STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION COMMISSION FOR
THE PURPOSE OF CONSIDERING:

APPLICATION OF TARGA MIDSTREAM SERVICES, LLC, WHOSE ADDRESS IS 1000 LOUISIANA, SUITE 4300, HOUSTON, TEXAS 77022-5036, TO INCREASE THE APPROVED INJECTION RATE IN ORDER R-13502-A TO 5MMSCFD OF TREATED ACID GAS FROM ITS NATURAL GAS PLANT OPERATIONS IN MONUMENT, NEW MEXICO.

CASE NO. 15740

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSIONER HEARING

July 13, 2017

Santa Fe, New Mexico

BEFORE: DAVID R. CATANACH, CHAIRPERSON
EDWARD MARTIN, COMMISSIONER
DR. ROBERT S. BALCH, COMMISSIONER
BILL BRANCARD, ESQ.

This matter came on for hearing before the New Mexico Oil Conservation Commission on Thursday, July 13, 2017, at the New Mexico Energy, Minerals and Natural Resources Department, Wendell Chino Building, 1220 South St. Francis Drive, Porter Hall, Room 102, Santa Fe, New Mexico.

REPORTED BY: Mary C. Hankins, CCR, RPR
New Mexico CCR #20
Paul Baca Professional Court Reporters
500 4th Street, Northwest, Suite 105
Albuquerque, New Mexico 87102
(505) 843-9241

APPEARANCES

FOR APPLICANT TARGA MIDSTREAM SERVICES, LLC:

ADAM G. RANKIN, ESQ.
HOLLAND & HART, LLP
110 North Guadalupe, Suite 1
Santa Fe, New Mexico 87501
(505) 988-4421
agrankin@hollandhart.com

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EXHIBITS OFFERED AND ADMITTED

(10:53 a.m.)

CHAIRMAN CATANACH: I'll call the hearing back to order and get to the last -- maybe not the last, but the next case, Case Number 15740, the application of Targa Midstream Services, LLC, whose address is 1000 Louisiana, Suite 4300, Houston, Texas, to increase the approved injection rate in Order R-13502-A from 2.5 to to 5 million standard cubic feet per day of treated acid gas from its natural gas plant operations in Monument, New Mexico.

Call for appearances in this case.

MR. RANKIN: Thank you.

Adam Rankin here for Holland & Hart, on behalf of Targa Midstream Services, LLC. I have two witnesses today.

CHAIRMAN CATANACH: Let's proceed. Will the witnesses please stand to be sworn in at this time?

(Mr. Lingnau and Mr. Hunter sworn.)

MR. RANKIN: Thank you, Mr. Chairman.

Before I proceed to call the witnesses, I'd like to just give you a brief overview of the application and what the testimony will be today. As I mentioned, we have two witnesses, a fact witness, Mr. James Lingnau, who is a Permian region engineer manager for Targa. He'll be giving a brief summary of

Targa's operations in southeast New Mexico, as well as the bases and the reasons for the application to increase the injection rate through its acid-gas injection facility.

My second witness today would be Mr. James Hunter, a registered geologist with Geolex, Incorporated, who prepared the application today and who will be providing technical testimony of background in support of the application and will testify regarding the reasons and the basis for the increase and the, as I said, the technical factual basis in support of the increase in justice next injection rate.

This outline gives a brief summary of the presentation. The application, as I -- as we said, the notice indicates to increase the rate of injection from AGI Number 2D. They proposed Monument AGI Number 2, which proposed but not drilled from 5 million standard cubic feet per day currently injection. The AGI well is permitted not yet drilled to agg. Targa is only seeking to modify the existing orders which govern the injection to improve the injection rate increase from 2-and-a-half to 5 million. That's the only requested change

In short, Targa needs to increase the injection rate to meet growing demand in the region for gas processing and to accommodate the increasing CO2

concentration levels in the gas that they're receiving, which results in increased volume of two -- acid gas necessary for disposal.

In support of the application, Targa will present a short review of its operations, testimony of the factors giving rise for the need of the injection rate increase, the technical basis supporting the application, a brief overview of the facility's background and regulatory history and operational background so you-all are up to speed on Targa's operations and the analysis of the estimated or proposed -- the facts of the proposed injection rate increase.

Finally, we'll confirm and demonstrate that proper notice was given according to the Commission and Division rules.

With that, I would like to call my first witness, Mr. James Lingnau.

Please approach.

JAMES A. LINGNAU,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Lingnau, could you please state your name

for the record?

A. Good morning. My name is James Arnold Lingnau.

Q. Will you please spell the name once again for the record so we have your last name spelled correctly?

A. Yes. L-I-N-G-N-A-U.

Q. Where do you reside?

A. I live in Andrews, Texas.

Q. And by whom are you employed?

A. I work for Targa Resources.

Q. And how long have you been employed by Targa?

A. I've been employed by Targa since 2005 when they took over the operation of the assets that are in the area.

Q. And what is your current title?

A. I'm the regional engineering manager for the Permian Basin.

Q. And what are your job responsibilities in that role?

A. I oversee the design and construction of new facilities, including compressor stations, certain pipelines, expansion of facilities and equipment upgrades or equipment replacements in the --

Q. Does your responsibility include oversight of Targa's gas processing facilities in southeastern New Mexico?

A. I oversee the engineering aspects of those, not the operational aspects.

Q. And how many facilities are there that Targa operates in southeast New Mexico?

A. There are three plant processing facilities.

Q. And so your oversight includes the oversight of the Monument plant and the AGIs that are there?

A. Yes. That's correct.

Q. Are you familiar with the application that was filed to increase the injection rate from 2-and-a-half million to 5 million cubic feet per day?

A. Yes, I am.

Q. And has that been marked as Exhibit Number 3 in the exhibit packet that you have in front of you?

A. Yes.

Q. And will Geolex's witness, Mr. James Hunter, the second witness today, be testifying about the technical and the scientific aspects in support of that application?

