being dissolved into the formation fluid and/or into the injection fluid that is mixed with the gas as it is injected.

CHAIRMAN FESMIRE: Okay.

A. This I wanted to show where the wells, the water wells that are located in the vicinity of the -- of the -- well, within the one-mile area of review. As I mentioned, the deepest well -- water well is approximately 186 feet deep in shallow alluvial deposits, but there can be some water in the red beds and consequently that's why the existing well is completed at -- with the surface casing of 300 feet. And that is a pretty normal kind of surface casing depth for wells in this area.

And as I mentioned, this well has a long injection history and has never had any problem associated with fresh water wells that are even located right at the facility itself that provide fresh water to the facility.

Q. (BY MR. SCOTT) Could you summarize your analysis and conclusions for us, please.

A. Yes. Essentially, there's a series of geologic factors that assure the integrity and safety of the proposed AGI. There aren't any faults or structural pathways that we have identified in the area of review. This will be obviously confirmed in part by our review of the new log associated with the recompletion.

Also the cap rock the Grayberg is a low porosity dolomite and recrystallized limestone which is an effective barrier above that injection zone. The San Andres is a preferred injection zone because deeper zones may be productive and are productive in some adjacent areas, especially outside the half-mile radius to the northeast.

The proposed injection pressure is way below the fracture pressure of the reservoir in the cap rock. There's an injection history of salt water disposal wells that demonstrate that the San Andres is a closed system. There's no well bores that penetrate the injection zone

within the AGI footprint even after 30 years of injection with a very significant safety margin as we looked at earlier.

And there was one well that is relatively close to the proposed well which is in the overlying Langlie Mattix unit that did penetrate the top of the San Andres. When it was drilled originally it went down to 4075 feet. It was then plugged back to the Langlie Mattix well above that zone. But there's some concern the OCD and we had some concern as to the adequacy of that plug-back, so Targa has committed to the agency and has obtained permission from the operator Legacy to reenter that well and replug it back.

It's a well that they use as an injection well for water flood in the overlying Langlie Mattix. So we will reenter that well, plug it -- it is plugged back already but we will replug it back.

CHAIRMAN FESMIRE: Do you remember who -- just do you remember who drilled that, the operator that drilled that?

MR. GUTIERREZ: Originally?

CHAIRMAN FESMIRE: Yeah.

MR. GUTIERREZ: I don't know if it was an Anadarko well or it could have been a Skelley well, but I don't know. It is an old well that was -- that has

always been -- well, not always, that was a producer at some point in the Langlie Mattix but was then plugged back and used as part of a water flood.

CHAIRMAN FESMIRE: Thank you.

A. And by the way, like I said, Targa has already obtained permission from Legacy to do that recompletion as part of this effort.

As we mentioned, there are some well design factors that also assure the integrity and safety of the AGI. The surface casing is set well below the deepest fresh water and it is cemented to the surface.

The new production casing will be set within the surface casing and cemented to the surface with CRA joints at the base where the packer is going to be set and where the production casing will terminate above the open hole.

The cement bond logs will be provided to the Division to assure that there is an appropriate casing seal. There is a corrosion-resistant fiberglass lined tubing which is what we are going to use and I explained earlier how we will monitor that annulus between the casing and the tubing.

And importantly, similar designs are being utilized successfully throughout Southeast New Mexico, Texas, and Alberta, including four such installations

that we have designed and permitted and completed.

Q. (BY MR. SCOTT) Mr. Gutierrez, we talked briefly at the start of your testimony about some of the notice that was provided concerning this application. Could you just touch on that again briefly for the Commissioners.

A. Yes. We met with OCD prior to submitting the application to make sure that we understood and that the Division was comfortable with the notice that would be provided as a result of this application.

We agreed pursuant to the OCD's request to notify specifically and to mail a copy of the application, complete copy of the application to all of the surface owners within a mile, all of the operators within a mile, all of the lessees and/or mineral owners within a mile of the proposed well. The State Land Office, which in fact is a surface owner within a mile anyway, but even if they hadn't been. And the BLM which is not a surface owner within a mile, but we did notify the BLM as well.

And we were specifically also asked to notify any residents. Because there could be residences or businesses that have facilities within that area of review that are not surface owners so we went out and basically made sure that any residences or other business

facilities were identified within that mile we noticed them as well. And then lastly, we noticed the town of Eunice.

Q. All right. Thank you.

CHAIRMAN FESMIRE: Would this be a good place to take a break?

MR. SCOTT: Yes.

CHAIRMAN FESMIRE: Why don't we take a ten-minute break. And I plan on taking a later than usual lunch. I'm hoping that we can finish this up before lunch. Why don't we reconvene at 10 minutes after 11:00.

(Break.)

CHAIRMAN FESMIRE: The record should reflect that the regularly scheduled meeting of the December 9, 2010 NMOCC meeting has reconvened and all three Commissioners are present and we will continue with the direct examination of Mr. Gutierrez.

Q. (BY MR. SCOTT) Mr. Gutierrez, during the course of your testimony Commissioner Fesmire asked you some questions about the microimaging log and what that log demonstrates. Would you care to elaborate on that issue?

A. Well, yeah. I consulted with Dr. Lozinski my logging expert to find out a little bit more. It is

an oriented four resistivity tools and they are oriented for microresistivity rules. And the process is a bit of a mystery, that's a Schlumberger trade secret. But basically it's an oriented resistivity tool.

CHAIRMAN FESMIRE: Okay. Thank you.

Q. (BY MR. SCOTT) In your opinion as a certified professional geologist and a hydrogeologist will the proposed recompletion of Targa's salt water disposal well for used as a combined acid gas injection and wastewater disposal well and the proposed volume of instructions protect public health?

MS. MACQUESTEN: Objection. He hasn't been accepted as an expert.

CHAIRMAN FESMIRE: That's correct

MR. SCOTT: I would offer him as an expert.

CHAIRMAN FESMIRE: Any objection, Ms. MacQuesten?

MS. MacQUESTEN: No objection.

CHAIRMAN FESMIRE: Thank you. His credentials will be so accepted.

Q. (BY MR. SCOTT) So again Mr. Gutierrez, in your opinion as a certified professional geologist and hydrogeologist will the proposed recompletion of Targa's salt water disposal well to serve as an acid gas injection and wastewater disposal well and the proposed

injection of volumes over 30 or more years protect public health?

A. Yes.

Q. And will the proposed recompletion of Targa's salt water disposal well and its use as a combined acid gas and wastewater injection well to receive 44.56 million barrels of material protect fresh water in the environment?

A. Yes.

Q. And in your opinion as a professional geologist will the proposed recompletion of the Targa's well to serve as a acid gas injection and water disposal well protect producing zones, prevent waste, and protect correlative rights?

A. Yes.

Q. Have you had an opportunity to review the prefiled testimony of Will Jones?

A. I have.

Q. And were you able to prepare responses to the issues he raised in that testimony?

A. I have.

CHAIRMAN FESMIRE: Do you have any objection to proceeding with rebuttal testimony now or would you rather wait and call this witness later?

MS. MacQUESTEN: I don't object.

CHAIRMAN FESMIRE: Continue, Mr. Scott.

Q. (BY MR. SCOTT) Could you outline for us what those issues and what your responses to Mr. Jones' concerns were.

A. Sure. Let's just go through them. Mr. Jones had a number of individual concerns and then specific recommendations. We met a couple of days ago and discussed those in some detail. And I think we have a pretty good understanding of what they are, so I'd like to go through them and point out what are -- how we're addressing those concerns.

The first concern was over this Langlie Mattix unit Well No. 252, that it should be repaired. We agree and we have agreed as part of this, prior to injecting any acid gas that we would reopen and repair or recomplete that, plug that well back to make sure that there is no connection with the San Andres.

The second concern was the potential impact of the -- on wells that penetrate the San Andres outside of half-mile radius but within the one-mile area of review. I have gone over that in detail in terms of our analysis of the plug flow model. We believe that the proposed injection volume after 30 years based on all the information we have to date is only going to extend a maximum of about .2 miles from the well.

CHAIRMAN FESMIRE: I'm sorry. Do you have a copy of this for Mr. Jones?

MR. SCOTT: Yes, I have another copy.

CHAIRMAN FESMIRE: We're on Page 27, Mr. Jones. Continue, sir. I apologize.

A. Sure. And also the safety margin even if the -- we understand that the plug model is somewhat uncertain and that it is dependent on various assumptions but we feel that we have a very significant safety margin before we get out to that half-mile zone.

And then lastly, this -- the base of the injection zone is proposed to be about 150 feet above this thief zone that's buffered by the low porosity San Andres base.

The third concern was that the prediction of the reservoir area is sensitive to a variety of model assumptions. Well, clearly we agree with that. The existing model, like I mentioned, has a significant safety margin of 500 percent. But in addition, we propose that we will gather confirmatory data and analyze that data and present it to the Division as part of the proposed recompletion program.

The next concern that was expressed was that the existing logs aren't sufficient to characterize the injection zone. Again, we agree the closest well that we

have is the well that I showed you, the top portion of the San Andres seems to correlate pretty well to that well, so we don't anticipate that it will be significantly different. But we won't know that until we drill and log it and until we take some side wall cores which we will directly measure porosity and allow us to calibrate that well log.

Again, it really boils down to the fact that the majority of the Division's concerns at least as I understand them are that the uncertainties in the plug model don't give the Division a sufficient level of comfort with the data as it exists so while we feel that that plug model has a very significant safety margin, we will gather confirmatory data during the well recompletion and we will analyze and supply that analysis and the data, raw data to the Division.

We -- the next concern was about additional data gathering as well. And again, we will gather and submit that data. The vertical safety factor which Mr. Jones recommended, we don't have a problem in the way our well is designed. It provides about 150 rather than a hundred feet of safety factor above that zone.

The other issue that was raised was essentially a clean-up issue, if you will, related to this old 1975 order, the whole motivation for that order

has been removed by the fact that the LPG wells have been plugged that were the subject of that concern.

The OCD then had a number of recommendations following their expression of concerns. Their first one is that a series of construction and testing requirements. All of the construction and testing requirements which were proposed by the OCD in Recommendation A we already had included as things we were going to do in our C-108, with the exception of the recommended temperature survey injection survey and we have agreed to do that following the logging of the well.

The operational requirements, there was a concern again about the order 5003 that had a 1500 barrel limit. It really is no longer applicable because of the plugging of the LPG wells. The remaining operation requirements that were being recommended by OCD regarding pressure, metering, et cetera, those are included already as part of our application and we're committed to implementing those.

The next recommendation was regarding remedial work on the Penrose Sand well. We have proposed that as part of our C-108 application and have obtained permission from Legacy, the operator, to do that work prior to the injection of acid gas.

The next one was a recommendation to confirm

Targa's compliance with well construction and data collection. A concern that was expressed to us by the Division attorney is that how -- whether there would be an appropriate mechanism for the Division and the Commission to assure compliance with what we say we're going to do when we construct and complete the well and perform data collection.

What we would propose is that Targa would provide a certification by a company officer that all of the well construction and data collection requirements that are incorporated in the order will be completed prior to the injection of acid gas, and we will submit a refined calculation of the area of the reservoir affected over the injection period within a year of that certification, that those data collection activities were completed.

The next recommendation was that at some point in the future the OCD or the OCC amend the order to confirm the injection limit. Our proposal is that our predicted area has a very significant safety margin over a long period of time that over 30 years we don't anticipate that we're going to get anywhere near those half mile wells, but -- and so therefore we're requesting a maximum of 30 years or 44.65 million barrels whichever is greater.

Alternatively we would suggest that possibly an administrative amendment could be issued to update that estimated injection volume or time limit if it's needed once that -- those data are analyzed that we are committing to submit to the agency. And that's the end of my --

Q. (BY MR. SCOTT) One more slide. The next slide summarizes what we're requesting by way of an order from the Commission please.

A. Right. In summary, what we're asking the Commission for is an order that will allow us to test and recomplete the well as specified in our C-108 application for use as a AGI SWD well. And that the Commission allow us to inject a mixed stream of dense phase acid gas and wastewater at a maximum rate of 4075 barrels per day, maximum operating pressure of 1292 or say 1300 PSI if we want to choose a round number, for a duration of 30 years or 44.65 million barrels whichever is greater.

We have provided or our counsel has provided my understanding a draft order to this effect to the Commission counsel.

Q. Thank you, Mr. Gutierrez.

MR. SCOTT: At this point, I would move for the admission of Exhibit 3.

CHAIRMAN FESMIRE: Any objection?

MS. MACQUESTEN: I have no objection to admitting it as a demonstrative exhibit that expresses Mr. Gutierrez's testimony. I'd like to clarify this will be the Exhibit 3 for this case and replaces the Exhibit 3 that was submitted with the prehearing statement?

CHAIRMAN FESMIRE: Right. This will be admitted Exhibit 3 as opposed to proposed Exhibit 3. And it will admitted for demonstrative purposes.

MR. SCOTT: All right.

CHAIRMAN FESMIRE: Under those conditions Exhibit 3 is so admitted and thank you for providing the court reporter a clean copy.

MR. SCOTT: Then I have one other just housekeeping item with this witness if I may approach him again.

CHAIRMAN FESMIRE: You can. You're going to admit the C-108?

MR. SCOTT: Yes, I am.

Q. (BY MR. SCOTT) Could you look at what we have labeled as Exhibit 4, please.

A. Yes.

Q. Do you recognize that document?

A. This is an original of our C-108 application which we prepared for this project.

Q. All right. And is that the C-108 that

you've been referring to throughout the course of your testimony?

A. It is. And it's also the C-108 that was provided with the notice to all of the noticed parties.

MR. SCOTT: I would move the admission of Exhibit 4.

CHAIRMAN FESMIRE: Any objection?

MS. MACQUESTEN: No objection.

CHAIRMAN FESMIRE: Exhibit 4 will be admitted to the record.

MR. SCOTT: Nothing further with this witness at this time.

CHAIRMAN FESMIRE: Ms. MacQuesten? Are you going to need the PowerPoint?

MS. MACQUESTEN: No, but Mr. Gutierrez may wish to respond.

MR. GUTIERREZ: If I do I'll hook it back up. It's not gone.

MS. MACQUESTEN: That's fine.

* * *

CROSS-EXAMINATION

BY MS. MACQUESTEN:

Q. Mr. Gutierrez, if I understand your testimony correctly, you acknowledged that there are problems outside of a half mile of this well that we need

to make sure we avoid.

A. I acknowledge that there are some wells that are outside that half mile and within the one-mile area of review that are less than optimally cemented in the injection zone, yes.

Q. So your argument is that we can ensure that the plume doesn't reach beyond one half mile of the subject well.

A. That is correct.

Q. And if it does go beyond one half mile then we may need to address those wells that have cementing issues?

A. If there is -- even if the plume was to go out or if there were some effect in the dissolved phase in the formation fluid, my personal opinion is that the corrosive nature, existing corrosive nature of the formation fluid is not going to be subsequently significantly affected. But -- but you're absolutely right in that if there were problems associated with those wells and there was H2S that would reach those, there may be some need to address that, yes.

Q. So your testimony today is going towards showing us that we won't need to worry about that because the plume won't extend beyond a half mile.

A. That's correct. I think the data that we

have analyzed and that we have available indicates that we would have to be very wrong with respect to our model or the model would have to be significantly underestimating that distance for it to affect it, even after 30 years of injection.

Q. Before we get to the model, if we just look at the issues within a one-half mile area of review, we do have the issue of the well that as operated by Legacy that Targa proposes to reenter and replug; is that right?

A. That well, as I described earlier, was drilled to a total depth of 4075 feet and it was plugged back above the top of the San Andres. However, it did penetrate about 65 or 70 feet of the San Andres formation prior to being plugged back.

And we want to make sure even though we're going to be injecting well below that depth, and one of the things I addressed with Chairman Fesmire is the fact that expansion of the plume is going to be limited in a vertical sense. But that we just to kind of use belt and suspenders we propose that that well be reentered and replugged according to current NMOCD requirements.

CHAIRMAN FESMIRE: Ms. MacQuesten, may I clarify a question? You propose to reenter it, drill it out, recement it, and squeeze it?

MR. GUTIERREZ: It was -- we won't have to

squeeze it really because there's no casing there. The casing is above that. The well was drilled to a total depth of 4075, but it was never cased to that depth. And then it was just plugged back with cement. And as a matter of fact, there's some lead wool sitting on top of that cement. And our proposal is that we would drill out all of that crud.

CHAIRMAN FESMIRE: Drill out the lead wool?

MR. GUTIERREZ: Drill out the lead wool, drill out the cement and then recement that.

CHAIRMAN FESMIRE: And you don't think it will be a problem drilling out the lead wool?

MR. GUTIERREZ: We don't.

Q. (BY MS. MACQUESTEN) How confident are you that you can reenter the well and plug it back according to current standards?

A. I don't see any problem with doing that.

Q. If for some reason you're not able to cement it to plug it back to current standards, how do you propose to address that situation?

A. Well, I propose to drill it out and plug it back according to the current standards. I mean, if we can't do that I guess that would be a concern that we would have to address at that point in time with Legacy and with the Division. But there really -- this is not a

-- you know, we calculated the total thickness of that quote unquote "lead wool" that sits above the cement and given the density of the lead wool and the amount of lead wool that the original records show that was put into the well, we're talking about a total thickness in that bore hole of lead wool of about four feet. And we don't anticipate that there's going to be any problem drilling that stuff out.

Q. Will the remediation be done before injection commences on the subject well?

A. Absolutely. And by the way, also, prior to reentering and recompleting that well we would have to submit a C-103 to the District for them to review the proposed plan and approve the proposed recompletion plan. And subsequently a C-105 to demonstrate that in fact it has been adequately plugged back according to that approved plan.

Q. So you wouldn't object if the order issued by the Commission required Targa to obtain approval from the district office of completed plugging operations on that well before beginning injection in the subject well?

A. No. As a matter of fact, that's what we propose that we would be doing.

Q. Let me ask you about the model that you are using that is the basis for your position that the plume

will not extend to the half mile within 30 years. That model is based on a number of assumptions; is that true?

A. Yes.

Q. One of those assumptions being that there will be a plug-like displacement?

A. That's correct.

Q. And when you're saying that, what you're saying is that the fluid that is injected into the subject well would look like a cylinder.

A. Yes. An ever-increasing cylinder over time.

Q. This is a mathematical calculation that you're using to predict the size of this cylinder.

A. Yes.

Q. And I believe in your testimony you described this as an idealized concept of what actually happens when fluid is injected into a formation.

A. That's correct.

Q. In reality, what is the shape that's created when fluid is injected into a formation?

A. Well, it's really a function of the variation and porosity and permeability over the thickness of that cylinder. In reality what happens is that you get some kind of a ragged edge, if you will, to that cylinder. There are zones that are locally more permeable and more porous, have varying amounts of

expansion.

Q. And that would be true in a situation where there was not any fracture; you would still have the ragged edges because of the difference in the porosity.

A. Yes, it would still be true in a case where there's fracturing. If you have open fractures, clearly those fractures are going to preferentially take fluid and the expansion of that plume would also go along those fracture trends.

Q. So if there's a fracture, the actual shape could be very different because the fluid might flow along that preferential path?

A. That's correct.

Q. And so it could extend out further than your predicted plume based on your mathematical model?

A. It's possible. Yes.

Q. In fact, when we were having discussions of the plume, didn't you show us a model where instead of a cinder it was an extended oblong?

A. Right. And if -- in the C-108 there is a figure that shows that. And that is an attempt to qualitatively demonstrate that the porosity trend that I showed on the map, there would tend to affect and we believe that that cylinder is probably going to be more of an ellipsoid that's oriented in a northwest/southeast

direction.

But we really don't have the data to be able to do that in a quantitative way so the accepted approximation is the cylindrical plug model that we have presented.

Q. You don't have the data; is that on the porosity?

A. On the porosity and on the actual log, the data that we would derive from the suite of logs that we're going to do on the well prior to recompleting it.

Q. All right. In fact, you don't have a lot of data to plug into your mathematical model at this point, do you?

A. No, I would disagree with that. I think we have very good understanding of the general porosity of the San Andres, the San Andres is a formation that has been exploited and understood for nearly a hundred years in Southeast New Mexico. So I think we have a very good understanding of the San Andres.

We have good understanding of the lack of any significant structures or faults or significant fractures in the area; there's no evidence of that. Part of that is reflected in the fact that the water flow analysis work that was done before demonstrated that you weren't getting leakage out of San Andres.

I think we have a pretty good understanding of the range of porosity in the area from about seven to 12 percent. We don't have a log right at the location of the well because we haven't drilled it yet. But I think we -- when you look at -- even if you were to look at reducing the porosity let's say to a minimum of seven percent in that area, that would not have a hugely significant effect on that plug.

Let's say if you were to -- I haven't gone through the calculations, but just roughly if you were to look at let's say seven percent instead of ten percent porosity with that plug model. You might look at instead of a .2 mile radius of influence over 30 years it might be like .23 or .24, somewhere in that range, even with that kind of range of porosity.

So I think that we have a significant amount of data that makes us feel comfortable enough and frankly, the potential effect on those wells is less of a public health or safety concern than it is a liability concern to Targa. So I mean, clearly they want to be confident that that plume doesn't extend out there and cause some problem that makes them liable for damage to someone's well.

So we feel that there are sufficient data, this is the way in which we have modeled these AGI

projects in the past for the Division. And while there are uncertainties we believe that the safety margin that this -- that we have between what our predicted radius is and the ultimate location of those wells at the half- to one-mile radius provides sufficient protection.

Q. Let's just look at those variables one more time. On the issue of the porosity, was it your previous testimony that the porosity in the area is variable?

A. Yes.

Q. You are testifying that you're not concerned that there is fracturing in the area?

A. That's correct.

Q. Have you reviewed Mr. Jones' prefiled written testimony?

A. I have.

Q. Do you recall his discussion of some testing that was done on the subject well in 1983 that he was concerned indicated the possibility of fractures?

A. Yes. And that is in the -- in the zone that is above the zone that we're intending to inject. But part of the reason why we are proposing to do the additional logging and coring of that well is to be able to more definitively determine whether or not there's a problem there.

Q. So you're agreeing that we need additional

data in order to determine if there's a problem with fracturing in the area.

A. Well, I would not say that -- there isn't -- I haven't seen any evidence that indicates to me that there is a widespread problem with fracturing in the San Andres in this area or specifically at this well. But whether there are -- I mean, the San Andres is a limestone dolostone kind of reservoir that does have voids and may have some solution voids in it associated with fracturing or not associated with fracturing.

Now, whether those are significant in terms of their aerial extent, there hasn't been any evidence that I've seen that would lead me to that concern. Again, when we do -- when we suppose to do formation microimaging log, I think it will give us an added level of confidence with that.

Q. Is it true that another variable that might affect your model would be the thickness of the interval in which the injected fluid is entering the formation?

A. Well, we have modeled it to encompass the entire injection interval that we're proposing.

Q. But if it turns out that the fluid enters at a reduced interval, could that affect your model?

A. Well, certainly. I mean, if you -- if you shrink the injection like if you take your cylinder that

we were talking about and you squeeze it, it actually gets larger in diameter. So clearly if you have lower porosity or you have a smaller injection interval you would have a change in that diameter of that cylinder, if you will. Similarly, if the porosity is higher than the average porosity that we would anticipate then the cylinder would shrink.

Q. And did I hear your testimony correctly that right now your injection interval is simply a proposed interval, that you will know better once you have done the logging and surveying what the actual injection interval will be?

A. Yes. Although, I mean, our plan is to use that 700-foot injection interval. Now, we'll have a better sense as to within that injection interval there will be zones that will take more or less fluid. And that's part of what we are doing this additional testing to determine.

Q. So that's another instance in which the testing will help determine the accuracy of the model.

A. Yes.

Q. Are you aware of the permitting history of this -- of the subject well?

A. I am since 2006; we prepared the original C-108 for the -- essentially for the replacement of the

existing well with the new AGI well. And subsequent to that we obtained an amendment to that order that changed from essentially drilling a new well next to the existing well and then plugging that well to actually deepening the existing well and recompleting it for AGI pursuant to SWD-1161.

Q. Is it true that the proposed injection interval has changed during the course of those various permitting requests?

A. Yes. In the -- I cannot recall what the proposed injection interval was for the original replacement well. But I think it was from about 4400 to about 5000 from the original well, but I don't recall exactly. But I do recall that in the initial amendment for using that well as a recompleted well, the injection interval was 4450 to 4950 approximately.

Q. Why has the proposed interval changed?

A. Because as we have looked at and did more analysis on the porosity variations in the area, we -- I didn't see -- personally I recommended to Targa to increase that interval to 4250 to 4950 because I didn't see any good reason to give up this 200 feet of good porosity in the upper portion. Because I did not feel that the injection in that interval would in any way further raise the possibility of AGI or fluid leaving the

San Andres through the top.

I mean, that was -- the original concern was to have a deeper injection interval to further protect those Langlie Mattix wells that are above the San Andres. And given the fact that subsequent to our initial discussions and with the agency and their concern expressed about the 252 well and our commitment to recomplete that well, then I thought there's no reason why we shouldn't use that full -- not even the full San Andres, but the injection interval which starts about 250 feet below the top of the San Andres to the 4950 level, that 700-foot interval.

Because that does two things. It's still protective of the wells that are above the San Andres and it gives us some additional porosity that limits the overall extent of the area affected in the reservoir over the entire life of the injection.

Q. You spoke about learning more about the porosity. What additional information did you have?

A. Well, we did additional work to look at -- looked at the wells that -- not only the wells that are completed in the area that penetrate the San Andres, but importantly we also did a -- at the Jal 3 well, which we only completed in 2008, we did a coring of the cap rock of that well and the upper portion of the San Andres and

we did a formation microimaging log of that well which gave us a much better understanding than any of the other well logs in the immediate area of this well. Because there's none that had used this kind of technology in the logging before. So we basically had information that we didn't have earlier on.

Q. And by obtaining that information, it helped you with your model in this case?

A. Yes.

Q. One of the main problems with the data, would you agree, is that we don't have a log for the subject well that covers the proposed injection interval; is that right?

A. Absolutely. I mean, that's a critical piece of information and we need to get it. Although, the reason why it doesn't give me a concern that would prevent me from designing and -- designing a well and proposing it in the manner that I have, is that the variation within the San Andres even over a relatively large area is not huge.

I mean, there's some, you know, variability in the porosity as I mentioned. Average porosity somewhere between seven and 12 percent but it's not like between zero and 50 percent. That is constrained. So I think that we have good enough data to be able to design

an appropriate well.

But clearly, in any well when you're drilling it and logging it, you want the data right there at the well. I mean, in a case -- for example, in one, two, three out of the five wells that -- AGI wells that we have permitted at the state here, the well wasn't even drilled, so we didn't have a log at all when we -- all we had was logs from adjacent wells and that's what geologists use all the time in order to be able to determine and tell where to drill and how to complete a well.

So I mean, while you have to gather that log information when you drill the well, you use the available data to give you the information that you need to design and propose a specific design of a well.

Q. The other AGI wells that have been permitted in New Mexico don't have the same number of wells within their area of review, do they?

A. No, there are some that do have. If we look at the Jal well down at Jal 3, I don't think it has as many wells in the area of review. But again, the -- those wells that -- the majority of the wells within the immediate area of review of this well as I showed on those maps are completed above the zone.

Similarly, in a number of these other AGI

wells, there are wells that are equally nearby but they are typically also completed. We look -- we basically look for completing wells below a zone that -- that has a lot of penetrations. This probably has more than most of the ones that we have completed, yes.

Q. Well, I'm looking at an exhibit that's attached to Mr. Jones' prefiled written testimony that shows no wells within one mile of that Jal 3 AGI well that penetrate the injection zone for that well.

A. That's probably correct.

Q. But I see that he indicates that there are 25 wells within one mile of the subject well that penetrate the proposed injection zone.

A. That is correct.

Q. That's quite a difference.

A. Yes. But -- but relative to the predicted footprint of that plume, the location of those wells does not cause me to be concerned at this point.

Q. If I understand your testimony correctly, you are willing for Targa to do all of the tests that Mr. Jones has asked be performed to gather data.

A. That's correct.

Q. All right. There was one additional issue that I wanted to ask you about. Is there a way of obtaining data on the pressure of the reservoir?

A. Well, yeah. Certainly when you do an injection test you get reservoir pressure.

Q. That would give us that --

A. Absolutely.

Q. -- information. And that pressure it is important to understand whether the fluid will remain in the liquid form; is that right?

A. Yes. But there's absolutely no question that the pressure is way above what it will need to remain in the liquid form, even without doing any testing. Because of just the lithostatic load and the fact that, I mean, we're nowhere -- we're over two times the predicted reservoir pressure of what is above that critical point.

But I mean, in answer to your question, I mean, when you do an injection survey you have a we call it a bomb. But you put a pressure sensing device in the reservoir and it gives you the reservoir pressure. So we would be able to confirm that reservoir pressure.

Q. So as I understand you're willing to gather the data that the OCD is asking for?

A. Not only are we willing to gather it, we proposed that we would gather it as part of the C-108 with the exception, as I mentioned, of the injection survey which additionally Targa has agreed to do.

Q. What is your proposal for what happens to that data once it's collected?

A. Well, we will analyze it as we have done in all of the previous AGI wells that we have completed. We put it together in an overall what we call an end-of-well report and submit that to the agency along with our analysis.

And that allows really for a much better understanding of the injection characteristics of that zone. And that's really important information not only to the agency, I mean, it's important information to the operator to give them the comfort level and the understanding of the appropriate parameters for injecting into that well.

Q. But it's your proposal that the information simply be given to the OCD and then it would be up to the OCD if they felt it was necessary to reopen the case, to file the application to do that.

A. Well, what we proposed -- I mean, I think when we met the other day one of the concerns was how do we assure that -- and how do we kind of integrate that into the process. And what our proposal is, is that a corporate officer of Targa would certify that all of the construction and completion requirements were completed and the testing requirements. And then we would analyze

and provide that -- the results of that analysis as well as the raw data to the agency with a recommendation or, if you will, with an update of that predicted extent of the injection plume over 30 years. And at that point the agency could determine if there was a need to be more restrictive than what we propose be placed in the order originally.

Q. But the burden would be on the agency to come forward, file an application for hearing, and prove that additional restrictions need to be placed on the permit.

A. Yeah, I don't know what the actual procedure would be. But I mean, our proposal is that we be approved to inject that volume over 30 years and that if these data indicate that for some reason that is not appropriate then I think, yeah, I don't know whether that would be a requirement on the agency. I mean, we would provide an analysis that would indicate what the realized plume would be, you know.

Q. So the idea is to obtain the permit based on the idealized mathematical model and then gather the data that would be used to adjust that model and it would be up to the agency to come back and say, "That model that you based your permit on isn't exactly right; we need to change it."

A. That's correct.

Q. Is that right?

A. That's correct. The -- first of all, I don't -- I want to emphasize that I mean, this model is not like -- first of all, not very complicated. Secondly, it's not like hocus-pocus that was built with no data. We incorporated all of the data that we have available and made what are reasonable assumptions, and it results in a significant safety factor.

I mean, 500 percent is a very high safety factor based on a prospective application. So we feel comfortable that the proposed injection volume over 30 years, even if we are -- even if we were a hundred percent wrong in our model it still would be way within that half-mile circle before it even reaches those wells even after 30 years.

So that's why we feel comfortable with that request as it is. Now, clearly, when we get the additional data we would be able to refine that. We would -- for one thing we would know at least in the immediate vicinity of the well what the actual porosity was for the different zones. We would have injection tests that would indicate which zones might take more water than other zones and therefore have an idea of how the outline of that reservoir model may look.

So we would also have a better or a direct measurement of the reservoir pressure at that location. So all of those data would further inform our prediction, if you will, and whether that safety factor is in fact 500 percent or 300 percent or a thousand percent.

Q. If you are that comfortable with your model, what is your opposition to coming back in six months or a year to present the results of the testing and obtain a final decision from the Commission on the life of permit limits?

A. Well, I mean, I don't have an objection to providing the data. We -- I mean, I think my client would prefer not to have to come back to a hearing because that is a significant cost and expense to prepare for a hearing, prepare exhibits, hire us or someone to do that work in a process that -- I mean, clearly if there was a significant aberration from what we have predicted based on the analysis of that data that we're going to collect, I mean, I think Targa would be the first to want to reevaluate how they would operate that well to assure that they protect themselves from any potential liability from those wells.

So I just don't -- I guess what we're trying to do is find a mechanism that says give us the permit based on all of the data that we currently have and our

best understanding of that and then, you know, if that changed fundamentally then it might be appropriate to revisit that.

But if it doesn't we don't want to have to come back to a hearing just to say, "Well, look at the data. We believe that it's just like we said it was, or that it is changed by 20 percent," or something like that. I mean, it's also given -- again, what we're talking about is the potential for that expansion after a very long period of injection.

I mean, this is not something that's going to happen -- I mean, I can't conceive of any way that it could make it to those wells at all in 30 years, but certainly not in five or ten years. So it's not like it's an immediate concern.

Q. Well, you're assuming that there are no fractures or any gross abnormalities.

A. There's no evidence to that effect at all. I mean, we do have a lot of wells in the area that -- and we're in a geologically very stable portion of the northwest platform in the Permian basin and there really isn't any evidence of large-scale fracturing in that. So we don't have that concern.

Q. And if the results of your testing bear that out, there wouldn't be much of a dispute, would there?

A. That's exactly correct. And that's why I don't think we need to come back to a new hearing. I mean, I think that that would be evident in the submittal of that analysis and of those data to the Division.

Q. I'm not sure if I asked you this and I apologize if I did, because I don't remember. Why did Targa choose to abandon its plan to drill a new well for the acid gas injection?

A. I don't think you asked me that directly. But the simple answer is because the existing well provides a safe conduit for -- for recompletion given the parameters that we talked about. And it eliminates one additional perforation of the injection zone that is in the immediate vicinity of where the new well would be proposed. Our original proposal was to replace it with a well like a hundred feet or 150 feet away.

And so what we felt like was upon revisiting that, that if we used the existing well and recompleted it appropriately, it would eliminate one very close penetration, significant penetration of the injection zone.

Q. And why did Targa decide to use the San Andres rather than a lower zone?

A. Well, because the San Andres and is a very good reservoir for injecting both acid gas and salt water

and because there are -- there is production in lower zones in the immediate vicinity outside the half-mile and approaching the one-mile radius there is production in the Blinebry and the Abo which are deeper zones, and the Glorieta formation which is immediately underneath the San Andres doesn't have -- the San Andres is probably the best reservoir in this area in terms of its thickness and its net porosity. So it limits the expansion of that plume to the greatest degree possible.

MS. MACQUESTEN: No other questions. Thank you, Mr. Gutierrez.

CHAIRMAN FESMIRE: Commissioner Bailey?

COMMISSIONER BAILEY: The current well in question, was it fracted during its initial drilling?

MR. GUTIERREZ: No, not to my knowledge.

CHAIRMAN FESMIRE: Has it ever been fracted?