A. Yes, he will.

Q. Did you prepare slides today kind of summarizing your testimony?

A. Yes. We do have some slides.

Q. And is that marked as Exhibit Number 1 in the exhibit packet?

A. Yes, sir.

Q. Is that right?

A. Yes, sir.

Q. Okay. And will you please review for the Examiners the first slide in your Exhibit Number 1? What does that show?

A. Yes. This slide is a map or overview of the general area. The large yellow area -- to kind of give you a reference of what's up there, the large yellow area is the city of Hobbs, New Mexico. The smaller yellow area toward the bottom of the slide is Eunice, New Mexico. The red star in the middle of the slide is the approximate location of the Monument gas processing facility, and the acid-gas injection well is adjacent to the -- the -- the facility.

Our production in the area primarily, historically, has been in and around the Monument and the Eunice plants, but more recently, we've had a lot more production out to the west of the Monument plant, west and southwest of the Eunice facility.

Q. And so as a consequence, that additional production is being -- is going to the Monument plant; is that correct?

A. Yes. That's correct.

Q. Now, you alluded to a little bit the operations

that Targa covers in your introduction. Will you just review in more detail Targa's operations in southeast New Mexico?

A. Yes. Targa owns and operates facilities in southeastern New Mexico. It's been operating since the 1940s. We have three gas processing plants: The Eunice plant, the Saunders plant and the Monument plant. We're a full-service gas processing company. And we go out, gather gas from producers, compress the gas, bring it into the plant. We treat the gas by extracting the H2S-CO2, dehydrate the gas, bring it into the plant and process it. Oh, we strip out the liquid and send it to our fractionator for delivery to other companies, and we deliver the residue to a pipeline at the tailgate of the plant.

Q. Now, Targa's been operating an acid-gas injection well at the Monument plant since what date?

A. The acid-gas injection well at the Monument plant has been operating since 2011.

Q. And it's been operating since that date under the current limitation of 2.5 million cubic feet per day?

A. Yes. That's correct.

Q. So why is it now that Targa is asking the Commission to increase that injection rate to 5 million

cubic feet per day?

A. The additional area that we've stepped down and started bringing gas into, like I said, west and southwest of Monument and Eunice, that gas contains higher concentrations of CO2, which, obviously, then goes to the acid-gas injection well.

Q. Okay. And so is the principal reason, the increase in concentration of CO2, that you're asking for this increased injection rate?

A. Yes. That's exactly why.

Q. And you've notified your operators that there are wells coming on that are going to push up -- as a consequence of these wells coming on, they're going to push up against your ability to dispose of the treated acid gas?

A. Yes. The new development area that we've stepped out into, we've seen historical volumes coming in with much higher CO2 concentrations than what was previously coming into the facility.

Q. And do you have an idea what the range was, of what some of the percentages of CO2 were in the wells?

A. Yes. Some of the new wells are coming in in the 12 to 15 percent CO2 range.

Q. Now, what is Monument's -- the plant's total processing capacity?

A. The plant processing capacity of Monument is approximately 85 million cubic feet per day.

Q. And is Targa currently able to utilize that full capacity at the plant?

A. No. We're limited by the ability to bring this additional gas in and be able to treat it and reinject into the acid-gas injection well.

Q. So the limitation on your ability to utilize the full capacity of the plant is the injection rate currently imposed under the order that's limiting it to 2-and-a-half million cubic feet per day?

A. That's correct. Acid-gas injection facilities are designed to handle up to 5 million standard cubic feet per day, and the permit is limiting that injection rate to 2-and-a-half million.

Q. And if the increase were to -- if you were to -- if this application is approved and the increase were granted and the injection rate were to be elevated to 5 million cubic feet per day, would Targa then be able to approach its maximum plant operating capacity?

A. I believe we would. Obviously, it depends on the whole concentration of the gas coming -- or the new gas coming to the facility, but it looks like we would be a lot closer and maybe even be able to max out the capacity of the plant.

Q. And based on your understanding of the development in the area and the region, is it your expectation that that is -- that's like a possibility, that you're going to need that full capacity of the plant to meet the growing demand?

A. Yes. Absolutely.

Q. In your view, Mr. Lingnau, is the granting of the application to increase the injection rate to 5 million cubic feet per day necessary for Targa to adequately serve the producers behind the plant?

A. Yes. Targa is a major player in the area, and if we're not able to process the gas that's coming from the producers, then they're going to be severely limited in their ability to get their gas to market.

Q. Does Targa request approval of the application prepared by Geolex as it was filed?

A. Yes, we do.

Q. Did you prepare Exhibit Number 1, or did you oversee its preparation?

A. Yes. I worked with Geolex to prepare the exhibit.

Q. Okay.

MR. RANKIN: With that, Mr. Chair, I would move to admit Exhibit Number 1 and pass the witness.

CHAIRMAN CATANACH: Exhibit Number 1 will

be admitted.

(Targa Midstream Services, LLC Exhibit Number 1 is offered and admitted into evidence.)

CROSS-EXAMINATION

BY CHAIRMAN CATANACH:

Q. Mr. Lingnau, the only well that you're utilizing right now is the 2D well?

A. Yes. That's correct.

Q. But you're in the process of permitting or you're going to drill an additional well in that area?

A. We have permitted a third well primarily as backup to the existing well.

Q. Okay. Now, you're saying third well. What other -- what wells are we talking about here?

A. We drilled an initial acid-gas injection well, and we had a failure on it. So we drilled the second well, and we're currently operating on it. And we subsequently permitted a third well.

Q. So the first well, has that been plugged?

A. Yes.

Q. That's the one with the -- that we had all the issues with a few months ago?

A. That is correct.

Q. But the second well is in operation, and it's

limited to 2-and-a-half million cubic feet per day?

A. By the permit, yes, sir.

Q. And do you have any indication why the CO2 concentration is increasing in the production you're getting into the plant?

A. Like I say, historical production has been in and around the facilities. And we've stepped out to the west and southwest of the facilities, and the gas being produced in those areas has a higher CO2 concentration.

Q. Is it maybe different formations that are being produced in that area? Do you --

A. I believe probably it is.

Q. Okay. So it's not just a percentage issue that CO2 -- CO2 concentration is increasing, but it's also a volume -- just the total volume of gas you're getting is increasing?