MR. GUTIERREZ: I don't believe so. I can't answer definitively. I've not any evidence in well records of any proposed fracting of that well.

COMMISSIONER BAILEY: Okay. What is the current pressure for the salt water injection in that well?

MR. GUTIERREZ: I think it's running about 800 or 900 pounds.

COMMISSIONER BAILEY: So the 1300 proposed

to be a significant increase over the current.

MR. GUTIERREZ: Right. But remember, Commissioner Bailey, that the current injection fluid is strictly water. And the mixed injection fluid is going to have a significantly lower specific gravity so the effective bottom hole pressure would not be -- you have to have the higher pressure just to get the lower specific gravity fluid into the formation.

COMMISSIONER BAILEY: What is the pH of the injected produced water?

MR. GUTIERREZ: Well, the combined acid gas and water is probably going to have a very low pH, probably in the neighborhood of 2 or less.

COMMISSIONER BAILEY: And what is the current produced water pH?

MR. GUTIERREZ: I believe it's about 6.8, something like that.

COMMISSIONER BAILEY: About neutral then.

MR. GUTIERREZ: Uh-huh. Yes.

COMMISSIONER BAILEY: Would you wake it up and go to Page 13.

MR. GUTIERREZ: I will. Is this the page?

COMMISSIONER BAILEY: Yes. Can you explain to me exactly what we're looking at in this red area.

MR. GUTIERREZ: Oh. This red area is the

approximate outline of the boundary of the Versado South Eunice Plant.

COMMISSIONER BAILEY: Oh that's the plant.

MR. GUTIERREZ: Yes.

COMMISSIONER BAILEY: All right. So we would be moving quite a bit south for the --

MR. GUTIERREZ: No, this is of the South Eunice Plant, the one where the well is located.

COMMISSIONER BAILEY: Okay.

MR. GUTIERREZ: That little dot there, that purple dot is where the well is now.

COMMISSIONER BAILEY: And what is the trapezoidal figure around that dot?

MR. GUTIERREZ: It's roughly the edges of the property boundary, the surface ownership of Versado in that area.

COMMISSIONER BAILEY: So it has no relationship to the area of review.

MR. GUTIERREZ: No. No. The area of review is the circle that is outlined on that figure, the purple circle.

COMMISSIONER BAILEY: Okay. This is indicative of the San Andres porosity. But yet, only two wells in your area review have penetrated the San Andres. So what are your controls for all of the designs that you

have shown here?

MR. GUTIERREZ: Well, it's not only two wells, there's 25 wells that penetrate the San Andres within the one-mile area of review. There's only one -- there's only one well penetrating the San Andres within the half mile. As I mentioned, there are those two wells that are about a half mile that are located -- let me go to another figure and I can show you. Right here.

The control points would be this well, this well, the existing well, and then these wells that are out here, and this well that is down here. And you could see the bias of those control points where you have the greatest amount of data is where we have the greatest understanding of what that porosity is like. And so to some degree this is a function of what we see based on the data that we have.

CHAIRMAN FESMIRE: Okay. This net feet of 7 to 12 percent porosity?

MR. GUTIERREZ: Correct. It's actually -- no, not net feet. It's just net porosity --

CHAIRMAN FESMIRE: pH porosity.

MR. GUTIERREZ: -- for the entire interval.

CHAIRMAN FESMIRE: Okay. So it's the thickness porosity.

MR. GUTIERREZ: That's exactly right.

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COMMISSIONER BAILEY: All right. So this slide is based on five wells? Is that what you said?

MR. GUTIERREZ: No. 25.

COMMISSIONER BAILEY: 235.

MR. GUTIERREZ: Right.

COMMISSIONER BAILEY: So with that evidence for the northwest to south porosity flow, porosity preferential direction, isn't there an inherent contradiction between this information and the isotropic radial plug model that you have given us?

MR. GUTIERREZ: Well, yes. Like I explained I think qualitatively, our sense is that there will be some expansion of that in a northwest/southeast direction, which is what we included as a figure in the C-108. Let me get the figure.

If you look at Figure 12 in the C-108, I don't have it up here as a slide, but because -- you can see that what we've done is take essentially that area, the calculated area that would be affected, and extend it in a northwest/southeast direction based on that porosity trend. But it is really only a qualitative analysis because I can't -- I just don't have the confidence to be able to understand exactly how that is variable for the very reasons which you have just pointed out in terms of the data density there. That's why we resorted back to

providing an analysis based on that idealized plug flow.

COMMISSIONER BAILEY: So your model was not able to compensate for the north-to-south direction rather than radial?

MR. GUTIERREZ: I just -- we don't have -- I don't think we have enough information to be able to adequately constrain what the longitudinal versus transverse axis of that ellipsoid is; that is right.

COMMISSIONER BAILEY: Did you give all the information, all the details concerning the models to the Division for their evaluation?

MR. GUTIERREZ: Yes.

COMMISSIONER BAILEY: So they have signed off on the parameters that you incorporated?

MR. GUTIERREZ: Well, no, there is some -- the Division has some concerns I think about the net porosity because of the variability of porosity in that area. Maybe that would be a question better asked to Mr. Jones. But I mean, the range of porosities that we see in the area do range from seven to 12 percent. And the porosity that we assumed in our displacement model is ten percent, which we believe is a reasonable average and what we expect to see in the vicinity of the well.

COMMISSIONER BAILEY: Slide No. 28. Your second bullet asking for a Commission order before you

get the data to assure that your model is correct, isn't that a faith-based request?

MR. GUTIERREZ: No, absolutely not. I mean, this is exactly the kind of model that we have used in permitting five of these wells before -- before the Division. And I believe that within the data that are available, the way in which we have treated those data and analyzed those data are within the normal bounds of how a geologist would analyze a potential well location.

And you know, I mean, we can only work with the data that we have. Obviously like I say, we feel comfortable that with the data that we have we understand what the extent of the injected volume is going to be. And that if we develop data when we drill the well that would indicate that we have got a significantly different reservoir than what we anticipate, then obviously that's -- that's something that's going to have to be addressed at that point.

But I mean, our experience with the San Andres and with looking at the data that we have in this area indicates that we're going to have a zone that is going to have approximately maybe somewhere between 60 and 80 feet of net porosity in that interval, you know, it might be 65 feet of net porosity in that interval, it may be 85 feet of net porosity in that interval. But

it's certainly not in my view based on what I've seen of all the wells out there, it's not going to be 50 feet of net porosity or a hundred feet.

COMMISSIONER BAILEY: Since we don't have the scientific basis for giving you blanket authority to start injecting without coming back to the Division or the Commission for that authority, what would be Targa's response to this Commission requiring that injection not commence until after you come back to hearing to give us the technical data that confirms your model?

MR. GUTIERREZ: Well, I think the answer to that is two-fold. I think first of all, and I don't want to characterize our discussions with the Division incorrectly, but my understanding is that they are not even asking for that. They don't have a problem with being granted the authority to inject acid gas into that formation.

What they are concerned about is over a long period of time, 30 years, what the impact of that is going to be. And so consequently they wanted that additional data collected and analyzed, but they were not concerned with initiating acid gas injection. That's my understanding at least based on the meeting that we had prior to obtaining that data. They just didn't want -- they just don't feel comfortable with the long-term

prediction of what that aerial extent that's going to be affected is.

CHAIRMAN BAILEY: Okay. That's all I have.

CHAIRMAN FESMIRE: Mr. Olson?

COMMISSIONER OLSON: I think I'll follow up on that a little bit. It seems from the testimony we've had so far, the main issue on the timing with injection at the moment is the settlement agreement that occurred with the Environment Department; isn't that correct?

MR. GUTIERREZ: Well, I think that that is a very serious concern on the part of Targa. But I think that also their intent is to -- they have already gone through the whole process of getting the pipeline permitted and all of the right-of-way obtained. And so I think their goal is to cease releasing these air pollutants as soon as possible and to commence with the injection.

COMMISSIONER OLSON: And I think I understand that. But I go back to I guess Commissioner Bailey's question. It seems like we should have adequate data, actual data on what the impacts are going to be prior to authorizing injection. Wouldn't that be your typical process that you would follow?

MR. GUTIERREZ: Commissioner Olson, I believe we do have that data. And in fact, this is

exactly the same process that has been followed on the previous five AGIs that have been permitted through hearing at the Division. This is the kind of model that's been presented and in -- in several of those cases, as I mentioned, frankly in the majority of them, we did not even have an existing well drilled so we didn't have any data. Here we have an existing well that is drilled into the upper portion of the San Andres and has almost 30 years of injection history.

COMMISSIONER OLSON: Well, I guess what I understand from the testimony is that Targa is acknowledging that, yeah, we need to get some additional data to figure out what these actual impacts are going to be; is that correct?

MR. GUTIERREZ: Over a 30-year time period, what the ultimate extent of that plume might be, yes.

COMMISSIONER OLSON: And that ultimate extent would affect whether or not there are additional wells out there that may need to be reworked or plugged.

MR. GUTIERREZ: Well, I guess if -- if the additional data indicated that the extent would go beyond that half-mile distance, yes. But I mean, that would mean that the prediction based on all of the existing data would have to be 500 percent wrong.

COMMISSIONER OLSON: But I guess what I'm

hearing is that Targa does acknowledge that they are willing to get this additional information that the Division's looking at, but they just want to go ahead and inject largely because of this timeframe that comes up because of the settlement agreement; isn't that correct?

MR. GUTIERREZ: That's my understanding. I guess again that would probably be a better question to ask my client directly. I mean, I don't know what all of their motivations are exactly for the timetable. But I do know that is a critical concern.

COMMISSIONER OLSON: So I'm just -- I know they're -- he's not up here now at this point, but it would seem to me that the logical progression without this artificial timeline would be that you provide the data and then you get authorization based upon the data to confirm the model and then get authorization to inject. Wouldn't that seem to be the normal process?

MR. GUTIERREZ: Well, it isn't the normal process in what has occurred in the previous five wells. I mean, in every one of those wells we have presented a -- as a matter of fact, the exact same kind of model, and in some cases with less data then we have currently to obtain an authorization to inject.

In every one of these cases also we have developed the -- those data and submitted them to the

Division along with our analysis after the well had been drilled.

COMMISSIONER OLSON: Then I come back to Commissioner Bailey's question earlier that in this case we have a lot more wells that penetrate the zone than we have had in other instances; isn't that correct?

MR. GUTIERREZ: It is correct but they are well outside of a zone that would be affected even after 30 years based on all of the data that we have today. I mean, it's -- we're not talking about a, you know, ten or 20 or 30 percent safety margin; we're talking 500 percent. I think that's very significant.

COMMISSIONER OLSON: And I guess if it was possible to get an extension on the timeframes in the settlement agreement with the New Mexico Environment Department, then we wouldn't have this artificial timeframe that seems like Targa would be able to provide the data and then at that point have it confirmed by the department an -- or by the Division, and then get the authorization to inject. Wouldn't -- I guess without that artificial timeline seems like that would be a possible procedure.

MR. GUTIERREZ: I -- I mean, that would be possible. But one thing I think I should emphasize as well is that as Ms. MacQuesten mentioned, this well was

already permitted before using this exact same model and approved by the Division for acid gas injection. It's just the reason why we're here today is because that the completion of that -- or the recompletion of that well was delayed by the need to obtain right-of-way for the pipeline going to the well itself.

Now, you know, I don't understand why in a hearing that was held with a hearing officer from the Division this approach was satisfactory then and isn't now.

COMMISSIONER OLSON: I guess the other thing that Ms. MacQuesten brought up did concern me. You seem to be saying that the applicant doesn't have the burden to show that they should be -- have that authorization to inject by having the proper data in place first. It seems to me you're kind of saying that the burden is back upon the agency to have to come back with the data that you provide it and prove that it needs -- the case needs to be reopened. Seems to be backwards from what I'm used to working through on permitting applications.

MR. GUTIERREZ: Well, like I said, Commissioner Olson, I think we feel that the data are adequate to -- for the Commission to approve the proposed injection project. We do feel that it is important to gather that additional data to refine our estimates.

But again I will mention that like I said, this was -- this did go to hearing once already and this -- these data were already reviewed by the Commission, this was all noticed and it was already approved. It's just that a timing issue that has resulted in it not being up and running right now.

COMMISSIONER OLSON: But if the data is significantly different shouldn't the burden be on the applicant to come back in and address it?

MR. GUTIERREZ: I mean, I think the -- that Targa is willing to collect the data, analyze the data, and present it to the Division for their evaluation. I mean, that's -- that's what my client is proposing.

COMMISSIONER OLSON: And then how significantly different does it have to be for us to reevaluate whether or not the model is correct?

MR. GUTIERREZ: I think if the data that were submitted and the reanalysis showed that there was say within a hundred percent safety factor there would be a potential for those wells to be impacted, then you may want to put in some kind of requirement to maybe analyze Bradenhead gas at one of those wells after a certain number of years of injection to see if there's anything out there.

I mean, I don't know what options there

would be. I just don't -- my sense -- not my sense, my professional opinion based on all of the data that we have analyzed and how we have modeled the long-term impact on the reservoir is that the concern, while theoretical, of those wells is not a practical concern within the level of safety margin that we have between the calculations that have been done based on all of the existing data.

Now, like I said, I feel very confident that the porosity and permeability of the San Andres is going to be what we expect that it is from the nearest wells and from our experience in general with that formation. And the fact that the very top of that formation which we do already have logged correlates very well with that other existing well that we have a full log of. But you know, we are going to log it and we are going to core it.

COMMISSIONER OLSON: I guess you were just bringing up another issue, was what is an adequate safety factor for these types of wells? You said it could be hundred percent, could be 500 percent. If it's down to hundred percent may we need to reconsider. So what is an adequate safety factor?

MR. GUTIERREZ: I don't know that that's been established. I mean our general concern -- concern only gets there when we are getting into that 50 to 100

percent range. That's based on our experience and based on what -- I mean, this acid gas injection is nothing new. I mean, it is being done not only in the state of New Mexico, it's being done in Texas, other states and it had been done for 20 years in Alberta.

And so there's a lot of data that goes into our understanding of how these things behave. So but is there a -- I mean, and I think one of the other things which I think needs to be brought forth here too, is that routinely these kinds of projects are approved for CO2 injection, which is the bulk of what is being injected into here for EOR kinds of projects.

And you know, that understanding is incorporated in how we evaluate how these plumes expand over time in a reservoir. So a direct answer, I think an appropriate -- my own opinion is that an appropriate safety margin is somewhere between 50 and a hundred percent. And I think we're five times over that here.

COMMISSIONER OLSON: What I was curious. Do any other states or Canada apply any type of safety factor to these, not regulatory --

MR. GUTIERREZ: Not one -- as a matter of fact, you may be aware that EPA just finished promulgating Class 6 carbon sequestration regs. And even within those regs I don't think there is a specific

safety factor detailed for CO2 sequestration, but rather a mechanism to evaluate and assure that the caprocks are adequate and that the well construction is adequate. There may be some established safety factor out there; I'm not aware of it in any state.

COMMISSIONER OLSON: And you were just mentioning too about potential monitoring of wells outside the half mile. So is that part of any of the proposals --

MR. GUTIERREZ: No.

COMMISSIONER OLSON: -- for the C-108 here?

MR. GUTIERREZ: No.

COMMISSIONER OLSON: Okay. And then one last question. You were talking earlier about the thief zone that's -- that is going to be 150 feet above this zone. What would prevent migration into that thief zone?

MR. GUTIERREZ: Well, two-fold. The bulk -- the contrast between vertical and horizontal permeability in the San Andres is huge. It's over 10 X. So I mean, the likelihood is that this expansion occurs laterally more so. And also because the dense phase of gas is a lighter than water phase, what happens to the plume is the few places, kind of demonstration projects where people have looked at the migration and the modeling of acid gas and CO2 plumes in reservoirs indicates that you

get kind of an inverted bell shape. The plume over time tends to be narrower at the bottom and wider at the top because of this buoyancy effect.

COMMISSIONER OLSON: Okay. That's all the questions I have.

CHAIRMAN FESMIRE: Speaking of which, was compositional modeling considered for this proposal?

MR. GUTIERREZ: You mean geochemical modeling?

CHAIRMAN FESMIRE: Geochemical composition modeling.

MR. GUTIERREZ: No.

CHAIRMAN FESMIRE: So we're talking this model, it's actually a calculation, isn't it?

MR. GUTIERREZ: That is correct. Yeah. I think -- I didn't use the words "plug model." I think those were words that the Division came up with. But basically it's a calculation of the area that would be affected, a mathematical calculation.

CHAIRMAN FESMIRE: What is the irreducible water saturation in the San Andres out here, do you know?

MR. GUTIERREZ: I don't know. I think -- I don't know the exact number. I think it's -- it's somewhere in the -- I think it's somewhere in the 15 percent range but I don't know the exact.

CHAIRMAN FESMIRE: Was that taken into account in the calculation?

MR. GUTIERREZ: No, it was not. It's strictly a displacement calculation.

CHAIRMAN FESMIRE: So we have got 15/100th percent error, 15 percent error right now in the 500 percent safety factor, don't we? If we use your 15 percent. The irreducible water saturation was treated like porosity in the calculation and it really wouldn't be porosity in the calculation, would it?

MR. GUTIERREZ: Well, it may -- that irreducible water saturation is still going to take some dissolution of that acid gas into that water. But it won't be effectively displaced. But even if you took that into account, I don't think -- I mean, it's not going to significantly.

Because again, one of the things that's very important to remember is when we talk about like what you just mentioned, the 15 percent reduction, what that translates to in this calculation would be a 15 percent reduction in the porosity available to be displaced.

CHAIRMAN FESMIRE: Right.

MR. GUTIERREZ: And that doesn't mean a 15 percent increase in that radius. It's a substantially less increase in that radius than 15 percent. Because

what happens is as the radius expands, you know, it -- it incorporates a significantly greater volume. That's what I was trying to show in that graph earlier where you see that it takes four times the volume injected to increase the radius twice.

CHAIRMAN FESMIRE: Do we have any idea of relative viscosity of the formation fluid and the injectate at formation reservoir -- at formation temperatures and pressures?

MR. GUTIERREZ: No, although in a qualitative sense the acid gas in a liquid phase tends to be slipperier than the --

CHAIRMAN FESMIRE: So we will have a very poor mobility ratio.

MR. GUTIERREZ: That's right.

CHAIRMAN FESMIRE: So our displacement efficiency is going to be much lower than the hundred percent that you have calculated.

MR. GUTIERREZ: Well, it will -- it may be somewhat lower. It will be affected, however, by the fact that that fluid is being injected in conjunction with produced water as well.

CHAIRMAN FESMIRE: Okay. But it's still -- the addition of this slipperier fluid that you're talking about to the produced water is going to have a tendency

to adversely affect the mobility ratio, correct?

MR. GUTIERREZ: I think you may be getting into a level of reservoir engineering that I don't know if I'm -- if I can honestly answer that. In a general sense I would say yes. What the extent of that impact or how -- I can't quantitatively state.

CHAIRMAN FESMIRE: So we really don't know what that -- we have a pretty -- you know, aside from the 500 percent safety factor that you have been talking about, we know that it's going to -- it's going to be more than the .2 miles because there's going to be some, due to the mobility ratio and due to the phase separation -- or the gravity separation that you talked about, there are going to be some portions of that reservoir that are going to exceed where the radius is going to exceed .2 miles, right?

MR. GUTIERREZ: Yes. Although the effect of those factors, the mobility ratio for example, are really -- what I do know is that -- enough about reservoir characteristics that those factors relative to the porosity they are pretty small compared to the porosity. The porosity is really the key.

And I mean, so if -- I think that the change in porosity from say a couple or three percent difference in net porosity is more than going to make up for those

kinds of factors.

CHAIRMAN FESMIRE: Okay.

MR. GUTIERREZ: That's why we have used this kind of calculation and why this calculation is used industry-wide to look at this behavior.

CHAIRMAN FESMIRE: Okay. Let's switch entire subjects here. The pipeline that will be bringing the -- what will be the pH of the acid gas coming into the compressor, the wellhead compressor, do you know?

MR. GUTIERREZ: I don't.

CHAIRMAN FESMIRE: So do we know what the pH rating on the pipe is? Or is this a question we should ask Mr. White?

A. I think it's a question you should ask Mr. White. We haven't been involved in the design of the pipeline.

CHAIRMAN FESMIRE: Okay. I have no further questions. Mr. Scott, do you have any rebuttal -- I mean redirect on the --

MR. SCOTT: Any other questions?

CHAIRMAN FESMIRE: I was in engineer mode; I'm now going into lawyer mode. Do you have any redirect on the subjects covered by the --

MR. SCOTT: We have covered quite a bit of ground. I'm wondering if we could take a five-minute

break so I could organize my thoughts and then ask him these questions.

CHAIRMAN FESMIRE: Well, as much I don't like to, why don't we take an hour break and go to lunch. And we will reconvene here and quarter to 2:00. And we will reconvene at a quarter to 2:00.

MR. SCOTT: Thank you very much.

(Break.)

CHAIRMAN FESMIRE: Back on the record. At this time we're going to reconvene in Case No. 14411, it's the de novo application of Agua Sucia, LLC to reinstate the administrative order SWD 559 for a salt water disposal in Lea County, New Mexico. This is the case we took up earlier this morning and had to make a change to the order. Counsel assures us and from my review it appears they did make the change that we requested. Is there a motion to adopt the order as presented by the counsel to the Secretary and the Secretary to us?

COMMISSIONER BAILEY: I so move.

COMMISSIONER OLSON: Second.

CHAIRMAN FESMIRE: All those in favor signify by saying "aye." Let the record reflect the Commission has adopted the order presented in Case No. 14411, Order No. R-13265-D as in delta. It will be

signed by the members of the Commission and sent to the Secretary for recording.

At this time we will take up Case No. 14575, I believe the record should reflect that all three Commissioners have successfully returned from lunch, we therefore have a quorum. And we will go back I believe we were about to begin the cross-examination -- no. Redirect, I'm sorry, of Mr. Gutierrez. Mr. Scott, are you prepared to begin?

MR. SCOTT: Yes, sir.

CHAIRMAN FESMIRE: Please do so.

* * *

RE-DIRECT EXAMINATION

BY MR. SCOTT:

Q. Mr. Gutierrez, there have been quite a number of questions asked of you about the data in this case that you relied on in putting together C-108. In your opinion as a professional geologist who has permitted these types of wells in a number of contexts, is the data that you relied upon here adequate in terms of type and quality and it is of the kind that is customarily relied upon in permitting these kinds of wells?

A. Yes, it is. It's the same type of data that we have used in permitting these types of wells and other

injection wells.

Q. And I believe you indicated that it's the same kind of data that was used to permit this well previously; is that correct?

A. Yes, sir.

Q. And reference was made to prior Order 12809; is that correct?

A. Yes, sir.

Q. Were you involved in the proceedings that led to the issuance of that order?

A. Yes, sir.

Q. And what was your involvement?

A. I prepared the C-108 and I testified at a hearing in front of the Division to present that application and to -- that resulted in that order.

Q. And Order R-12809 pertained to the alternate well that was proposed to be drilled within a hundred feet of the well that's the issue of this proceeding?

A. Yes.

Q. And who was the hearing officer in that proceeding?

A. Mr. Jones.

Q. That's the same Mr. Jones who submitted prefiled testimony in this case?

A. Yes, sir.

Q. And in connection with that case or with Order 12809, were any of the concerns that Mr. Jones identified in his prefiled testimony raised?

A. Well, I think there were questions raised about those wells, but they were addressed in the same way I've addressed them here today and they resulted in that order.

Q. Okay. And did that order authorize injection of acid gas into the well?

A. It did.

Q. And was there any precondition on obtaining approval of a time limit or volume limit prior to that injection?

A. No, sir.

Q. The C-108 that you prepared in this case, I think you indicated earlier that with the exception of one element, all of the testing and related concerns that Mr. Jones raised were already addressed in the C-108 and part of the application; is that right?

A. Yes. Furthermore, all of the tests that we're talking about; logging, using formation microimaging, doing side wall cores, and step-rate injection testing, is a -- is routine in the completion and development of these wells. It's -- it's not something that is being done because of any inadequacy in

the existing data that we have here, it's just the normal procedure because it provides information that allows the operator to better complete and design and operate the well.

Q. Okay. There was a lot of question about the calculation that was used to determine impact after 30 years.

A. Yes.

Q. One of the questions concerned the porosity trend. Do you recall some of these questions from Commissioner Bailey?

A. Yes.

Q. And you looked at I believe it was slide -- the slide that showed the wells to the northeast of our proposed well.

A. We looked at two slides. One was the porosity, net porosity map and the other was just the simple map of wells. Yes.

Q. Slide 11 is the one in particular I'd like you to look at.

A. Okay. Do you want me to put it back up on the screen?

Q. If you could that would be fine.

A. Okay. Let's see. I guess the projector may be turned off. This is Slide 11.

Q. Correct. And the porosity trend that you had identified runs from essentially looking at that map on the lower right-hand quarter, towards the upper left-hand quarter?

A. Well, that's the elongated trend of these porosities, yes.

Q. So the trend that you have identified would run away from that cluster of wells that's to the north and east of the injection location, correct?

A. I would expect that the -- whatever extension of that injected plume would probably trend along that porosity trend, too.

Q. The 30 years that was calculated or the calculation that you relied on looked at impact over 30 years, correct?

A. Yes, sir.

Q. So we're not talking about a migration today or tomorrow or within the next year; this is a longer term projection, correct?

A. Or within the next ten or 15 years; we're talking about 30 years of accumulated injection at that maximum rate.

Q. Okay. And there were a number of questions about the porosity and variability of the porosity in the area. And I believe you indicated that the variability

is within about five percent, somewhere between seven and 12 percent?

A. That's correct.

Q. Is that a narrow range of variability in your experience?

A. Yes, that's the typical range for the San Andres. And actually you can get variation in a single well from five to 12 percent in the San Andres. But in terms of average porosity for the entire San Andres interval, that's a pretty good average for all of the San Andres wells in the state.

MR. SCOTT: No further questions of this witness.

CHAIRMAN FESMIRE: Ms. MacQuesten, anything on that?

MS. MACQUESTEN: Yes.

* * *

RE-CROSS EXAMINATION

BY MS. MACQUESTEN:

Q. Mr. Gutierrez, you brought up the prior permits that were issued in connection with this acid gas injection well project. Order R-12809, that was an order allowing acid gas injection into a newly drilled well that's adjacent to the subject well?

A. That's correct.

Q. And that was the case that was heard in a hearing before Mr. Jones; is that right?

A. That is correct.

Q. And there were no objections or protests made to that application, were there?

A. None that I recall.

Q. And the application was granted based on your testimony regarding the half-mile AOR; is that right?

A. It was granted based on all of the information that was submitted in the C-108 which included a detailed look at a half mile and then out to two miles as is required by the application.

Q. Did you bring to the hearing examiner's attention the problems with that well that's operated by Legacy within a half mile that Targa is now proposing to remediate?

A. No. Because originally the intent was as I discussed earlier in my testimony today, was that we were going to not use that very upper portion of the San Andres. Which we still are not going to use the very upper portion, but we weren't going to even use the 250 feet that we're talking about using now.

Q. So you didn't bring the Legacy well to the hearing examiner's attention?

A. That's not correct. The Legacy well was certainly included in the application and presented as -- and the information on that well was presented in the application.

Q. And you provided your expert opinion that it wasn't an issue.

A. That is correct.

Q. Did you bring to the hearing examiner's attention the seven wells that Mr. Jones has now expressed concern about that are located immediately outside the half-mile area of review?

A. They were included in the C-108. I didn't specifically call them out as potential problems. I still don't believe they are potential problems.

Q. Okay. Now, once you got that application approved there was an administrative amendment; is that right?

A. Actually there were two amendments. There was a original amendment I think to correct an -- I don't remember what the exact correction was, but there was a 12809-A that was issued, I think it was relative to the pressure. I just don't recall what it was.

But then there was a subsequent application for administrative amendment that changed from drilling a new well and plugging the old one for the reasons that I

specified earlier, and that was SWD-1161.

Q. So Targa got a permit after notice and hearing to drill a new well for acid gas injection and then requested administrative approval to change it to retrofit an existing well for the same project.

A. That's correct.

Q. And the Division -- the Division approved that without any notice or hearing.

A. I think there was a notice, I don't think there was a hearing. I know there wasn't a hearing but I believe it was a notice.

Q. I'd like to you to show me where that notice is.

MR. SCOTT: I object.

MS. MacQUESTEN: I'd like the Commission to take administrative notice of the SWD-1161 and its discussion of the notice in that case and if it wishes it can consult the case file in that case.

CHAIRMAN FESMIRE: Okay. The Commission will take administrative notice of that. Would you repeat the number please?

MS. MACQUESTEN: It's SWD-1161.

Q. (BY MS. MACQUESTEN) Now, the reason we're here today is that order expired; is that correct?

A. I think that's the position of the Division.

Q. Right. And if we didn't press that position, we would still be under that SWD-1161 that was issued without notice and hearing.

MR. SCOTT: Objection. Mr. Gutierrez testified that was --

A. I don't know -- I know there was not a hearing, but I don't know if -- I believe that there was a legal notice but I don't know that there was a hearing.

Q. (BY MS. MACQUESTEN) Okay. Fair enough.

CHAIRMAN FESMIRE: To the extent of the answer, I'll overrule the objection.

A. That's what I was trying to point out earlier, that there was a legal notice.

Q. (BY MS. MACQUESTEN) I'll agree with you on that; an advertisement was made or legal notice was posted. But let the record show what further notice was done beyond that. Now, so if Mr. Jones had concerns about that Legacy well or the seven wells that he found just outside the half mile, he would have to file a case and come in and object to Targa's permit and presumably ask for that permit to be amended.

A. I don't know that's a question that -- I mean, that would -- I don't know what the Division would have to do.

Q. Let me ask you something in connection with

this process. Were you the consultant for Anadarko on an acid gas injection well in San Juan County for the Anadarko San Juan natural gas processing plant?

A. Yes.

Q. And in that case the application requested very specific footages for the injection interval; isn't that correct?

A. No.

Q. Don't you recall that you requested permission for disposal at the depth of 6500 feet to 6700 feet?

A. We requested permission to dispose of acid gas into the Entrada formation. Which because the nearest control well that we had was estimated -- was five miles away, we didn't know the exact depth to which that formation would be encountered.

So we said that in our application -- and in fact in the findings of the order, it says that we anticipate finding the Entrada formation between 6500 and 6700 feet depth. When we actually drilled the well the same Entrada formation was encountered at 6550 to 6500 feet in depth.

Q. So it turned out that when you actually drilled it didn't actually meet your prediction.

A. In terms of depth; that is correct.

Q. And because the order was written with a specific footage that caused a problem for Targa.

A. Not for Targa.

Q. I'm sorry. Anadarko.

A. Yeah. I mean, in our opinion it should not have caused a problem because the injection interval is still the same formation. And there's no -- I mean, that's not an unusual variation given that the control was five miles away.

Q. But unfortunately since the examiner had written the order with a specific footage that didn't match the actual footage, Anadarko was required to file a request for an amendment to the order.

A. Well, we're in that process now. I don't know what ultimately will be required.

Q. Okay. Is it your understanding that the OCD is requiring an amendment to the order with notice?

A. It's my understanding that that's what's been discussed with the Division, yes.

Q. Now, if the order had been written to provide --

MR. SCOTT: I'm going to object at this point, Mr. Chairman. This seems to go well beyond the scope of redirect examination of this witness.

CHAIRMAN FESMIRE: Ms. MacQuesten?

MS. MACQUESTEN: Just one more question would tie it up.

CHAIRMAN FESMIRE: Mr. Scott, you did open the door to comparing other applications so I think she's entitled to one more question.

Q. (BY MS. MACQUESTEN) If the permit had provided that Anadarko was allowed to inject into the interval that the application had requested and allowed Anadarko to collect the appropriate data and then define what interval it really wanted, you could have avoided all of those problems with that permit, couldn't you?

A. Right. If the order had been written to say approximately between 6500 and 6700 feet, which is the way that we requested it.

Q. And then collect the data and adjust the order.

A. No. No. I said there wouldn't have been any need for adjusting the order.

MS. MACQUESTEN: I think that's all I have. Thank you.

CHAIRMAN FESMIRE: Anything from the Commission?

COMMISSIONER OLSON: No.

CHAIRMAN FESMIRE: Mr. Scott, anything you want to add?

MR. SCOTT: Nothing further.

CHAIRMAN FESMIRE: Thank you very much, Mr. Gutierrez. Is that the end of your case, Mr. Scott?

MR. SCOTT: We would reserve the right to have either Mr. Gutierrez or Mr. White respond to some of the citizen comments that we understand may be provided this afternoon. But other than that we have no further direct testimony.

CHAIRMAN FESMIRE: Ms. MacQuesten, I believe you reserved your opening.

MS. MACQUESTEN: Yes. Before I get to that, what will the procedure be for the rest of the day? Will we be taking the public comments or will you be having OCD present its case?

CHAIRMAN FESMIRE: My intention was to have the OCD present its case and then take public comments. I don't know how long the OCD case is going to be so --

MS. MACQUESTEN: Can you give me some idea of the time that you will allow for our case? So we can adjust the presentation to match the time that you can give us.

CHAIRMAN FESMIRE: Given that the Commission has two cases to deliberate on this afternoon and decide how we're going to manage the orders, I would hope as quickly as you can and still hit the points in your case,

okay?

MS. MACQUESTEN: Okay.

CHAIRMAN FESMIRE: Would you like the public comments to go first or would you --

MS. MACQUESTEN: I just wanted to make sure that the folks who came here to give public comment have that opportunity and that this doesn't go so long that they are discouraged.

CHAIRMAN FESMIRE: Mr. Scott, would you mind if we did that now?

MR. SCOTT: I have no objection.

CHAIRMAN FESMIRE: I understand Mr. Skiler and Mr. Boyd, you both want to make comments? Now, we allow that under our rules but you have to understand that the attorneys will be allowed to ask questions. Whichever one of you --

MR. SCOTT: I do have one point. As I understand it, neither of these gentlemen have filed a prehearing statement or an entered appearance. And they are limited strictly to comment and can't present any technical evidence.

CHAIRMAN FESMIRE: Correct. These are comments and will be treated as such by the Commission. Who wants to go first? Mr. Skiler, why don't you come on up. If you'd like to, why don't you sit down and start

by giving us your whole name and spelling it for the court reporter.

MR. SKILES: My name is Robert Greg Skiles, last name is S-K-I-L-E-S. And I'm being affected by this well due to the fact that my property is two-tenths of a mile south of the South Plant. That's where my -- that's my deeded property and that's my home, that's where my house is.

And being a landowner, homeowner, husband and father, that's the reason I'm here is to make sure that nothing's hastily done. Especially when I hear the words "H2S," that's a concern to me. Because I also work in the oil and gas industry, I work for an oil and gas company, I'm a production foreman in the field. And as we're talking about some of this stuff I can relate to it.