A. Sure, as we bring new volumes on with the higher concentration and as we bring additional gas into the plant, which also has higher acid-gas injection rates.

Q. So what happens in this area if these operators -- are you the only place for these operators to bring their gas to in this area?

A. We're not the only operator in the area, but we are a significant player in the area. And in the area

that we're discussing, we've got significant pipelines and compression capacity in the area.

Q. So if these operators are unable to get their gas to your plant, that results in them having to flare or shut the wells in? Is that --

A. I would say they would be limited in their ability to process the gas. Yes, sir.

Q. I think during the time that your initial well was not in operation, I think there was some severe hardships out there with regards to operators --

A. Yes, sir.

Q. -- producing; is that correct?

A. That's correct.

Q. I think that's all I have.

CROSS-EXAMINATION

BY COMMISSIONER MARTIN:

Q. This is kind of outside the context of the case, but just out of curiosity, do you have any -- you may not be able to answer this, but do you intend to -- what's the rate you intend or Targa intends to request for the third well? If you can't answer that, that's fine.

A. Yeah. I would probably defer that.

MR. RANKIN: We can address with the next witness, but just to kind of preview what the answer is,

a total rate of 5 million cubic feet per day would be applicable to both wells. So that would be the maximum rate. So in other words, operationally, if Targa decided it needed to operate both wells simultaneously for some reason, the maximum injection rate would be 5, as allocated between both wells.

COMMISSIONER MARTIN: Otherwise, the third well is a redundant well, backup well?

MR. RANKIN: Otherwise -- correct. So if the 2D's operating, you would have a maximum injection pressure of 5 million. And if the third well, when it should be drilled, if it's the only one operating, then it would have the same maximum injection pressure of 5 million as well.

COMMISSIONER MARTIN: Okay. Okay. That's all I have.

COMMISSIONER BALCH: And I have no questions.

RECROSS EXAMINATION

BY CHAIRMAN CATANACH:

Q. So I just noticed up on the screen. Your H2S concentration is decreasing; is that correct?

A. Well, the H2S concentration going to the acid-gas injection well has decreased because of the significant increase in CO2.

Q. By more CO2?

A. That's correct.

Q. Okay. I have nothing further.

MR. RANKIN: Thank you, Mr. Chair. I have nothing further. I'd like to call our second witness, Mr. James Hunter.

JAMES C. HUNTER,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Hunter, I'll just remind you that you were previously sworn in. Correct?

A. That's correct.

Q. And you're still under oath.

Mr. Hunter, would you please state your full name for the record?

A. James Carl Hunter.

Q. And where is it that you reside?

A. Albuquerque, New Mexico.

Q. And by whom are you employed?

A. Geolex, Incorporated.

Q. And what is your position with Geolex?

A. I am a senior geologist.

Q. And what does Geolex do?

A. Primarily, recently, I've been doing the whole spectrum of acid-gas injection projects, including initial feasibility studies to see if appropriate reservoirs are available near gas plants, either active or planned gas plants, also well design, metallurgy -- details. I've also been preparing and submitting C-108 applications to the Commission or to the board for the final permitting. And we've also done a lot of work in the actual drilling and completion of wells and the long-term aftercare of these wells, should any workovers or adjustments be made.

Q. And have you previously had the opportunity to testify before the Commission?

A. Not before the Commission, no.

Q. So with that, Mr. Hunter, let's spend a little time going through your background and education. If you would look at Exhibit Number 2, is that a copy of your updated and current curriculum vitae?

A. Yes.

Q. Will you please just review for the Commissioners your background and education first?

A. Yes. I received my bachelor's degree from the Geology Department at the University of New Mexico in 1980. I spent a year or so doing hard rock exploration for Tenneco Minerals. Then I took a one-year fellowship

at the Los Alamos National Laboratory, the Geochemistry Group. After that, I entered the graduate program at the Colorado School of Mines and finished my academic work. In 1984, I came back down to Albuquerque and was employed by Geoscience Consultants, Limited. A year or two later, 1986, I finished my thesis and received my master's degree. I then worked as a consultant here primarily in New Mexico ever since.

Q. And how about your -- you kind of covered this a little bit in your background, but you also -- your work experience in this area.

A. Certainly.

After I worked at Geoscience Consultants for about five years, I took another job with Mariah Consultants, similar work, as a project manager and project -- project director in environmental projects, primarily remediation and investigation. I then became a principal in a smaller firm called Monteverde Consultants. I was there for about three years. We, again, did a lot of work with UST remediation. I sold my share of that back to my other partners and worked independently until about 1997, when I then started working with Geolex. And I've been with them since.

Q. Just to clarify, you used an acronym, UST. What is that?

A. Underground storage tanks.

Q. Is that petroleum storage tanks that -- environmental remediation?

A. Remediation, investigation, permitting and compliance.

Q. And with respect to acid-gas injection wells, in particular, is your experience in that particular specialized area summarized at the first slide of Exhibit 4 in the exhibit packet?

A. Yes, sir.

Q. Is that what's on the screen right here?

A. Yes.

The first well I was involved in was Linam Number 1 for DCP Midstream. That was back, I think, in 2007. Since then we've done additional acid-gas injection wells for ECP, for Anadarko, for Targa, and a number of other clients both in New Mexico, Texas and Utah.

Q. And what kind of work have you done when you worked on acid-gas injection wells? What specifically have you done -- what were your areas of responsibility?

A. As I briefly said earlier, I would work with a team of other professionals in putting together an initial feasibility study, if a client is interested in either a new well and/or a new plant, to determine

whether or not there are suitable reservoirs either at or near or reasonable distance from the plant, putting together a well design, an AFE or a well budget for the project, putting together either the New Mexico or, in some cases, Texas or other states' applications for the permit to inject, then working with the clients in putting together the actual work of drilling the well. And myself or my other geologists in my company doing on-the-ground supervision of the drilling of the wells and the completion of the well. Then once we've got the wells operating, we then give support for operational parameters.

We've also done remedial work, especially if there have been things like a hydrate formation, tubing leaks, packer problems, pretty much the whole aspect of things you'd have in an operating well.