Like I said, main reason I'm here is I could care less about my -- I mean, I care about it, but my water in my water well is not a priority to me as far as compared to my welfare of my family. That's the main reason I came here to -- to just address my concerns. Just in reading this presentation --

CHAIRMAN FESMIRE: And that's the H2S plan? What's the document you're referring to?

MR. SKILES: I'm sorry. That is what I was

sent registered mail.

CHAIRMAN FESMIRE: Okay.

MR. SKILES: I think it's the same presentation. And one thing that I'd like to add is in the picture that we have presented here on the front, my property -- it shows on some of the diagrams on the inside that my property is in this one-mile radius, but it's not in this picture. And why, I don't know. But it's not in there.

CHAIRMAN FESMIRE: Okay.

MR. SKILES: I'm not an engineer, I'm not a chemical engineer, I'm just a field person. And like I said, I'm a landowner and homeowner. And I know that -- that precautions will be taken to protect individuals, but there's one thing I'd like to say if it would be allowed, that Mr. Gutierrez said.

I respect the man, he seems knowledgeable. But one thing he said earlier was that they looked at having a well that was closer to the plant in Eunice. But it was -- looked at that maybe it should be moved further away from the Eunice population. And you know, that's -- that's kind of like a comment that, why are we removing it away from this group and moving it out to my group? And you know, and if everything's as safe as we say that it is, then why are we moving it away from the

population in Eunice? So with that, I wanted to be brief, just wanted to voice my concern.

CHAIRMAN FESMIRE: Mr. White, do you have any question of this commenter?

MR. SCOTT: No.

CHAIRMAN FESMIRE: Ms. MacQuesten?

MS. MACQUESTEN: No. Thank you.

CHAIRMAN FESMIRE: Commission? Thank you very much, Mr. Skiles. Thank you very much, sir.

MR. SKILES: I appreciate it, sir.

CHAIRMAN FESMIRE: Mr. Boyd, would you start out by stating your name and spelling it for the new court reporter.

MR. BOYD: My name is James Irving Boyd and I live southeast of Eunice. And my property laps over into the questioned areas. Can I sit over here so I can look at everybody?

CHAIRMAN FESMIRE: Sure.

MR. BOYD: I appreciate the opportunity to come here and I'm sure not a speaker, I'm kind of like Greg; I'm a family man, I work out in the field, and my education is high school in Eunice and what I've learnt through life. But I've found lots of stuff in here, I've listened to a lot of things that's been said, there are some concerns that I had and concerns that y'all have

brought up.

And you know, one of the things that's really important is what confines their product into this plume they are talking about? What -- you know, if you put this product into a porous area then why shouldn't it spread out more and not plume up so much? I kind of think along the lines of if I dump ten barrels of water in this room it appears to be shut up. But if I dump ten barrels of water in this room first thing you know over some of it's going to be over there in the hallway and the bathrooms.

And y'all have been talking about evidence and so forth about the porosity of this well bore to prevent -- I guess prevent this stuff from flowing too far or migrating that far. And of course I would think it would be Targa's advantage to the more -- more fluid that this well would accept the more they could inject.

And I realize that there's limits on it, that y'all have got a certain number of barrels specified. But I just can't feature from things that I've seen in life is how this fluid is going to be injected and not spread out to the paths of least restriction even though it is underground.

And one of the things is also, the other wells in the area. I heard the questions being asked has

this well been fracted? Is it fractured? What about the wells that are in the area that have been fracted, possibly fractured, that extends into the plume area? What have we got there then?

There's so many questions. And I'm not against an acid gas well, I was construction superintendent over the installation of a pipeline to an acid gas well, and I'm not against them. But I am against them if they are put into a pay that has got so many wells penetrating that pay.

And I also have a lot of questions and I know your time is limited. But this up on their presentation it says that the legal notices was provided in the "Lovington Leader." How many people from Eunice read the "Lovington Leader"?

Right here in Page 2 of this book that they sent out it says a legal notice of the hearing date will be published 20 days prior to the hearing in the "Hobbs Daily News Sun." And you know, I don't assume that a lot of people in Eunice would -- would be very interested in this hearing. I don't know that. But they didn't have the opportunity to be. And a lot of people, the affected personnel, when they receive these notices, well, we're protected. The OCD is going to review this case and if it's safe, that's what we're going to put our support in,

our trust in.

On another page in here, it's Page 10, it's got a statement in here and it says that, "Impacted by the 30-year period of injections are based on the assumptions." Assumptions to me are not fact. That worries me.

Another thing that's of concern to me is the illustration of the adjacent water wells in the area. And one of my neighbors that got this documentation he said, "Irvin, I'd be with you today but I got to go to the doctor." He nearly had to have his foot removed because of an infection and he's in the process for several months of having that foot worked on. And he said, "I can't come" but he said, "I can tell you this, that the water wells that are noted on my place, there's not nearly all the wells listed there."

I looked at the documentation also, nor are the water wells listed on my property. And I also know that there's many monitor wells and recovery wells that's in these areas here that, you know, they are the same purpose, they penetrate the water supplies. And you know, it's kind of like Greg said. "If this stuff penetrates the water supply that's very, very serious. But if it happens to find a path to the surface, it's more serious immediately."

Because you know, it's provided to documentation in here 1,000 parts per million is lethal. And it's less than that if you have a extended time period. We're talking about a 150,000 parts per million of H2S traveling down the pipeline and being inserted into this well.

If we were sure that there's no paths of escape then that might be a perfect solution. But I can't see how anybody could be sure that there's not any exits for this. And we have also got in this book this circle here. Before I ever got this book we drawed a map on our ranch maps of this affected area.

And my wife went to the OCD website and she pulled off all the wells that were listed, oil wells in this area. And in this book right here and some of these pages are two to three pages where there's a little explanation of problems. That's how many pages of wells that she pulled off in a mile radius off the OCD website that penetrate the San Andres pay. A lot of these wells in here says, "Spud date 1900. Plug date 1900." And there's other things in there like that that's -- that I wonder well if this is true, which it's not true --

CHAIRMAN FESMIRE: Mr. Boyd, that's the default. We don't have the data that prints that out.

MR. BOYD: That's exactly what I was going

to bring that up. That means that the data to these wells is not available. So we don't know how the well is plugged, how it's cemented, if it's operational, you know, if it's got the proper cementing.

And there's a well listed in here, 1937, and I'm going to think that '35, '37 is some of the oldest wells out there. And I think this is one in an old field because all this was old when I was -- can barely remember and I've lived there all my life.

But what I wanted to bring forth to y'all is some of these older wells that are in this area you don't have records on the drilling of them and how they have been cemented. And I don't have any faith that this solution can't come up.

You heard testimony that, "I don't expect this casing that's exposed to last very long at the well." And you talked with him about that. That's the same thing about all these casings that are in that area. They don't have the integrity that this disposal well is going to have. They are -- they are of the old school. They have probably got a casing through all these pays. So if somebody needed to perf them and take minerals out of this pay or so forth, that it's not cemented. And they are probably -- I wonder if they even had capabilities of pumping cement to that point. I don't

know. But I do have a lot of questions about that.

And I can tell you that -- and this is not a well in that area, it's to illustrate that there is problems. Probably around a mile-and-a-half due east of where this well is going to be there was a well drilled on my property. And the people producing it plugged it. And I was out of town and when I come back I went up to see why the rig was gone, why it was plugged.

When I got there there was brine water flowing up around the dry hole marked but they had already plugged it. The OCD had to come in and had to drill out all the plugs and replug it. But that is one illustration that we don't know everything about the plugging that's out there on all these wells that are in that area.

Another well that's not far from there, and if you look in this -- these OCD records, quite a few of the wells have casing problems listed as problems in here. So we do know that there's casing problems out there. And you know, I understand and I know that some of these plugging records that even are submitted are not right. I've heard people talking about reentering --

MR. SCOTT: Mr. Chairman, I'm going to object at this point. There's a great deal of hearsay he's trying to introduce to the extent he's going through

a lot of these detailed records that it's bordering on technical testimony. I'm trying to give him some latitude but I do get concerned that at some point we're getting a lot of technical information for the record.

CHAIRMAN FESMIRE: Mr. Boyd, he does have a point. I'd hoped that you would stick to your opinion in telling us and refraining from referring to specific evidence for this case. Because your testimony is -- is -- it's not testimony. Your statement is going in the record but it's not sworn testimony. And it we have to be very careful on that fine line, okay?

MR. BOYD: Okay. One of the other huge concerns that I have is you talk about all of the safety precautions that's been put into the well. And they talked about a valve it would slam shut if somebody runs over the wellhead which is not likely at all and I can agree that's not likely.

That's the safety precaution that they said was going to be built into the well. I understand also that along the pipeline where the space is for the air to flow through, if there's H2S picked up in the sniffer in that, then there's valves at the well and at the plant that will slam shut.

I haven't heard anybody address the opinion that this pipeline is carrying the same fluids, gases, as

this well is injecting. And this well goes straight down into the ground and it doesn't have nearly the exposure of four-and-a-half miles of pipeline. Nobody's talked about what happens if a piece of equipment hits this pipeline. Poly pipelines are hard to fill with a piece of equipment. You will have a hole in it before you fill it.

And if that happened I'm sure that it would show a pressure drop and these valves would close but you would have four-and-a-half miles of 50 pound, 16-inch volume of gas to be released into the atmosphere. You have got four-lane Highway 18 on one side, you have got railroad tracks on one side, you have got South Loop 207 going down to Eunice on another side. Also within probably a half mile of this pipeline there's several residences.

And that seems to be where some available land is for people to be buying and people -- there's more and more residences all the time here. So we're talking about 30 years of this. And we're also talking about when they stop injecting at 30 years if their permit is not renewed, that fluid is going to be there from now on until something releases it. And it's going to be something for -- that's going to affect the producers in that area if we want to drill for minerals

in there or if they want to do this or something, it's going to impact all these people and they are going to have to take all this into consideration.

But I just, I have no feel of safety in this pipeline. You talked about having a three-inch along the top at a certain depth so if it was hit the three-inch would be hit first. A lot of times, and I make my living with pipeline, when you go out you have got guys that will shovel spot a line to see where it's at, a pipeline is marked. Maybe it's a pipeline representative there, they will shovel spot that line and they come to a line say here it is right here. This is the pipeline, so let's dig it. We visually see the three-inch.

But when they go to digging there's still that 22-inch below that three. And they have spotted three. So there's a danger there to me, a very big danger there. And I just -- I feel like that there needs to be more -- more attention paid to that pipeline because you're talking about four-and-a-half miles of exposure, seven feet is what they have illustrated below the surface.

CHAIRMAN FESMIRE: I think that was corrected. Talking four feet now.

MR. BOYD: To four feet. So that's worse. Below the surface. And you know, this line is carrying

substantially -- or the exact same thing that's being disposed of. And it's got residences close along within probably within a half mile and all these highways. And I think that that should be looked at.

And I think that that probably falls under y'all's jurisdiction or whatever under the OCD's rule on that deal. But I have got lots of stuff marked. I think that one of the other things in the book here that I really feel like's important is there's not a page number, but it's in the Appendix B. And it's a letter from a National Oil Well Varco to Mr. Baker. And rather than y'all having to find it you can find it at another time.

CHAIRMAN FESMIRE: You can talk about it, sir, but again we're talking about putting evidence into the record. So that's probably beyond the statement that you're allowed to make here without being sworn as a witness.

MR. BOYD: Okay. This is evidence that's been put in by them that I'd like to talk about it. But it says -- it says, "Plugs can be at the wrong depth or missing completely. Casing can be compromised or collapsed. Pressure from water flows or gas. Pressure can be abnormally high or low." But you see, this is stuff that they have provided us with that doesn't give

me any security and safety feelings.

And I just -- I really, really hope that everybody takes this into consideration because, you know, nearly everybody in here besides Greg and my wife live miles and miles and miles away. This is going to affect us and our families and I've got my kids living close to us, there are grandkids, and we hope that they will be on the ranch.

And again, you guys are the professionals. I've lived it and seen stuff and I guess I can't explain stuff that I've seen. But I appreciate the time to -- to voice my concerns. Thank y'all.

CHAIRMAN FESMIRE: Thank you, Mr. Boyd. Any questions of Mr. Boyd?

MR. SCOTT: No, sir.

MS. MACQUESTEN: Mr. Boyd, what would you like to see the Commission do in this case?

MR. BOYD: Well, I would like the least exposure to the public as we can get. What I'd really love to see is them to be able to find a safe pay on the Versado property where the well is or where the plant is that produces this substances, so it could be injected without a long pipeline.

I would like to see it injected into a pay that's below existing penetrations. And I don't know if

that's possible. That's -- that's out of my line. But to me that would be the things that would be desired. The least possible pipelines and leak areas. The well going into a deep pay that would accept this materials that's not penetrated by existing wells.

Then I would think that would be a lot safer. But it's just like I said, I don't know if this is possible. But I do know that there's lots of questions that's arose in here today about the well that's being proposed.

MS. MACQUESTEN: Thank you.

CHAIRMAN FESMIRE: Anything further?

COMMISSIONER BAILEY: No.

COMMISSIONER OLSON: No.

CHAIRMAN FESMIRE: Thank you very much, Mr. Boyd.

MR. BOYD: Thank y'all.

CHAIRMAN FESMIRE: Ms. MacQuesten, you have one witness today?

MS. MACQUESTEN: Yes.

CHAIRMAN FESMIRE: Has he been sworn yet?

MS. MacQUESTEN: No, he hasn't.

(The witness is sworn.)

CHAIRMAN FESMIRE: Ms. MacQuesten, did you intend to give an opening before you start questioning

Mr. Jones?

MS. MACQUESTEN: In the interest of saving time I'll just say that as Mr. Scott said in his opening statement, the OCD and Targa have spoken about the various concerns that the OCD has and we have tried to address those concerns. Mr. Jones is here today to tell you about the concerns that remain. In particular, the concern that Mr. Scott pointed out, which is our concern about the extent of the plume that will be created at the acid gas injection site and the -- especially given the circumstances surrounding this location, the number of wells in the area, and the activity in the area.

CHAIRMAN FESMIRE: Thank you very much. Are you prepared to begin your examination?

MS. MACQUESTEN: You, thank you.

CHAIRMAN FESMIRE: Mr. Jones?

MR. JONES: I'm prepared.

WILLIAM V. JONES,

having been previously sworn testified as follows:

* * *

DIRECT EXAMINATION

BY MS. MACQUESTEN:

Q. Would you state your name for the record.

A. William V. Jones.

Q. Where are you employed?

A. Santa Fe.
Q. With what agency?
A. Oil Conservation Division.
Q. What is your title?
A. Petroleum engineer.
Q. And how long have you been employed with the OCD?
A. Eight-and-a-half years.
Q. What are your duties?
A. I evaluate injection permits is one of my pertinent duties.
Q. And do you also serve as a hearing examiner?
A. Yes.
Q. Are you a registered professional petroleum engineer?
A. Yes.
Q. Have you previously testified before the Oil Conservation Division as an expert petroleum engineer?
A. Yes.
Q. And have you previously testified before the Oil Conservation Commission as an expert in injection wells?
A. Yes.
MS. MACQUESTEN: I would ask that the Commission accept Mr. Jones as an expert in petroleum

engineering an injection.

CHAIRMAN FESMIRE: Mr. Scott, any objection?

MR. SCOTT: No.

CHAIRMAN FESMIRE: Since Mr. Jones is only one of only 35 registered professional engineers living in state of New Mexico we will receive his credentials.

Q. (BY MS. MacQUESTEN) Mr. Jones, have you reviewed the application submitted by Targa for an acid gas injection well to serve its Eunice gas plant?

A. I have.

Q. And you have reviewed the OCD's records on the well that they intend to use for that injection --

A. Yes.

Q. -- the Eunice Gas Plant SWD No. 1?

A. Yes.

Q. Does that review include the well file and the permitting history?

A. Yes.

Q. Have you researched OCD records on the wells in the area of review for the subject well?

A. Within a mile.

Q. Did you prepare prefiled written testimony setting out the results of your review?

A. Yes.

Q. And is that written testimony before the

Commission as OCD Exhibit A?

A. Yes, it is.

Q. Did you also prepare the exhibits that are referred to in that testimony?

A. I did.

Q. Are those Exhibits E through L?

A. E through L.

Q. Are those exhibits based on the data that you got from OCD records?

A. Mostly, yes.

Q. What wasn't pulled from OCD records?

A. The go-tech records in Socorro from the well from 1994 until present time.

Q. Is that production reporting?

A. It's injection volumes and pressures.

Q. From -- and that would be data reported by the operator?

A. Yes.

Q. Are you prepared today to -- let me ask you this: Given the testimony that you have heard today, is there anything that you would wish to change about your prefiled written testimony?

A. I -- substantively no. I would -- I do think that Targa has to consider maybe doing these tests before they put the liner in, drill out, run a test, and

if necessary, case the well to TDM and then pick perfs from the log and from the tests and go from there.

Q. So that's an additional recommendation?

A. It's a suggestion.

MS. MACQUESTEN: Mr. Chairman, I had intended to go through his testimony and the exhibits, but in the interest of time I will wait, allow Mr. Scott to do his cross-examination, and at the end of all of the questioning, I will be moving to introduce both the prefiled written testimony and the Exhibits A through L. If there are any questions at that time I'd like the opportunity to be able to come back to Mr. Jones and establish the admissibility if there's an issue.

CHAIRMAN FESMIRE: Mr. Scott, that seems to be reasonable.

MR. SCOTT: That seems reasonable to me as well.

CHAIRMAN FESMIRE: Go ahead and do it that way.

MS. MacQUESTEN: I would like to just have Mr. Jones address a couple of issues in addition to his prefiled written testimony if that's possible.

CHAIRMAN FESMIRE: Proceed.

Q. (BY MS. MACQUESTEN) Mr. Jones, I know that you go into this in more detail in your prefiled

testimony, but I would like for you to summarize for the Commission how does the area of review for the subject well compare to the area of review for other acid gas injection wells in New Mexico?

A. I've prepared an exhibit to show -- the Exhibit E shows the one-mile area reviewed wells for all of the permitted acid gas wells in New Mexico. I didn't show the one-half mile area review and I didn't show the two-mile area review. And I kind of wish I had shown the two-mile because it would have -- it would have further highlighted the -- this Eunice Gas Plant No. 1 as having -- I counted around 200 wells within two to two-and-a-half miles that penetrate the San Andres.

And most of the other wells in the state that are permitted, the operators are actually luckier than Targa, they are a long ways away from the productive oil patch. So Targa just happens to be in the productive oil patch. And they -- the two wells that Targa has permitted or is in the midst of permitting -- are predominantly the -- have the majority of area review wells.

Q. Mr. Jones, looking at this exhibit, are the top two wells, wells that are in the process of being -- are being proposed by Targa?

A. The second one is already permitted. It

just hadn't been -- it doesn't even have an API number yet but it's been permitted as a disposal, acid gas disposal.

Q. And the first well is the well at issue today?

A. Yes.

Q. You say you wish you had prepared this exhibit to go out two miles?

A. It would have been more dramatic in the discrepancy or the -- of the magnitude of the aerial view wells.

Q. You said that you counted how many wells for the Eunice Gas Plant No. 1 within two miles?

A. I counted between two to two-and-a-half miles I found about 200 wells, little over 200 wells.

Q. What would you find for the other wells on this list?

A. I don't know totally. The only one that I'm pretty uncertain about is the next two down the list and specifically the Monument AGI No. 1. But it is down in the Devonian/Ellenburger, so I would guess it would be around double that, if that, within two miles. And the other wells, the Linam AGI, you may get into more than a few more wells within two miles, but all of the others probably around zero.

MR. SCOTT: I object at this point that the witness is just speculating on these numbers.

CHAIRMAN FESMIRE: Is this speculation or have you actually done this analysis?

MR. JONES: I looked at the two miles submitted map for these permits. And that's what I'm basing it on. Not basing my guess on --

CHAIRMAN FESMIRE: Okay. Would you make your answers more definitive? "Probably," "about" -- let's, "This is based on analysis and here are the results."

MR. JONES: So it's based on what I've seen, the Eunice Gas Plant No. 1 as has approximately four times as many wells within two miles as it does within one mile. And from the Midland maps I looked at the other wells you could probably double the number of wells within one mile.

CHAIRMAN FESMIRE: You could double the number of wells.

MR. JONES: I'm sure. Possibly. That's all I can say.

MR. SCOTT: Move to strike as being speculation.

CHAIRMAN FESMIRE: Mr. Jones, I'm going to have to sustain that objection. You can rephrase it.

But you're going to have to make definitive statements.

Q. (BY MS. MACQUESTEN) Mr. Jones, let's turn to another issue. What -- let's talk about the condition of the wells within the area of review. And let's start with within half a mile. What are the -- what conditions did you find within a half mile?

A. Within a half mile I found two to two-and-a-half wells that penetrate the San Andres. The one that penetrates in the top of the San Andres is this well that was talked about earlier that has the lead wool and ten sacks of cement and --

CHAIRMAN FESMIRE: That's Langlie Mattix 252 or 262?

A. 252. And the other two wells were drilled relatively recently by Lewis Burleson and they -- the cement on those two wells they used large volumes of cement and the cement bond log showed that the efficiency of the primary cement job was only around 63 percent on one of them and the other one doesn't have a bond log on it. And they top squeezed it to stop the possible water flow.

Q. And what is the relevance of that information?

A. The relevance is that right away if you look

at these wells, when I looked at the wells I discovered that they were difficult to cement over Gloreta/San Andres portions of the well.

Q. What can you tell us about the condition of the well between one-half mile and one mile from the subject well?

A. Between one half mile and one mile is in exhibit -- shown -- all the wells are shown in Exhibit G. And I believe there's 22 of those. 22 of those wells. Seven of those wells are shown in Exhibit H, and one of those wells is also shown in Exhibit I, the well bore diagram of the well.

This is rather typical of the area where these seven wells I discovered within one mile that drill to the target formations below the San Andres were cemented over the target formations but the San Andres was not a producing zone. So that combined with the problems getting cement to cover it, they ended up with cement only over the target formations and subsequently they had to squeeze to top of the wells. I did find that they had squeezed the top of these wells as a result of that R-5003 order for all the water flows they found in this area.

CHAIRMAN FESMIRE: Okay. May I ask a question? You say they squeezed the top of the wells.

They tied it onto the Bradenhead and squeezed from the top?

MR. JONES: In some cases. Most of the cases they perforated below the prospective pay intervals, which was the Langlie Mattix and Pinrose and squeezed across that to cover that productive interval and to cover the salt interval because they had numerous Bradenhead leaks in that area.

CHAIRMAN FESMIRE: So they perforate or use a DV tool to squeeze the zones?

MR. JONES: Perforate.

CHAIRMAN FESMIRE: Perforate. And this concept of squeezing from the surface on a deep string is of concern to me. How did they keep from --

MR. JONES: Well, when they were flowing at those rates they found, that --

CHAIRMAN FESMIRE: They just squeezed against the flow.

MR. JONES: Louis Burlington drilled his latest wells out here, and they didn't run very good logs. But they had to use a large volume of cement.

Q. (BY MS. MACQUESTEN) Mr. Jones, looking at OCD Exhibit G, does this summarize what you found concerning the wells within one-half mile to one mile of the subject well?

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A. It does.

Q. And are the first seven wells the seven wells that you say you have concerns about?

A. They are.

Q. Let's talk about the first two wells. Are these active salt water disposal wells?

A. The first two are salt water disposal wells.

Q. What concerns do you have about these two wells?

A. They are salt water disposal wells into the Targa formation within the same interval proposed for acid gas injection. They -- one of the big concerns is that they were perforated not only in the San Andres but also in the Glorieta or Paddock zone. Apparently they really wanted to go after that Glorieta interval.

Q. How high are the injection rates for these wells?

A. They are not reported to be that big. But that tells you that -- well, probably three things. That they are either not reporting correctly or they are -- the well can't take any more than that or they don't need any more than that for disposal.

Q. What sort of issues do these wells pose if the plume reaches these wells?

A. If anyone -- because they are such a big

injection interval, it's highly likely that -- and the volumes going into these wells don't seem to be that much, it's likely that only certain portions of those perfs are taking fluid, so the other portions are not building pressure to -- if the plume reached these perforations and someone worked over the well, well, they would be exposed to the released CO2 and acid gas.

Q. Let's look at the next two wells. Your exhibit indicates that these are plugged and abandoned wells?

MR. SCOTT: Which two wells are you talking about?

MS. MACQUESTEN: This would be the --

CHAIRMAN FESMIRE: Why don't you refer to the number.

MS. MACQUESTEN: The JV Baker and the Baker A.

MR. SCOTT: Okay.

CHAIRMAN FESMIRE: 10486 and 10467?

MR. JONES: Yes. The Bakers and the Boyd's and the Christmas's. And I'm not sure there was a Christmas maybe. That's -- find out.

Q. (BY MS. MACQUESTEN) I'm looking at Well No. 3 and No. 4 on your list.

A. No. 3 and No. 4.

Q. Top level concerns. What is your concern about these two wells?

A. The plugs in those wells extend -- leave an open area between basically right above the bottom of the San Andres or at the bottom of the San Andres down to past the Glorieta. So that -- that allows unconfined injection. If water -- if water or acid gas that's injected reached those wells, injection would be unconfined as far as keeping it in the permitted injection interval. And the advertisement here is for the San Andres for the injection, not for the Glorieta and Paddock.

Q. Let's look at the next three wells on your list of seven. The JV Baker, the Will Cary and Christmas 28.

A. Yes.

Q. What type of wells are these?

A. These are reported to be producing from deeper intervals.

Q. What are your concerns about these wells?

A. These wells are producing wells with large open intervals exposed to corrosion in the -- across the San Andres. And in some cases down to a lot deeper than the San Andres.

CHAIRMAN FESMIRE: How far away is this from

the proposed injection well?

MR. JONES: The distance aways are the third column from the right on the exhibit. They are beyond a half mile and within one mile.

Q. (BY MS. MACQUESTEN) And what is your concern if the plume reaches these wells?

A. The corrosion would be the main primary concern, that once the -- if these -- you can see the API numbers on two of these wells are 10,000, so they are 1980 model wells. So the casing is probably not that good a shape already.

And if anything finished off that casing it's going to basically cause waste as far as drowning out their drinker zone or -- also, if that -- if that gets in the pipeline the pipeline company will shut down their wells. And then if they work over the wells they might be exposed, workers would be exposed to possibly large volumes.

Q. Did you review wells within two miles of the subject well that are shallower wells?

A. No. I looked at them, but I didn't review them in detail.

Q. Do you have any concerns about them?

A. The shallower wells were primarily Langlie Mattix wells. The one -- the one well that I really

checked on I found it had been deepened into the San Andres -- the top of the San Andres and plugged back. The records on a lot of those wells are not very good, we don't know exactly if -- I didn't research the records on all of those shallow wells to make sure that they weren't deepened and then plugged back.

Q. Is this an active area for production?

A. Yes.

Q. Which zones are producing?

A. It's the Penrose member of the Queen formation is the way I understand it.

Q. Can an area be successfully produced if producers have to drill through an acid gas plume?

A. There are some deeper zones out here. Two of the -- two of the -- the best well out is there an Abo well and it was a relatively recent well. And it's one of the wells within one mile of the subject well. The Abo trend, we don't know how they are going to go after that in this area. If they do drill through it, the operators will have to make a decision about what they will do in that case.

CHAIRMAN FESMIRE: Can it be done? I mean, can you drill through an acid gas plume, a pressurized acid gas plume?

MR. JONES: I am not prepared to say -- we

know it can be done. You mean can it be done safely?

CHAIRMAN FESMIRE: Can it be done safely?

MR. JONES: You can -- you can weight up your well to go through anything and we -- drillers drill through high concentrations of H2S all over the world.

CHAIRMAN FESMIRE: With a thief zone just below your injection interval?

MR. JONES: The thief zone means that if they weight up too much all of a sudden you break it down, here it comes to the surface. So it leads to some -- some -- a little bit of drilling technical challenges there. But primarily it would be a safety issue.

Q. (BY MS. MACQUESTEN) Mr. Jones, in your prefiled written testimony you discuss a test that was conducted on this subject well in 1983. Can you tell us about that?

A. That test is in the well file. It was a injection test. They didn't label it as a step-rate test, but it looked -- looked suspiciously like a step-rate test. And they did report that the well was taking one barrel a minute on a vacuum when they started the test.

Q. Did that give you any concerns?

A. One barrel a minute on a vacuum means that

you have got pretty good permeability down there somehow and a possible fracture swarm or fractures in that zone.

Q. Were the results of that test consistent with the assumed porosity of this well?

A. No. No. They -- now, it was completed in the upper interval from 4010 to 4550, I believe. But it -- and that interval does show some separation on the resistivity logs in the -- the only ones available which are almost a mile away. But it does show that there is some permeability and porosity out there, but it's more consistent with a fracture than it would be with matrix permeability.

Q. What is your concern regarding fracture?

A. The fractures means that we cannot assume that 700 feet of interval is going to take the injection in a even manner. It's going to be primarily concentrated into the highest permeability or the fracture zones and it would travel further in a short amount of time.

Q. Would that affect the model that Mr. Gutierrez has proposed?

A. Yes. And he said that also.

Q. What -- we have heard testimony about the data that the OCD is requesting. And do you understand from Targa's testimony that they are willing to provide

the data that you have requested?

A. Yes. Even more -- more so.

Q. Will that data help you evaluate whether this well can be used for injection purposes without causing problems with these wells in the area of review?

A. It will help. It will help in determining the extent of the plume from a -- put all the data together, in my opinion, we don't have enough data right now to -- to say for sure that everything's going to be contained within a half a mile. We need this additional data.

Q. Let me ask you about the process that Targa has proposed. What is your opinion on Targa providing the data to the Division and having the Division then decide whether it needs to reopen the case?

A. I think that it should be Targa's responsibility to reopen the case.

Q. What is your experience with operators complying with the terms of injection permits?

A. It's not always a happy experience. We put conditions in permits or conditions that should be met after their injection begins and it's not always -- traditionally in large open hole intervals we do ask for injection surveys.

MR. SCOTT: Mr. Chairman, I'm going to

object at this point. I don't know what the performance of other operators has to do with how Targa would perform pursuant to the terms of the order that this Commission might issue. I don't think you can attribute the conduct of other operators to Targa.

CHAIRMAN FESMIRE: I'll sustain the objection.

Q. (BY MS. MACQUESTEN) If Targa provides this sustain data to the OCD, would you want a decision to be made administratively as to whether this permit should be changed or would you rather see that go before the Commission?

A. I would -- we have no acid gas rules to prerequisite things off to administrative permitting process. I'd definitely rather it be before the Commission.

MS. MACQUESTEN: Mr. Chairman, I think that's all I have for now with the understanding I may need to go back to address the admissibility of evidence.

CHAIRMAN FESMIRE: Okay. Mr. Scott?

* * *

CROSS-EXAMINATION

BY MR. SCOTT:

Q. Good afternoon, Mr. Jones.

A. Good afternoon.

Q. Nice to see you again. You had mentioned in your testimony some -- a couple of recent wells with large volumes of cement. Do you recall talking about those two wells?

A. Uh-huh.

Q. Which two wells in particular are those?

A. Those it would be the wells within the area of the half-mile area of review. Lewis Burleson wells, Santa Rita No. 2, Santa Rita No. 12.

Q. And at that depth where were the large volumes of cement injected?

A. At 7200 feet.

Q. So that's significantly below the zone we're talking about here; is that right?

A. Yes.

Q. The zone we're talking about is 4200 to 4900 feet?

A. Yes.

Q. Okay. You also talked about I believe it was seven wells that are shown in Exhibit 8 and you testified about having to squeeze the top of those wells?

A. The -- actually the one that they squeezed the top is Santa Rita No. 2. They said they squeezed the backside. I assume that means the top.

Q. Okay. So the seven wells that you were

referring there -- let me back up a step. You were the hearing officer for the proceeding that resulted in Order 12809, correct?

A. Yes.

Q. Those seven wells that you referenced during the course of your examination, those wells were in existence at the time you issued the order in 12809, correct?

A. They were.

Q. And there wasn't any expression of concern in the findings or the order that was entered concerning those wells in Order No. 12809, correct?

A. Correct.

Q. You made mention of some -- couple wells with some Bradenhead leaks. Do you recall that testimony?

A. Yes.

Q. Which wells were those?

A. They -- wells that were referenced in the case for R-5003.

Q. And at what depth were those wells?

A. The Bradenhead flow -- at that time there was -- that was the whole -- as I understand it, that was the purpose of the committees that were -- the study teams that were commissioned to study this area for -- to

determine where those Bradenhead flows came from.

At that time there were salt water disposal wells in this area, including this well, and four other wells. And they listed those wells and those were all San Andres injection wells. They were -- a lot of wells that were not cemented from below the San Andres on up at that time and there was Bradenhead flows. And so -- and this brine well was given permission as I understand it, to flow continuously because --

Q. Was there any determination made as to the depth this flow was going to go?

A. I can tell you what I read in the case -- in the order for R-5003. I believe it's in front of the Commission. From what I understand, the flows were likely coming from -- there was a lot of still controversy, but the salt zone was charged up, which is way above the zone. And the Queen injection water flood was going on too. So and that in combination with all these uncemented well bores and what came out of our 5003 was the requirements to squeeze cement -- a whole bunch of wells to raise the cement over the Queen zone and over the salt interval.

Q. And those are above the zone we're talking about here?

A. Definitely. Yes.

Q. You talked about the J B Baker and Baker A well as part of the questions that your counsel was asking you. Which are the first few wells listed on Exhibit G, correct?

A. Yes. Correct.

Q. And those wells are completed significantly below the zone we're talking about here; is that right?

A. Yes.

Q. And what direction are those wells from the well that's the subject of this proceeding?

A. They are north to -- I believe they are north to northeast.

Q. And how far are they from the well we're talking about?

A. They range from around 5,000 feet one of them is 3600 feet from the well.

Q. Okay.

CHAIRMAN FESMIRE: So one is 3600 feet. How far is it to the other one?

MR. JONES: There's three producing wells. One is 3600 feet away, one is 5,000 feet away, one's 5200 feet away.

CHAIRMAN FESMIRE: Thank you.

Q. (BY MR. SCOTT) There was some discussion about the J B Baker, the Will Cary and the Christmas 28

wells. Those are more than a half mile from this well, correct?

A. Correct.

Q. And those are also completed at deeper intervals than the San Andres?

A. The -- all of these wells, these seven wells of concern were drilled to a range from 6400 feet to 7500 feet. That was their TDs. Total depths.

Q. So that's 2 to 3000 feet below what we are talking about as the zone for this well?

A. Yes.

Q. And you made reference to some Langlie Mattix wells that were drilled, but you said you weren't -- you didn't do research to make sure they weren't deepened or plugged?

A. They -- I did find that wells were deepened. The early wells were drilled until they hit water. And then they were going for this -- whatever they could find down to 36, 4,000 feet and they drilled until they found water and they came back and they perforated it and completed with nitroglycerin and stuff into the Queen formation.