Q. And does your analysis include evaluating the wells within the area of review for the completion -- adequate completions and other potential impacts?

A. That is, I would say, a fundamental part of both the feasibility study and the permit application, that we thoroughly research all the wells within, typically, a mile of the area that either penetrate or potentially penetrate the injection zone and review their completion and, if necessary, their plugging

specifications to determine whether or not they are adequately sealed in the injection zone, prevent any release either into any other production or possibly up to the surface.

Q. And has your -- does your experience and expertise extend also in to modeling, the injection --

A. Yes.

Q. -- effects into the reservoir?

A. Yes.

Based on the amount of injectate that the client is planning to use, we calculate the radius of injection typically at a 30-year window. So we determine, after 30 years, if we put in 2-and-a-half million cubic feet a day or 5 million cubic feet a day, we can say it'll be either like .33 miles or .49 miles, or whatever, given the basic parameters that we use about the reservoir.

Q. And are you familiar with the C-108 -- the original C-108 that was filed authorizing the injection through the Targa Monument AGI #2D well?

A. Yes, sir. I was -- I was pretty much a project manager in preparing that application.

Q. And same with the Monument AGI #3 well?

A. That's correct.

Q. So you're familiar with both C-108s that

underlie this application?

A. Yes, I am.

Q. And are you also involved and familiar with the application in this case to increase the injection rate?

A. Yes, I am. I was a major player in producing this as well.

Q. Now, is that the application that's marked as Exhibit 3 in the exhibit packet?

A. Yes, it is.

Q. And did you also prepare a slide presentation summarizing your testimony in the application?

A. Yes, I did.

Q. And has that been marked as Exhibit Number 4 in the hearing packet?

A. I believe so.

Q. Okay.

MR. RANKIN: And with that, Mr. Chairman, I would tender Mr. Hunter as an expert witness in geology, AGI injection system design and reservoir injection modeling.

CHAIRMAN CATANACH: Mr. Hunter is so qualified.

THE WITNESS: Thank you.

Q. (BY MR. RANKIN) Mr. Hunter, moving on to your presentation and the application, will you please review

for the Commissioner why it is -- in more detail, why it is Targa is asking for this increase in injection rate?

A. I'll try to do that to flesh out a little bit more about what Mr. Lingnau told you. I'm not going to try and repeat what he said.

But what we're seeing here in this part of the world, I think especially in the Permian Basin, is a lot of expansion in gas production. There is a lot of demand for acid -- or not -- gas plant capacity. Some of my clients recently built completely new plants in Lea County and Eddy County simply to take care of the amount of new gas that's coming online. And, in general, Targa has to have the ability to take the gas that's available to them in a safe and environmentally appropriate manner.

Q. And is Targa asking for anything other than an increase in the injection rate from 2-and-a-half million to 5 million?

A. No. They are not asking for any other changes in their application or their orders.

Q. And can you give a summary, then, on Targa's operational background and on the facility so the Commissioners are up to speed on exactly the history there?

A. Okay. That's the background and regulatory

history (indicating).

Q. Did I go too far?

A. Oop. You went to far.

Q. This is it. Here we are. Sorry.

A. That's all right.

As we briefly mentioned earlier, back in 2008, Targa received an order allowing them to inject both acid gases and wastewater into what was originally their AGI Number 1. That came under stipulations that the maximum available operating pressure, the MAOP, was 1,660 psig, but there were no limits on either the amount of wastewater or the amount of TAG injected.

That case was re-opened by the Commission in 2011, and at that time, the injection rate was capped at 5,000 barrels per day of total fluids of which only 1,400 barrels a day could be acid gases.

If you wanted to compare that to what they're injecting today and the wellhead temperatures and pressures they're using today, that 1,400 barrels would be approximately one barrel a minute or about 2-and-a-half to 2.7 million cubic feet a day. And I think that was where this cap that we're facing now originally happened.

Moving along to August of 2016, there were mechanical problems with the original AGI Number 1.

After some attempts at remediating the well, it was unable to be saved, and the well was plugged and abandoned.

Then in October of the same year, the Division gave us, per our application, an administrative order to replace the AGI Number 1, which is now AGI Number D2, and that was also in the same zone, as we'll show you shortly, only a couple of hundred feet away from the original AGI Number 1. But, again, the MAOP was now set at 3,000 psi. But this is for what we call a dry well. There would be no wastewater injected into this well. But, again, the cap of 2-and-a-half -- pardon me -- of 2-and-a-half million cubic feet per day remained.

Then in April of this year, Mr. Gutierrez of our company and some of our other staff, did brief the Commission on the status of the failure of the AGI Number 1 and the status of the replacement well and the application that we were going to prepare for AGI Number 3.

In April of this year, the Division approved the Administrative Order for the additional well, AGI Number 3, again with the same MAOP of 3,000 psi and the same injection cap of 2-and-a-half million cubic feet a day.

And then on May 25 of this year, we put together this application for the increase of injection rate from 2.5 to 5 million.

Q. Just to clarify, Mr. Hunter, the application that was filed before the Commission today, which we're now considering, seeks to modify each of these orders to the extent they govern injection to permit this increased injection rate?

A. Yes. It is our -- it is our hope that we can operate completely within the parameters of the existing orders. The only thing we want to change is the injection rate.

Q. Okay. And that would affect?

A. All those orders.

Q. All those orders.

Now, will you orient the Commissioners to the layout of the plant and the location of the wells?

A. Certainly.

Q. Is that your next slide here?

A. I believe so.

All right. I wish we had a little bigger screen (laughter), but I'll jump over this quickly.

Obviously, on the lower quarter of this slide is the layout of the plant itself. And if you look up here -- we don't have a pointer. That's our

problem.

May I approach that (indicating)?

CHAIRMAN CATANACH: Certainly.

THE WITNESS: It's easier to point at it than wave my fingers at it.

If you look here (indicating), the black symbol here is the original AGI Number 1, which is now plugged and abandoned, in black.

Here in purple is the new AGI Number 2D or D2. I never get that right. And that's the one that's active today. And here (indicating), 250 feet north of Number 2, is the permitted but undrilled Number 3.