Q. Those are primarily within the Queen formation?

A. Primarily.

Q. And most of the production you talked about that is in this area is from the Penrose?

A. Yes.

Q. And that is also above the formation we're talking about here, correct?

A. Yes.

Q. You made reference to a test well that was in 1983 or a test of this particular well from 1983. Do you recall that?

A. Yes. Yes.

Q. And that was an injection test where you said that it took a barrel per minute on vacuum?

A. Yes.

Q. And you posited that there were a couple different explanations for why that might occur, correct?

A. Correct.

Q. One might be a fracture, one might be an under pressure zone.

A. I don't think that San Andres is under pressure. But --

Q. But that is a possibility, correct?

A. It -- under pressure meaning -- you want me to define it in my terms what under pressure means? Okay. What I define normal pressure is if a well will stand fluid to the surface. That is considered in the

oil industry to be normally pressured formation. If wells take fluid on a vacuum, that means they will not -- you could pour fluid into them and the -- you can't raise their fluid level because the formation is so porous and permeable. So you can't catch the surface with what you pour in until you pour it in fast enough and then you can.

Q. Okay. And is that a possible explanation for the results of that test on this well?

A. I don't think so.

Q. Why is that?

A. Because the San Andres in that area had not been produced and so I don't see how it could be under pressure if it's not -- hasn't been produced.

Q. Going back to your comments about the order of 5003, the order from back in '74 or '75. Didn't that order specifically say that this particular well was not the source of the water?

A. I saw in the -- that they were concerned about the brine well right directly above this well. And since this well was real close to it, they were looking at all the San Andres wells, injection wells around this area including this well. They did say something about this well was not -- was probably -- I believe they said it would probably be okay. I would to refer you to the

case file and the hearing order. But --

Q. So if the order says that you would stand by that?

A. I would.

Q. Okay. And didn't the order there place some limits on the volume that can be introduced to protect the LPG wells that were in the area? Wasn't that the specific intent of that order?

A. They limited it -- the previous order limited the type of fluid going into the well to only from the gas plant, gas plant effluent and waste, wastewater from the gas plant. And I took from that, that the volumes coming from the gas plant was 1500. And so they gave them enough to get rid of the water from the gas plant. But and then they did limit it to 1500 from then on, and I took that to mean they didn't want somebody turning it into a disposal -- commercial disposal well. But that was just my reading into what they said.

Q. In terms of receiving more data, if Targa were allowed to go out, recomplete the well, test the well, submit all of that data to the Division, certify completion with all of those requirements and provide additional calculation that confirms the existing calculation that's been done, would you be comfortable

authorizing injection of acid gas at that point?

A. I would have to look at it. And it would be -- if Targa will submit the data to the Division the Division can look at it, Targa can look at it, can both reach an agreement. And in my opinion it should be done in front of a -- some sort of a hearing.

Q. You're capable of evaluating the calculation that Mr. Gutierrez has run, correct?

A. I made my calculation match his and then I did sensitivities of it.

Q. Sure. You could take the same data and you could evaluate it yourself and come to the conclusion whether the new data supports the conclusion that this well would be safe to operate for 30 years or the volume was crested, correct?

A. I could come to his conclusion or I could come to a different conclusion. Every geologist, every engineer looks at the data and comes up with something a little bit different.

Q. You wouldn't be wildly different in your conclusions, would you?

A. I would hope not. I think Alberto would likely do a good job.

Q. Looking at the exhibits that accompany your prefiled testimony, Mr. Jones, you attached a series of

exhibits. And Exhibit C, if you will turn to that, please. That's hand labeled, "Eunice Gas Plant No. 1, well reported volumes and pressures," correct?

A. Correct.

Q. That is your handwriting?

A. Yes.

Q. Okay. And you were aware, weren't you sir, that Targa had recorrected and resubmitted all of these injection records for this well?

A. I -- I printed it out again this morning. And I came -- I saw the different reported injection volumes.

Q. So the volume -- or the report you have in your Exhibit C doesn't reflect the corrected reports submitted by Targa; is that correct?

A. That's correct.

Q. Did you do any other work this morning to try to go back and verify whether any other changes needed to be made to any of your exhibits to this file?

A. No. I didn't.

MR. SCOTT: I don't have anything further.

CHAIRMAN FESMIRE: Ms. Bailey?

COMMISSIONER BAILEY: To follow up on that question, Exhibit C may be outdated, but do you have or have you been given by Targa -- because we certainly

haven't -- been given the updated volumes?

MR. JONES: I printed it out of our database our RBDMS database. And I printed this. I do have the printout that I just did. But it did show for the last -- I would say for the last year or so, the volumes are dramatically reduced. I didn't compare it totally to all of the history, but I did prepare an exhibit showing from 1994 until today and the range of reported volumes in the well.

COMMISSIONER BAILEY: Okay. There are continuously new, innovative drilling methods and completion methods. What impact would drilling through an acid gas plume have on mineral owners' access to their minerals which at this point may not be productive but may be in the future?

MR. JONES: That is a -- that is a very pertinent question. And I'm not sure I'm totally prepared to answer that in full. I can say it would make it a little more expensive to go through it. The danger is if they are not expecting it I think. In my opinion that's the danger. Now, we did work with the Land Department recently on -- one of our geologists in Hobbs suggested that we set up a flag around all acid gas wells. And the only people that do that are Joe Mraz M-R-A-Z at the land department.

COMMISSIONER BAILEY: Mraz.

MR. JONES: And we called him and he agreed to set up a new category. And this category if the geologist -- if our geologist will populate -- send him the data, he will -- he will put those drilling units into that category. And then when our geologists permit a well close, within whatever the geologist puts out there, if they permit a well through the plume for instance, it would be a warning on the APD of that.

COMMISSIONER BAILEY: But that is part of the on guard system and that's not available to the public.

MR. JONES: No.

COMMISSIONER BAILEY: Or to drilling companies prior to sending in an APD to the OCD.

MR. JONES: No, it wouldn't be.

COMMISSIONER BAILEY: So they wouldn't have that on their AEP for any future drilling.

MR. JONES: No. That's true. Drilling hazards are -- that's a drilling engineer's nightmare of things like that.

COMMISSIONER BAILEY: Is that the most effective way that OCD could alert future drillers?

MR. JONES: I thought it was a good idea to do that. It's -- I'm not sure about the BLM, you know,

but I guess OCD issues API numbers so we would have to also issue a permit. It's getting to be more of a problem obviously. And I think because of this Abo zone down below this area and the drinker and the Abo, the Montoya has even been tried a few times here. So there are deeper zones and there's new, like you say, new completion methods that are going to open up those zones to potential horizontal drilling in the Abo if it's oil right now. So ...

COMMISSIONER BAILEY: There's been discussion about drilling through the lead wool, four feet of lead wool. What are the issues surrounding drilling that substance?

MR. JONES: I think one of the biggest issues in that well is to get out of that big, open hole nitroglycerin interval down to the bottom of the well to get through it. And as far as drilling through that stuff, I don't know. I don't how hard it would be. They can always -- if it's an open hole like it is, you can -- probably they can do it. It's a 400-feet interval with only some -- they call it lead wool and then sacks of cement. But they have been injecting in that well for a long time so -- in the Queen formation. So we just don't know. When they get into it they will find out.

COMMISSIONER BAILEY: That's all I have.

CHAIRMAN FESMIRE: Mr. Olson?

COMMISSIONER OLSON: I think I just want to make sure I clarify part of your testimony for myself. So the Division is asking the Commission to adopt the recommendations in your written testimony?

MR. JONES: Yes.

COMMISSIONER OLSON: That's all spelled out in here in the conditions as you have maintained in this document?

MR. JONES: I believe Ms. MacQuesten will be submitting a pre -- you will probably get that from both sides but, yes. To answer your question, yes.

COMMISSIONER OLSON: That is all I have.

CHAIRMAN FESMIRE: Mr. Jones, I too have a question about lead wool. Have you ever tried to drill lead wool?

MR. JONES: No sir, I haven't.

CHAIRMAN FESMIRE: Have you ever heard about people that tried to drill lead wool?

MR. JONES: I've heard of them plugging wells where you can never get back into them again.

CHAIRMAN FESMIRE: And they would do that with?

MR. JONES: Whatever they could find to throw in there.

CHAIRMAN FESMIRE: Even four foot, it's going to be difficult to drill through, isn't it?

MR. JONES: It might be. Depends on how it's diluted with the -- they probably packed it into the bottom of the hole. It's probably down in the very bottom.

CHAIRMAN FESMIRE: Okay. I'm just going to I think summarize what I've taken from this. If we use a half-mile area of review, there are really no wells penetrating the San Andres that are of concern within that half-mile radius; is that correct?

MR. JONES: That's correct.

CHAIRMAN FESMIRE: But just outside that half-mile radius are several wells including the seven that you -- I'm sorry, the list that you had that have potential cementing problems through the San Andres zone, correct?

MR. JONES: From our records, that's what I could find.

CHAIRMAN FESMIRE: And those include no cement known, no cement through the San Andres zone?

MR. JONES: Yes.

CHAIRMAN FESMIRE: And questionable cement through the San Andres zone?

MR. JONES: Yes.

CHAIRMAN FESMIRE: Okay.

MR. JONES: I didn't list the questionable wells.

CHAIRMAN FESMIRE: Okay. I want to talk about the deeper well -- the recent deeper wells that you talked about, if I understand it the Christmas 2 and the Christmas 12?

MR. JONES: The big API numbers are the recent wells. AL Christmas No. 1, and Christmas 28 No. 4.

CHAIRMAN FESMIRE: Okay. And these are the ones where does it look like the thief zone, the thief zone below the San Andres that we have been talking about broke down?

MR. JONES: It -- it appears that it's somewhere in either the lower San Andres or the Glorieta.

CHAIRMAN FESMIRE: That would be the thief zone that we have been concerned about.

MR. JONES: That would be for cementing purposes.

CHAIRMAN FESMIRE: Yeah. Okay. And in an attempt to get a cement down across there, they cemented from the Bradenhead down the backside.

MR. JONES: Well, I -- that's this one -- this one well they did everything they could to stop

water flows out there. And they squeezed maybe, yes. In some cases.

CHAIRMAN FESMIRE: Okay. Which well or wells is that?

MR. JONES: With the Olson well that -- where is it here?

CHAIRMAN FESMIRE: I'm looking at Exhibit G.

MR. JONES: Exhibit F, the Santa Rita No. 2, was squeezed. They just say squeezed backside with 700 sacks. You can't squeeze 700 sacks unless there's some big holes.

CHAIRMAN FESMIRE: Something's taking fluid somewhere. So we don't know what kind of cement job they have got on that particular well.

MR. JONES: Well, we know on that particular one that there is no bond log for the primary cement job. But if you use the 63 percent efficiency factor, which is what I determined from the other well because it had a volume of cement and the top cement, then you apply it to this well, I calculated the cement top at 3600 feet.

CHAIRMAN FESMIRE: So that would be above --

MR. JONES: Above the San Andres.

CHAIRMAN FESMIRE: But there's a lot of questions in that calculation.

MR. JONES: Yes, there's questions from well

to well and from that calculation. Yes.

CHAIRMAN FESMIRE: Okay.

MR. JONES: But yes.

CHAIRMAN FESMIRE: So if Targa is right about the size of the plume and we're only going to have a radius of about .2 miles on average given the unconformities -- that's a bad word to use among a bunch of geologists, but the irregularities in the geology that there may be a little more than that, a little less than that and the gravity effects and all that, but about .2 miles at a perfect 100 percent displacement.

MR. JONES: Over 700 feet.

CHAIRMAN FESMIRE: Over a total of 700 foot of interval.

MR. JONES: Ten percent porosity.

CHAIRMAN FESMIRE: Okay. Now, we talked about mobility ratio and I believe Mr. Gutierrez described the displacing fluid as slipperier than the displaced fluid. That tells me that we're going to have a bad, like I said, speaking from old hard terms, but we're going to have a lot of inefficiencies in the displacing mechanism. They are not going to -- for sure they're not going to one hundred percent piton displace the fluid in the formation; is that correct?

MR. JONES: Yes, I would agree with what.

CHAIRMAN FESMIRE: Given -- and I know you have done water flood work. Even with a good mobility ratio we're not talking about displacement efficiencies of much above 60, 56 percent, are we?

MR. JONES: The -- depending on the different conformances; vertical, lateral. But I would agree with you there. The mobility ratio here if it is -- if the viscosity is lower like that, than the displaced fluid you end up with fingering through the formation more than you do just piston displacement.

CHAIRMAN FESMIRE: Okay. And that is a good mobility ratio, right?

MR. JONES: Good mobility ratio is one where there's a big contrast between the displacing fluid and your displaced fluid. So you sweep -- you have a good sweep of --

CHAIRMAN FESMIRE: Greater than one. Defined that way, right?

MR. JONES: I think that's the way they define it.

CHAIRMAN FESMIRE: Okay. So I guess what I'm saying is that this .2 mile radius is probably going to be significantly more than that, isn't it?

MR. JONES: I think we can't really view it as plug-like piston displacement. Even geologists will

never tell you that, that the reservoir's -- permeability in reservoirs are spoken of in terms of how many log scales they extend over, not a confined, nice, mean permeability. You use geometric means always. And you talk in terms of how its skewed on the statistical charts.

And so it's -- it's a gross approximation to try to do that. That's why we're suggesting that they run an injection survey to narrow down the zones that are really taking fluid. We can look at the porosity in those zones that are taking the fluid. And we can -- we can come back and present it and then see what happens there.

CHAIRMAN FESMIRE: Okay. I guess the point I'm making is even if we assume a significantly bad mobility ratio, we're still going to get -- aren't we going to calculate at least that .2 efficiency that their 500 percent radius -- I mean 500 percent safety factor would amount to? What that amounts to is a .2 percent -- I mean a .2 displacement efficiency, doesn't it?

MR. JONES: In those terms I'm not sure. I did prepare a -- one sensitivity slide, it's slide L, Exhibit L. It's simply varying the thickness that takes fluid. As you can see, if in this case if you take -- if the fluid all goes into a hundred feet, and you have

seven percent porosity, then this calculates some sort of a radius away from the well.

I have to say I don't agree with the 30-year .2. Because again, we're making the assumption that it's 700 feet and ten percent porosity. So I didn't show a sensitivity to porosity in percentage. But that would be the other big factor. And that's effective porosity by the way, that's not total porosity. Effective porosity meaning porosity that's connected.

CHAIRMAN FESMIRE: Right. And that gets into that water saturation number that we were talking about earlier.

MR. JONES: You could add that in there.

CHAIRMAN FESMIRE: Okay. Let's talk a little bit about Exhibit L. Exactly what are you telling us here?

MR. JONES: I'm -- word of caution when looking at this. This is intended only to show the sensitivity of factor of net thickness.

CHAIRMAN FESMIRE: So I guess what we're saying is if we look at, for instance, 700 feet and it has a radius of -- well, is that the .2 miles or is this some dimensional --

MR. JONES: That's pretty close. If I use exactly the same -- if you go out to the 30-year mark and

you go up --

CHAIRMAN FESMIRE: So your calculation was about .28 so it looks like you did make a correction for that water saturation.

MR. JONES: No, actually I used a slightly different cubic feet per barrel than Alberto did. And the porosity is different too. If you notice there's seven percent porosity in this case and he's ten.

CHAIRMAN FESMIRE: So that would explain the .28 miles.

MR. JONES: Yes.

CHAIRMAN FESMIRE: .28 miles. So if we came down to an effective thickness of just a hundred feet you're telling us that it would be about .7 -- .74 miles radius?

MR. JONES: Yes.

CHAIRMAN FESMIRE: Okay.

MR. JONES: At seven percent. But I'm not totally telling you that. I'm saying that this just shows a sensitivity of this. I think we have to look at the data that we're going to get. We have to look at the step-rate test, we have to look at the injectivity test, and the logs to see if -- and put it all together and use something similar to this but. I'm not saying we can totally use this.

CHAIRMAN FESMIRE: Okay. This is just to give us an idea what the sensitivity is to that one input.

MR. JONES: I think we also need some testimony as to what this stuff does in the reservoir as far as dilution and chemical reaction on the rock and they haven't presented that yet. Maybe they will next hearing.

CHAIRMAN FESMIRE: Okay. If we were to allow the injection, they were to inject for enough time to stabilize the injection rate and pressure, and then we were to do a pressure fall-off test, we would in essence be able to get a distance to any fault that there existed? We would be able to get an idea of what the mobility ratio was between the two fluids?

MR. JONES: You would get a lot more data and that's the way the pros do it, yes.

CHAIRMAN FESMIRE: So we could get an estimate of the mobility ratio and could also get an estimate of the radius of injection during that period of time, couldn't we?

MR. JONES: Not sure about the mobility because that's K over Mu over K over Mu. So but it's -- you can get a lot of that data and that is the way that -- it would be nice to have that done because that

confirms a break also. Or a not break. Confirms whether you're in a fracturing situation or you're still in the under-matrix controlled flow at that time.

CHAIRMAN FESMIRE: Okay. So your suggestion would be that if we do go ahead and grant this permit, that we put a condition in there that they run these tests sometime after injection stabilization.

MR. JONES: At -- hopefully the tests would be run, yes. But also with brine instead of doing them with the acid gas.

CHAIRMAN FESMIRE: Why is that?

MR. JONES: Just safety. That's just if they think they can do that with acid gas maybe they could. But I probably wouldn't -- with my knowledge I wouldn't know enough to say they could do that. Not sure the wire line companies would want to either but they might do it.