Q. (BY MR. RANKIN) As you return to your seat, Mr. Hunter, will you explain to the Commissioners how long the AGI Number 2D well has been injecting now?

A. Since the middle of March of this year.

Q. And so you've been able to accumulate some data on the operational --

A. Possibly two-and-a-half or three months of data.

Q. Would you like to review for the Commissioners the operational data on the well?

A. Yes.

Q. Let's do it with this next slide. Will you please review for the Commissioners how that well has

performed?

A. Sure. Since this period from March through May -- and now we have data from April -- I'm sorry -- through June, which doesn't change it very much, but I'll go over that a little bit as we go forward -- they've been injecting an average rate of about 1.36 million cubic feet a day, with a maximum of about 2.15.

Q. Just to clarify, that maximum was -- was from what time frame?

A. That was from the latter part of this time frame.

Q. Which went through May?

A. Well, as I'm speaking right here, this is through May. So that was in later May.

Q. Okay.

A. And, obviously, for operational and for just the demand and supply at the plant, these may vary quite a bit over a period of a year also because of just operational problems that may occur.

The pressure -- the surface pressure varied from about 1,700 to about 1,960 psig. And we'll show a graph here in just a moment that shows that the surface- and bottom-hole pressures did not significantly increase during these rather large fluctuations in injection rates. And we've also stayed at least 1,000 psi below

the MAOP of 3,000.

Q. Is this next slide a graphic depiction of that operational data?

A. Yes.

Let me show this really quickly. The bottom axis is the date, and this runs from March out through June. On the left is pressure in psi, and on the right is the injection rate in thousands of cubic feet a day. The yellow trace at the bottom is the annular pressure. That's the pressure between the tubing and the casing.

And I might just add that what we do here with this well and, most of all, our new wells is we have continuous pressure monitoring in the annulus here. So at any time if there is any kind of a loss or a leak either in the tubing or the casing, it's immediately apparent to the operators. But we see no problems here. The only reason you see that drop there in, I'd say, oh, April is because the plant was down for a few days for some operational reasons.

The green trace, which is quite noisy, is the daily injection rate, and you can see that it runs from about 2,000 to about 1,500. And the blue line at the top is the surface-injection pressure of the well. It runs up to just a little below 2,000.

Q. And since this exhibit was filed last week with the Commission, have you been able to obtain new data or updated data?

A. Yes, we have.

Q. And that data takes you through nearly the end of June?

A. Through pretty much the end of June.

Q. Okay. And has that been as Exhibit Number 6?

A. Yes.

MR. RANKIN: Mr. Chairman, may I approach to circulate that exhibit we'd like to include in the record?

CHAIRMAN CATANACH: Sure.

Q. (BY MR. RANKIN) Mr. Hunter, will you please review for the Commissioners what this additional data shows?

A. We should put it on the screen.

Q. We should do that.

A. Thank you.

Okay. When you look at the symbology on this, the axes are the same, and the color scheme is the same. Again, the yellow trace is the annular pressure. The green is the injection rate, and the blue is the pressure.

I would just call your attention to this

date here about June 9, when we went up from about 1,000 to 2,000 psi -- or million cubic feet a day. We did not see any huge spike in the surface pressure. To me that says that the reservoir is taking this gas very efficiently, and we do not see the pressure building up correspondingly to a large increase in injection rate. To me this supports our application that we would be able to increase from 2-and-a-half to 5.

Q. And what in particular does it show about the increasing demand on the plant's capacity as the -- as we approach the end of June?

A. It just shows, basically, that the plant -- again, this is an operational question. Perhaps it would be better for Mr. Lingnau to answer that, as to why that increase was so rapid in that period of time. But I think it's just operational reasons. The new plant was now operating. The demand and supply of gas were increasing, and they ramped up the production at the plant.

Q. I guess my point is just that would this graph tend to show how it is that, for the month of June, it was consistently approaching the maximum injection rate level?

A. Yes, bumping up close to their operational capacity -- rather, their regulatory capacity on the

2-and-a-half --

Q. Right.

A. -- million cubic feet a day.

Q. Now, using this data, have you studied for the potential effect and impacts of this proposed -- increasing the maximum injection rate?

A. Yes.

Again, from what we saw originally in that first slide and now we see in this slide, when we, basically, almost double the injection rate, we do not see any more than, I would say, a marginal increase in injection surface pressure, which to me indicates, again, that the reservoir has quite a bit of physical capacity, porosity and permeability that will let it, I think, safely and efficiently take much higher levels of gas than we're putting in now.

Q. And using this data, have you also evaluated the -- modeled the plume extent?

A. Yes, we have. We have, basically, reviewed the same modeling that we used for the original C-108 for both of the wells. And if you look at it -- we'll have a graph -- or a map of this coming next. If we look at the injection rate increasing from 2-and-a-half to 5, the area of the calculated TAG plume, after 30 years of injection, will grow from about .33 to about .47 miles.

Now, when we --

I'm sorry. That was the first question you had.

Q. That was my first question, yeah. So you've looked at the model, and you've modeled --

A. Yes.

Q. Okay. And so you've identified that the increase in the plume is marginal, approximately from .33 to .47?

A. That's correct.

Q. And when you have -- in evaluating that extended -- additional plume extent, have you also evaluated any other additional wells --

A. Yes.

Q. -- within the area --

A. Yes.

Q. -- of review that may be impacted by the plume?

A. Yes. As we discussed earlier in both our feasibility study and in our application for the C-108, we reviewed all the wells within one mile of the project. And there were several wells in the original .33 mile radii that were discussed in the C-108, but we identified in this larger footprint, so to speak, several additional wells. There were only three wells that were identified in the SWD-1654 and 1671, which

encompass the new AGI Number 2 and AGI Number 3.

But in this study, for the increase in injection rate, we did identify two different wells. One of them is the J.R. Phillips OO5, and that was identified as being within the footprint of the increased injection rate of AGI Number 2. And that was identified as Attachment A in this application here.

Likewise, with respect to the Targa Number 3, we identified one other additional well also incorporated in this application, and that was North Monument GSA 286.

Our review of the conditions of those wells led us to be confident that they are properly plugged and/or completed and should not be impacted from any of this further injection.