CHAIRMAN FESMIRE: So we shouldn't have a double slope and shouldn't be a way to calculate the mobility ratio if you want to inject and get the --

MR. JONES: Well, I think the mobility ratio would -- but the variation in permeability, he's going to get that from that micro -- and he mentioned the log also if they process it over that interval. And they are going to get a lot of this data. That's a wonderful log,

you can see well bore break out, you can see what the stress directions are at different points. It all depends how much you want to pay for processing of the log.

CHAIRMAN FESMIRE: According to your -- given the weaknesses of your sensitivity analysis here, it would still take, even if there were only a hundred feet taking the fluid it would still take about 14 years to get to that half-mile radius, wouldn't it?

MR. JONES: Yes, that's with the net thickness of a hundred feet.

CHAIRMAN FESMIRE: Hundred feet, seven percent --

MR. JONES: Seven percent.

CHAIRMAN FESMIRE: The assumptions that you put in there.

MR. JONES: There's a lot assumptions there. And what I didn't show is a typical range of permeabilities for the San Andres, for instance. The Baxter-Parsons coefficient, that kind of thing. That would show more about whether you can really use something like this or not.

CHAIRMAN FESMIRE: So I guess what I'm saying is, if we were to grant the permit now, even using your assumptions in all the inherent for lack of a better

word weaknesses in your assumption we would still have 12 to 14 years of safe injection; is that correct?

MR. JONES: Well, I only went down to a hundred feet just there for -- was no really control there.

CHAIRMAN FESMIRE: And we're pretty sure it would take -- there's more than a hundred feet of permeability in there, right?

MR. JONES: I do have an exhibit for that. The Exhibit K you can -- if you will look at that, that was one of the nearest open hole logs I could find. And it's -- it's a porosity log of this dolomite. It shows if you look at the gamma ray on the left side, look at -- there is no clean -- there's no clean in that.

So there's -- there's a lot of little intervals there. And if you look at the porosity, you will see that what you see in here is the density, and neutron, open hole porosity. And in dolomite you have to cross-plot that porosity. And basically usually it's -- you can kind of look between the two curves and you can see what the porosity would be. Effective porosity. Because it's a dolomite, not a sandstone.

And this goes from almost the top of the San Andres to the bottom of the San Andres. So it's very -- and what I would say is in low porosity rock you tend

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more to have your flow dominated by fracturing than you do matrix, matrix controlled permeability. It's more controlled by that. Because let's say for a given volume going in or going out of this rock, you would -- if it's real tight, it's -- whatever the flow is, is going to be controlled more by the fracturing.

CHAIRMAN FESMIRE: Okay. So I guess getting back to the question I was trying to ask. If we were to grant this --

MR. JONES: Sorry.

CHAIRMAN FESMIRE: No. If we were to grant this we would have, you know, within the constraints we would have several years to be able to do these calculations and to do these tests.

MR. JONES: I thought we could have more than six months anyway. And a year was arrived at after we looked at some of these sensitivities, yes.

CHAIRMAN FESMIRE: Okay. I have no further questions. Ms. MacQuesten, do you have any?

* * *

RE-DIRECT EXAMINATION

BY MS. MACQUESTEN:

Q. I just wanted to clarify one thing about the exhibits you provided on the injection volume for the subject well.

A. Yes.

Q. We were required to submit our exhibits ahead of time; is that right?

A. Yes.

Q. And since then you have found that Targa has changed its reporting?

A. I -- I saw it this morning. They did report it to us when they came to our talk the other day.

Q. After we filed our exhibits; is that fair?

A. Yes. I don't remember exactly when they filed their report.

Q. We have to file a week ahead of time. That's way it is. Now, you say they corrected the volumes?

A. Yes. They changed them.

Q. They changed them. Did they change the injection pressure?

A. No, the injection pressures are still reported at either zero or 750. 750 seems to be a favorite number to be used.

Q. So we still need to have injection pressures corrected if possible.

A. I would be happy if they reported correctly from now on.

Q. Okay.

A. Diligently from now on.

Q. On your exhibit showing sensitivity, this was designed to change just one variable in the calculation, right?

A. Yes. One variable.

Q. And see what kind of change would result if you changed that one variable.

A. Yes.

Q. But there are other variables involved, are there not?

A. Yes, there are.

Q. So you would have to look at, for example, if the porosity changed that would also affect this.

A. Yes. The effective porosity.

Q. Effective porosity. And if the tests are conducted and show that there's some sort of fracturing is that going to affect the model?

A. That will affect the model. Definitely. We will have to -- both sides will have to recalculate and we -- take that into account.

Q. So when we're assuming that everything's going to be okay for a certain period of years, that's relying on those assumptions, right?

A. Lot of assumptions here.

MS. MacQUESTEN: Thank you. That's all I

have.

CHAIRMAN FESMIRE: Anything further, Mr. White, on those --

MR. SCOTT: Just a few follow-ups on Exhibits K and L.

CHAIRMAN FESMIRE: Okay.

* * *

RE-CROSS EXAMINATION

BY MR. SCOTT:

Q. Now looking at your Exhibit L. Mr. Jones, you have maximum disposal rate barrels per day of 5543, correct?

A. Yes.

Q. But what Targa had asked for is 4075, correct?

A. Yes. They asked --

Q. So you are at 1468 barrels more per day than what Targa had asked for.

A. I used the subsurface --

Q. Just answer my question, sir. You're --

A. Yes.

Q. -- 1468 more, correct.

CHAIRMAN FESMIRE: Mr. White, I believe he was answering the question.

MR. SCOTT: I'm sorry. It's Mr. Scott.

CHAIRMAN FESMIRE: Mr. Scott. I'm sorry.

A. Yes, to answer your question.

Q. (BY MR. SCOTT) And then for porosity you're using seven percent, correct?

A. Yes.

Q. And even taking those numbers, if you look at 500-foot thickness at the end of 30 years you're still less than a half mile, correct?

A. Correct.

Q. In fact you're at about .3?

A. .3.

Q. And if you have 300 feet of thickness again using more barrels than Targa had asked for in seven percent, you're still less than a half mile at 30 years, correct?

A. Correct.

Q. You're at about little over .4?

A. That's what the chart shows, yes.

Q. Looking at Exhibit K. And do you have a copy of Exhibit 3, Mr. Gutierrez' PowerPoint? I can provide one if you need a copy.

A. That's the log? Yes, I've seen that.

Q. Okay. Let me just hand this to you make sure we are talking about the same thing.

A. Okay.

Q. So your Exhibit K says that it's from the Laura J May No. 1 well; is that correct?

A. Yes, sir.

Q. Okay. And that is from a log from 1980?

A. Yes.

Q. Okay. And looking at Exhibit 14 or Slide 14 of Exhibit 3. In the right-hand corner you will see the location of the Targa well and then two circles running out from there?

A. Yes.

Q. And the Laura J May No. 1 well is shown outside the green circle, correct?

A. Correct.

Q. It's outside of a half mile?

A. Correct.

Q. And the Santa Rita No. 12 is shown as being right at the half-mile radius, correct?

A. Correct.

Q. And that's the log that's shown on Slide 14 of Exhibit 3, correct?

A. Correct.

Q. And that's a log that's actually much closer to the well involved here; is that correct?

A. That's correct.

MR. SCOTT: No further questions.

CHAIRMAN FESMIRE: Okay. Ms. MacQuesten, anything else on that?

MS. MACQUESTEN: No. I would move for the admission of OCD Exhibits A through L, Exhibit A is the prefiled written testimony and the remaining exhibits are the exhibits that Mr. Jones prepared and discusses in his testimony.

CHAIRMAN FESMIRE: Okay. Mr. Scott, any problem?

MR. SCOTT: No, sir.

MS. MACQUESTEN: And we submitted six or eight copies.

CHAIRMAN FESMIRE: A through L is admitted. Why don't we take a quick ten-minute break and then we'll get closing at the -- when we return at five after 4:00.

(Break.)

CHAIRMAN FESMIRE: Okay. Let's go back on the record. The record should reflect that we are going to reconvene in Case No. 14575. We just completed the cross-examination of Mr. Jones. I believe it's time for closing arguments. Mr. Scott, are you prepared?

MR. SCOTT: Yes, sir.

CHAIRMAN FESMIRE: Proceed.

MR. SCOTT: Thank you. Thank you for your time and attention today and I know this has been a long

day we may have run a little longer than folks had anticipated. The focus today really has been on data. And we understand and appreciate the concerns folks have about the data and what that data means and how to interpret that data.

One point that went undisputed from Mr. Gutierrez's testimony is his information about the porosity trend in this area running from southwest to northeast. Most of the wells of concern that were identified are to the north and east of that porosity trend.

Second, with respect to the issue of gathering data and testing, the C-108 that Targa filed long ago contained all of the testing, analysis, everything that Mr. Jones had asked for with one exception, which was the temperature survey. Targa has agreed to undertake that survey as well.

That data gathering and collection is customary, that's something that Targa would have done in any event, as is indicated by the fact that he included it in the C-108, and it's the kind of information that was gathered and used and relied upon in five previous instances issuing acid gas injection wells as being sufficient and competent data for the decision-maker there to issue a final order.

In fact, that kind of information was available and utilized as precisely the basis for the prior order for this same project.

Targa understands the concerns and is willing to work to provide the data, but it also wants to get some finality and get a final order from this process. What Targa is amenable to is conducting all of the confirmatory data work that it described in its testimony and that the OCD staff has requested. Submitting that data with a certification as we indicated that work has all been completed, and providing new calculations of the impact of the plume based upon that additional data.

If that revised calculation based on the data gathered during the process of the testing and sampling reflects that there would be no impact at the half-mile radius and 30 years then we would propose that an administrative order be issued granting the authority to go forward with injection.

If at the end of all of that data collection and sampling the revised calculation reflects that there would be an impact as of 15 years, then we would suggest that this matter then be taken back for some sort of administrative hearing at that point.

We think that provides some certainty,

provides a means for the agency to receive the data that it's looking for to evaluate that data and come to a reasonable conclusion, but doesn't require the formal notice procedures and a lot of the other cumbersome and potentially delay-causing steps in trying to schedule a further hearing before this body.

CHAIRMAN FESMIRE: Thank you, Mr. Scott. Ms. MacQuesten?

MS. MACQUESTEN: Mr. Chairman, members of the Commission. I think that the issue today comes down to an issue of process. What is the process in obtaining a permit for an acid gas injection well? Is the burden on the operator to come forward and demonstrate that the permit is appropriate or is the permit granted and the burden placed on the OCD to come back and disprove the validity of the permit?

I'm here to ask today that the burden remain on the applicant. There are special concerns in this case. Mr. Jones testified about the large number of wells in the area of review and his special concern about one well within the half-mile and seven wells just outside this half-mile.

It's very important that we make sure that that plume does not extend to those wells. The assurance that Targa has given us comes in the form of an

mathematical model; it makes a great number of assumptions. Those assumptions can be tested if we get the data and we can verify them.

What we are asking for is that Targa be given a permit, allowed to construct the well, and in the course of that do the testing that they have agreed to do, do to analysis that they have agreed to do, but then come back to the Commission with the results of those tests so that the Commission can use that data to make the determination on what sort of life of permit limit is appropriate in this case.

This can be done within this case. This benefits the OCD and the Commission because it gives us the data we need. It benefits Targa because they will simply be reopening the case. I don't believe that there will be need for additional notice beyond the legal notice of the fact that a hearing is being held. In other words, we won't have to have letters out to all the individual entities; they have already been given notice of this.

What will happen is that they will come in with that data. And that's what we've spent all day talking about. Is that a significant hardship? I don't believe it is. In fact, I'd have to say we have spent the whole day talking about data that we don't have and

what it'll show or what it won't show. When it would be much simpler to simply get the data. If it verifies what Targa is saying, it's a very simple matter of presenting that and moving forward.

Now, Mr. Boyd presented some comments to the Commission and he said something very interesting; he said when people get the notice of a proceeding such as this, they are relying on the OCD to make sure that the permit is done correctly. The OCD and the Commission can't carry out that responsibility without data. And what I'm asking the Commission today is don't -- is to not abdicate that responsibility; to insist that it get the data it needs to make the appropriate decision. Thank you.

CHAIRMAN FESMIRE: Okay. Anything else in this case?

MR. SCOTT: May I respond very briefly?

CHAIRMAN FESMIRE: You may, sir.

MR. SCOTT: I don't think we have a fundamental disagreement here. I think Ms. MacQuesten hit the nail on the head when she said this is about process. We don't dispute that you guys should get that data, that it should be made available, that it should be evaluated.

Really the question is process and time.

And I think the process that I outlined that Targa requests is a reasonable process that allows the technical staff of the agency to utilize its expertise to evaluate the data that's provided, make a reasoned determination based on that data, and if it satisfies the criteria of no impact at 30 years, administratively allow the process to go forward.

If the data reflects that that's not the case and there would be an effect at 15 years, at that point yes, we would come back, have a hearing, and explore what the data means and whether a different timeframe would be applicable.

It's just a matter of what that process is as opposed to whether or not you're entitled to the data. We don't dispute that you're entitled to get that date.

CHAIRMAN FESMIRE: Thank you very much. Anything further in this case?

MS. MACQUESTEN: Mr. Commissioner, you had expressed interest in draft orders. And I believe Targa has already submitted a draft order, we have a draft order that we prepared before the testimony today that we can provide to you.

CHAIRMAN FESMIRE: Please do so.

MR. SCOTT: And we would like to supplement ours. We have a few changes. One of our witnesses had a

death in the family and wasn't unable to appear. There are some things we would --

CHAIRMAN FESMIRE: We are going to deliberate this evening. Is there any way you can do that longhand and --

MR. SCOTT: I have a copy here. I could amend it by interlineation and provide that.

CHAIRMAN FESMIRE: I'll tell you what. When will you be back to your office?

MR. SCOTT: I'm planning to drive straight from here back to my office.

CHAIRMAN FESMIRE: Why don't you go ahead and make those changes and e-mail it to me.

MR. SCOTT: To your attention?

CHAIRMAN FESMIRE: Yes. Actually, to the attention of the Secretary. Give him your e-mail.

MS. DAVIDSON: Florene, F-L-O-R-E-N-E, .Davidson at state.nm.us.

MR. SCOTT: We will do that.

CHAIRMAN FESMIRE: Okay. And Ms. MacQuesten, if you would do the same thing. We're not going to need it tonight, but we'll need it to draft the order.

MS. MACQUESTEN: I will.

CHAIRMAN FESMIRE: Okay. For the third

time. Is there anything further in this case? Okay. With that, we will adjourn Case No. 14475? 575. I'm sorry. And the Chair would entertain a motion. We have two cases that we have to deliberate on, this being the first one. The Chair would entertain a motion here in a minute to go into executive session to deliberate on that. Then if everything goes as planned this evening we will come out of executive session and go back into executive session to deliberate on Case No. 14418. And hopefully tonight we will finish deliberations.

We will then reconvene on December 20th at 9:00 o'clock in the morning in this room to address the orders in this case and in the Cimarex case. So with that, the Chair would entertain a motion pursuant to the Open Records Act to go into executive session.

COMMISSIONER BAILEY: I so move.

COMMISSIONER OLSON: Second.

COMMISSIONER BAILEY: Open Meetings Act.

CHAIRMAN FESMIRE: Open Meetings Act. I'm sorry. Motion's been made and seconded. All those in favor signify by saying "aye." We will go into executive session as soon as we clear the room.

(Break.)

CHAIRMAN FESMIRE: At this time we will go back on the record in Case No. 14575. The record should

reflect that the Commission has deliberated and deliberated on this case and nothing else. And that we have come to a decision, we have instructed counsel to draft an order reflecting that decision, and we intend to review -- have counsel circulate that order, and each one of the Commissioners will review it and then when we meet on December 20th we will sign the order at that time.

At this time the Chair would entertain a motion to go into executive session to address Case No. 14418 and -- and 14480. At this time the Chair would entertain such a motion if such a motion were forthcoming.

COMMISSIONER BAILEY: So move.

COMMISSIONER OLSON: Second.

CHAIRMAN FESMIRE: All those in favor signify by saying "aye." Let the record reflect that a unanimous decision was made to go into executive session for sole purpose of considering Cases 14418 and 14480. Sorry Frank.

(Break.)

CHAIRMAN FESMIRE: Okay. Let's go back on the record in Cases No. 14418 and 14480. The record should reflect that the Commission has deliberated in these combined cases, that they have come to a decision, that they communicated that decision to counsel, counsel

is in the process of drafting an order and will circulate said order to the Commission members, and it too will be prepared for signature at the December 20th meeting, 9:00 a.m. in this room.

Is there any further business before the Commission this evening? The Chair would entertain -- happily entertain motion to adjourn.

COMMISSIONER BAILEY: I so move.

COMMISSIONER OLSON: Second.

COMMISSIONER BAILEY: All those in favor signify by saying "aye." The record should reflect that it was unanimously decided to adjourn at 4:50 p.m.

THE STATE OF NEW MEXICO :
COUNTY OF BERNALILLO :

BE IT KNOWN that the foregoing transcript of proceedings was taken by me; that I was then and there a Certified Court Reporter and Notary Public in and for the County of Bernalillo, State of New Mexico, and by virtue thereof, authorized to administer an oath; that the witness before testifying was duly sworn by me; that the foregoing 228 pages contain a true and accurate transcript of the proceedings, all to the best of my skill and ability.

I FURTHER CERTIFY that I am neither employed by nor related to nor contracted with (unless excepted by the Rules) any of the parties or attorneys in this case, and that I have no interest whatsoever in the final disposition of this case in any court.

Jeannine K. Sims

JEANNINE K. SIMS, CSR, RPR
NM Certified Court Reporter #12
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Paul Baca Court Reporters
500 Fourth Street, NW, Suite 105
Albuquerque, New Mexico 87102