Q. So just to summarize, to recapitulate, in this application, you evaluated the extent of the plume for both the 2D well and the permitted-but-not-yet-drilled Number 3 well?

A. That's correct.

Q. And in your evaluation of looking both at the extent of the plume for those both of those wells, you've identified only two additional wells that would fall within that plume?

A. Within that footprint of that plume, that's

correct.

Q. And those wells, in your assessment and your evaluation of them, which is included in the application of Exhibit 3, you do not identify any concerns with respect to how those wells were completed, creating any conduits or opportunities for contamination out of the injection zone?

A. We do not identify any problems.

Q. Is the next slide a graphical depiction of the extent of the plume -- the radial extent of the plume and the wells we're discussing?

A. Yes, it is.

And with your permission, I'd like to approach it again.

Q. I think that's a good idea.

A. These look so nice on a big screen.

Anyway, here is the existing -- in red, the existing AGI 2D. In blue, just above it, is the permitted but undrilled AGI Number 3. And here (indicating), obviously, is the footprint of the plant itself.

Now, from the outside in, the black circle is a one-mile radius from the project, which is the area of review in which we checked all the wells that penetrated the injection zone.

The magenta circle is the larger footprint if we went from 2-and-a-half million a day to 5 million a day. And the red circle was the original .33-mile radius before we increased from 2-and-a-half to 5.

Here (indicating) is the Phillips Number 2, and here is the GSA unit well. It's just outside that well. We typically would look at a well that close anyway just for safety sake.

Q. Okay. Thank you, Mr. Hunter.

And based on your analysis of these wells and the extent of -- the radial extent of the plume, in your opinion, will the proposed increase in injection rate pose a threat to any sources of drinking water or fresh water in the area?

A. No. All the wells that we have either drilled or plan to drill have been within NMOCD's requirements about casing and cementing to protect known freshwater aquifers in the area.

Q. And all the data that backs that up analysis is contained within the application?

A. It is.

Q. And in your opinion, will the proposed --

Let me back up. As part of the original C-108 and as part of this application, did you review the available geologic data for the target injection

zone surrounding the formations?

A. Yes, in quire a bit of detail, both from what we saw from the wells we drilled ourselves, also from the logs from all the other wells in that one-mile area.

Q. And based on that analysis, is it your opinion that the proposed target formation injection -- the actual Targa formation for injection will be adequate to receive the acid gas at the proposed increased injection rate?

A. Yes. I believe not only is it capable of accepting those volumes of gas, but it's also well isolated by, essentially, a permeable cap rock on top.

Q. It is your opinion that the target zone will adequately contain the disposed-of acid gas in that zone?

A. Yes.

Q. And the increase in injection rate won't change that?

A. Should not cause any problems.

Q. Does the existing H2S contingency plan that's currently in place at the facility need to be updated at all based on this injection rate?

A. Not on the basis of the information available to me at this time. If, down the road, the mixture of H2S and CO2 may change, that may change the ultimate

amount of H2S being -- passing through the plant every day, in which case the H2S contingency plan will be to review and amend it as required.

Q. Okay. Now, let's move on to notice. Did Targa identify all the affected parties within the one-mile area that you've identified here as the area of review?

A. In conjunction with Targa, we used a professional land research company to identify all the operators, mineral owners and leaseholders within one mile of the plant, and they were duly noticed.

Q. Is Exhibit 5 in the hearing packet a copy of the -- the sample letter that was sent out to all those affected parties?

A. Yes, it is.

Q. And is Exhibit 5A a copy of the green cards that was sent to the operators?

A. Yes, it is.

Q. And is Exhibit 5B a copy of the green cards that were sent to all the operators and interest owners?

A. Yes, it is.

Q. And C is a copy of the green card receipts. Did the parties that are entitled to notice receive notice?

A. Yes, sir, it is [sic].

Q. And the owner of the surface where the well is

located, is that Targa?

A. Yes, it is.

Q. And they got notice?

A. Hand-delivered (laughter).

Q. So with that, did you receive any -- any responses from any of the parties noticed in the complaint, any objections that are --

A. We received no objections or replies.

Q. Now, based on your full analysis and review, will you please provide a summary for the Commissioners again what it is your application seeks and your final opinion on the appropriateness of the increased injection rate?

A. Uh-huh. I think that a very thorough evaluation is done of the reservoir and about the wells that were potentially penetrating it, that they were properly plugged and/or completed to prevent any migration, that the reservoir has, I think, more than an adequate capacity for what we're requesting for increasing the injection rate, and that this will give Targa's requirements to able to operate their plant safely and within their environmental permits at their physical capacity and still be able to take care of the anticipated increase in carbon dioxide in the new gas stream that they're anticipating and be able to keep

safely and efficiently working at their most efficient capacity.

Q. And, again, based on your assessment at this point, there is no -- the increase in injection rate is not going to impact or impinge upon the current maximum allowable injection pressure?

A. We do not anticipate increasing that pressure.

Q. In your opinion, Mr. Hunter, will the granting of this application result in waste or impair any correlative rights in the area?

A. I think it would be quite the opposite. It will allow more production to be continuing operating, or, as you had asked before, we won't have gas either shut in or flaring. It'll be able to go to a plant that can accept it.

Q. So the granting of the application would further the interest of conservation?

A. Yes.

Q. Were Exhibits 3 through 6 either prepared by you or under your supervision?

A. Yes, they were.

MR. RANKIN: Mr. Chair, I would like to now tender Exhibits -- move to admit Exhibits 2 through 6.

CHAIRMAN CATANACH: Exhibits 2 through 6 will be admitted.

(Targa Midstream Services, LLC Exhibit Numbers 2 through 6 are offered and admitted into evidence.)

MR. RANKIN: With that, Mr. Chair, I would pass the witness.

CROSS-EXAMINATION

BY CHAIRMAN CATANACH:

Q. Mr. Hunter, I just want to clarify and make sure I understand what you guys are seeking here. We are just talking about the 2D well in this application?

A. Okay. What we're looking at here currently would be the 2D well. If and when Number 3 is drilled, we would expect to be able to put that 5 million between either of the two wells. In other words, we're not asking for 5 million in one and 5 million for the other. We're asking for a 5 million aggregate between one or both wells.

REDIRECT EXAMINATION

BY MR. RANKIN:

Q. So I think --

MR. RANKIN: May I follow up on that question, Mr. Chair?

CHAIRMAN CATANACH: (Indicating.)

Q. (BY MR. RANKIN) So does the application request for an increase in injection rate for both wells to 5?

A. For the total of both wells.

Q. For the total of both.

So the order that approved the Number 3 well would also be modified to permit it to inject up to 5 million cubic feet?

A. That is correct.

CHAIRMAN CATANACH: In an aggregate?

THE WITNESS: An aggregate, correct.

CONTINUED CROSS-EXAMINATION

BY CHAIRMAN CATANACH:

Q. Now, you already have a permit for the Number 3?

A. Yes.

Q. Okay. Can we go over the permit numbers for all of these? The 2D was permitted by -- do you have the order numbers for that well?

A. We do.

MR. RANKIN: We do.

THE WITNESS: Let me get back to that slide that shows the regulatory history.

MR. RANKIN: (Complies.)

THE WITNESS: There we go.

That would be Order SWD-1671.

CHAIRMAN CATANACH: 1671. Is there a subsequent order after that?

MR. RANKIN: No. That was for the Number 3 well.

For the Number 2D well --

CHAIRMAN CATANACH: Hang on.

MR. RANKIN: SWD --

THE WITNESS: 1654.

Q. (BY CHAIRMAN CATANACH) All right. Let's start over here. The 2D well is --

A. 1654.

Q. -- 1654.

That was the original permit for that well, and that was -- that was approved administratively because of the situation we were in with the original one well?

A. The failure of the existing well.

Q. Right. So that's the only order for that well. That's the order we want to modify.

MR. RANKIN: Correct. I'm thinking, out of an abundance of caution, the application requested to also modify the original injection, which are R-13052 and R-13052-A. So just to ensure there was coverage, as I understand, the application was submitted to modify all four of those orders to be clear that the injection rate could be permitted up to 5 million per day in aggregate for both the Number 2D well and the --

MR. BRANCARD: But the 13052 orders only apply to the well that's been plugged?

THE WITNESS: Correct.

MR. RANKIN: Yeah. I think that's correct. And I think, out of an abundance of caution, that's why, I think, the application asks for that. But I think my understanding is that just those two administrative orders are the orders that control the injection rates.

CHAIRMAN CATANACH: So I don't think we need to amend 13052 or 13052-A. I wouldn't think.

MR. BRANCARD: I wouldn't think so.

CHAIRMAN CATANACH: And I'm sorry. The Number 3 well was what number? SWD what?

MR. RANKIN: 1671.

CHAIRMAN CATANACH: 1671.

So I would think we need to amend, I guess, both of those administrative orders. That would take care of it.

MR. BRANCARD: (Indicating.)

Q. (BY CHAIRMAN CATANACH) With regards to the Number 2D well, do you know what the basis was for imposing the 2.5 million limit? Was that carried over from the Number 1 well?

A. To the best of my knowledge, it's a carry-over from the previous order, 13052 -- 13052-A.

Q. Incorporated that volume to the 2D well?

A. To the best of my knowledge.

Q. I had a question about the -- in the 2D well, is there fluid in the annular space?

A. The annular space is filled with both bio and corrosion-resistant diesel.

Q. And I had a question about the pressure variation in the annular space. Why does that vary to the extent that it does? I mean, it looks like, even in your latest injection in June, you've actually gone to zero on the annular?

A. Yeah. You'll see some breaks here. I think this has to do -- because you can see the injection rate, and the pressure is kind of breakie [sic] here. There were a number of minor shutdowns which led to that. And you often see the annular pressure responding rather quickly to changes in temperature. It works like a big, long skinny thermometer. And when you heat up the TAG, you cause an increase in pressure in the annular fluid. If it cools back down, it shrinks, and you lose pressure.

Q. So how would you use that annular pressure to monitor for any leaks in the tubing? Would you be able to do that?

A. We would look, basically, not necessarily at

instantaneous responses but long-term trends that would indicate that there was a problem, either an increase in pressure due to a tubing leak or a continuous loss in pressure due to a casing leak. This is, basically, giving us a continuous mechanical integrity test.

And obviously we would -- if we saw that there was any problem there -- it's always been the case with our clients. If there is any kind of long-term trend that looks like there is a problem, we would report that or take immediate remedial action.

Q. Mr. Hunter, what zone are we injecting into in the 2D? Is that the --

A. I beg your pardon?

Q. The zone that we're injecting into --

A. We're in the Devonian.

Q. Devonian.

Do you know what depth that is?

A. It's about 8,400 feet.

Q. And that was the zone that was being used in the Number 1?

A. Exactly the same zone. And that's the same case with Number 3. All three are in the same zone.

Q. And we actually do have some area of review wells that penetrated the Devonian in this area?

A. Yes.

Q. And those are all -- are they Devonian -- they're not Devonian producers?

A. No. They're penetrating it, either going to deeper zones, or there are several a couple of miles away. They're SWDs. But there hasn't been any production of that zone within, I think, about two miles of this area.

Q. Okay. That was my next question. The Devonian SWDs in this area -- because there are a lot of new SWDs going in in southeast New Mexico.

A. Uh-huh.

Q. Do you anticipate that anything is going to occur in this immediate area that would impact your radius of --

A. I can't really say. I really am not privy to the long-term plans of other operators. I don't know.

Q. There are a lot of Devonian wells going in, and there are some big, huge volumes going into those wells. So it's a big concern to us.

A. I know. We've put some -- put an injection well in the Devonian at Zia Number 2, which is about 25 miles away from here. But I don't think these two are going to impact each other.

Q. The only other question I have is: Are your calculations with regards to the increase in radius, are

they in the application somewhere?

A. I believe they are. That should be Figure 2. Let me find it here.

Okay. These -- I'm sorry. These show the radii, but it does not show the calculations themselves. They are the same calculations, the same spreadsheet that we used in the C-108s, using exactly the same parameters.

Q. So you're saying that that calculation is included in the C-108?

A. Both the C-108s gave the .33 radii.

Q. Okay. But where is the calculation that shows the increase to the .4 going from the 5 million?

MR. RANKIN: I think -- it's not in the application. I think the graphic that we -- I can double check.

THE WITNESS: I can double check that for you. I do not see it in here as that actual spreadsheet. There is a spreadsheet in the 108, which provides the radii for the .33. I do not think this is incorporated in here.

MR. RANKIN: So we can submit that.

CROSS-EXAMINATION

BY COMMISSIONER MARTIN:

Q. Are you saying that your calculation method is

the same -- the rates?

A. Exactly. Basically, we just put one different number in the same spreadsheet that we used to calculate the .33 with the other C-108s.

CHAIRMAN CATANACH: Okay. If you can provide that to us.

THE WITNESS: I think provide that to you this evening or tomorrow morning.

CHAIRMAN CATANACH: Okay. I think that's all I have.

CROSS-EXAMINATION

BY COMMISSIONER BALCH:

Q. Conveniently, you have the slide I'm most interested in on the board right now. So if you look at that, I mean, we're looking at a pretty short period of data --

A. Yes.

Q. -- about three months?

But if you project kind of a trend of the -- of the surface-injection pressure, you are going to hit 3,000 right around 2,500 mmcf per day?

A. I would think that my experience with wells like this, with acid-gas injection wells and carbonate reservoirs, is that you very typically do see when the well is commissioned, for the first couple of months,

you will see a gradual increase. Then it'll typically level off, and that's what I'm expecting to see here.

Q. According to this, you have about two more months for it to level off or you're not going to be able to go to 2,500.

A. 2,500 psi or 2,500 --

Q. Injection rate.

I just ran the blue line trend up to where it meets the 2,500 psi curve -- or I'm sorry -- 3,000 psi maximum injection pressure limit, and in about two months you're going to hit that if the trend doesn't start to level off before then.

A. I apologize for not bringing it here. I had it prepared, and we said it might be a little too technical for this presentation. But what I did was do a regression between pressure and injection rate, and it was essentially flat.

Now, I don't know if that -- you know, again, we're only looking at two or three months of data. I certainly agree with that. We're only looking at two or three months of data. I think, obviously, we are going to be committed to the 3,000 psi MAOP.

Q. I really think that's your limiting factor. I don't know how much you'll be able to inject.

A. Uh-huh.

Q. I actually don't care how much you inject --

A. As long as we don't break the MAOP.

Q. -- as long as you don't break MAOP and as long as you don't impact additional wells, the area of review becomes too large.

A. Uh-huh.

Q. I was just noting that. You've got a couple of months for your injection [sic] to level off?

A. Yeah. I don't think there is enough to really project it out like another year or two years.

Q. I just projected it two-and-a-half months, and it's already at 3,000.

A. Uh-huh. Well, I guess, you know, the way we do it is we plan it out. I'm anticipating the well's going to level out, but we'll see.

Q. I presume you're right.

A. I hope I am (laughter).

COMMISSIONER BALCH: That is all I have.

CHAIRMAN CATANACH: Mr. Martin?

COMMISSIONER MARTIN: I don't have anything.

CHAIRMAN CATANACH: Okay. Any other questions of this witness?

MR. RANKIN: None from me.

I think with that, Mr. Chair, I would ask

that we take the opportunity to submit to you the calculations showing the same -- with the extent of the plume of .33 to .47 miles.

And with your -- if it pleases the Commissioners, I would be happy to prepare a draft order and submit it for your review and consideration.

CHAIRMAN CATANACH: Okay. Yeah. That would be helpful.

Commissioners, what's your pleasure? Do you want to go into executive session?

COMMISSIONER BALCH: Yeah. I would move to go into executive session to deliberate the case.

CHAIRMAN CATANACH: Do I have a second?

COMMISSIONER MARTIN: Second.

CHAIRMAN CATANACH: All in favor?

(Ayes are unanimous.)

CHAIRMAN CATANACH: Motion passes. The Commission will now go into executive session to deliberate this case.

(Executive Session, 11:59 a.m. to 12:05 p.m.)

CHAIRMAN CATANACH: All right. Commissioners, do I have a motion to go back into regular session?

COMMISSIONER MARTIN: I so move.

COMMISSIONER BALCH: And second.

CHAIRMAN CATANACH: All in favor?

(Ayes are unanimous.)

CHAIRMAN CATANACH: Just for the record, I will just briefly state that we only discussed the issues involved in this case and nothing else.

And I guess at this point, I'll turn it over to Mr. Brancard.

MR. BRANCARD: All right. The Commission is proposing to amend Orders SWD-1654 and SWD-1671 to increase the daily injection rate of treated acid gas from 2.5 million to 5 million and an aggregate total to be applied to both the AGI Number 2D and the AGI Number 3 wells.

CHAIRMAN CATANACH: Mr. Rankin, again, if you could submit a draft order on that, that would be most appreciated. And we'll, I guess, finish this off at the August 10th hearing then.

MR. RANKIN: Thank you, Mr. Chair. I will do that. And I will submit, I would say, tomorrow the calculation showing the -- calculations for the plume slides.

CHAIRMAN CATANACH: Okay. Thank you.

MR. RANKIN: Thank you.

(Case Number 15740 concludes, 12:13 p.m.)

STATE OF NEW MEXICO

COUNTY OF BERNALILLO

CERTIFICATE OF COURT REPORTER

I, MARY C. HANKINS, Certified Court Reporter, New Mexico Certified Court Reporter No. 20, and Registered Professional Reporter, do hereby certify that I reported the foregoing proceedings in stenographic shorthand and that the foregoing pages are a true and correct transcript of those proceedings that were reduced to printed form by me to the best of my ability.

I FURTHER CERTIFY that the Reporter's Record of the proceedings truly and accurately reflects the exhibits, if any, offered by the respective parties.

I FURTHER CERTIFY that I am neither employed by nor related to any of the parties or attorneys in this case and that I have no interest in the final disposition of this case.

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