BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE

STATE OF CALIFORNIA

ADMINISTRATIVE LAW JUDGES JESSICA T. HECHT and MARCELO POIRIER, co-presiding

Order Instituting Investigation on the Commission's Own Motion into the Operations and Practices of Southern California Gas Company with Respect to the Aliso Canyon storage facility and the release of natural gas, and Order to Show Cause Why Southern California Gas Company Should Not Be Sanctioned for Allowing the Uncontrolled Release of Natural Gas from its Aliso Canyon Storage Facility. (U904G)	)	EVIDENTIARY HEARING Investigation 19-06-016

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VIRTUAL PROCEEDING

MAY 7, 2021 - 10:00 A.M.

* * * * *

ADMINISTRATIVE LAW JUDGE POIRIER: The Commission will come to order.

This is May 7th, 2021, day 17 of the Evidentiary Hearings in I.19-06-016.

Yesterday, we left off with redirect of Mr. Neville by Mr. Lotterman. We are going to continue with that. And then we will move on to some recross.

Mr. Lotterman, please go ahead.

MR. LOTTERMAN: Thank you, your Honor.

DAN NEVILLE,

resumed the stand and testified further as follows:

REDIRECT EXAMINATION

BY MR. LOTTERMAN:

Q Good morning, Mr. Neville.

Can you hear me?

Are you on mute, sir?

A Good morning. Yes.

Q All right. Here we go.

Mr. Neville, I have one short topic and then one not-so-short topic. And then I will be done.

Let’s begin, if you would, by talking about the annual meeting that

SoCalGas had with DOGGR. I believe Mr. Gruen showed you a couple exhibits which were presentations by SoCalGas to DOGGR.

Did you have an occasion or opportunity to attend any of those annual meetings?

A Yes.

Q What was your understanding of their purpose?

A It was a means for us and the storage engineering to meet annually with DOGGR to familiarize themselves -- to refamiliarize DOGGR with our operation. We discuss -- we put presentations together, discussed the geology of the field, the production, items related to storage and well work, upcoming well work, in-well work that had been done within the time frame between the prior meeting.

Q Would DOGGR pose questions from time to time in those meetings?

A Yes.

Q Okay. Did you find those meetings productive?

A Yes.

Q All right. All right.

Let’s turn to shoe leaks, my final topic. I wanted to clarify some testimony

that has been made over the last couple of days about it. And I would like to begin by orienting everyone -- or orienting you and everyone else in this hearing as to where these shoe leaks and shoes are located.

I would like to start, if I could, Mr. Moshfegh, by pulling up Figure 5 --

MR. MOSHFEGH: And, Mr. Lotterman, can I just interject?

Can I request from the ALJs for IT to enable my share feature?

ALJ POIRIER: Yes. Let's go off the record.

(Off the record.)

ALJ POIRIER: We'll be back on the record. We were just getting an exhibit ready.

And please continue, Mr. Lotterman.

MR. LOTTERMAN: Thank you, your Honor.

Q All right.

Mr. Neville, what I would like to do is start with Figure 5 from the Blade geology report. And, for the record, this is -- this figure is contained in Commission Exhibit 1000, Volume II. And the supplemental report is entitled, "SS-25 Geology Summary Dated May 31, 2019." And I'm going to ask Mr. Moshfegh to go to page 14.

And as you can see, Mr. Neville, Figure 5 depicts the West-East cross section across the Aliso Canyon field.

Do you see that?

A Yes.

Q Are you generally familiar with the geology that underlies the Aliso Canyon facility?

A Yes.

Q All right. Well, let's start at the top and work our way down.

Do you see the names across the top of that figure, "Frew, Standard Sesnon, Porter, and Fernando Fee"?

What do those names depict?

A Those names correspond to the original leasing that was conducted during the oil operation days of the field. So they are -- they are certain lease boundaries. There's the Frew lease, the Standard Sesnon lease, the Porter lease, and the Fernando Fee lease.

Q And is it fair to assume that if a well was entitled "Frew 3," for example, or "Standard Sesnon 25," that it was used as a production well as part of those particular leases?

A Yes, back in the oil production

era.

Q Okay. And do you see the depiction for SS-25 within the Standard Sesnon portion of this figure?

A Yes.

Q All right.

Now, let’s work our way down from there. And we don't have to belabor this point.

But do you see the well crossing through various geologic formations?

A Yes.

Q And do you see it crossing through several faults?

A Yes.

Q And can you tell by this figure roughly where the SS-25 well ends depth-wise -- not depth-wise as far as feet, but just in what zone or what particular geological area the well stops?

A Yes. If you see the -- kind of the orange-ish, pink color at the very bottom that -- in fact, there's a reference there that says, "Sesnon Zone." So the blue vertical line going down is the SS-25 well. And so it -- the bottom of that well is at the bottom of the sesnon zone.

Q And is the sesnon zone the storage

zone we've been talking about off and on for the last couple weeks?

A Yes.

Q And is that the zone that initially oil was removed from and then SoCalGas, once it took over the lease, began injecting and withdrawing and storing gas in it?

A Yes.

Q And where, roughly, vis-à-vis that sesnon zone, is the cap rock we've been talking about?

A So within the sesnon zone there is a line there referred to as the S1 -- you could see that S1. So the storage zone would be below that point and would go down to the green zone that's right below the orange-pink zone. But above that, S1 is referred to as the cap rock.

Q Okay. All right.

Now let's go, Mr. Moshfegh, if we could, to Table 3, in the same exhibit, on page 22. And let’s start at the top of the page. It’s labeled "Table 3, SS-25 summary of formation tops and geologic descriptions of penetrated formations."

Do you see that, Mr. Neville?

A Yes.

Q All right. And, again, we're not

going to belabor this point. But I just want to make sure that this geology vis-à-vis the well shoe is clarified.

And just on page 1, do you see various formations and -- as well as two thrust faults identified?

A Yes, I do. Yes.

Q All right.

And does this table depict, basically, the top -- or the surface of the well down to about, let's see here, 7,588 feet?

A If you could scroll down to the bottom. That page -- oh.

Q Page 1, Mr. Moshfegh -- page 22, excuse me.

A Yes. So that page illustrates the top and bottom of each one of those individual zones that the well encounters on its path down to the storage zone.

Q All right. Let's go to page 23, if we could. And let's actually work our way up from the bottom to the top of that table. Let's start at the very bottom, Mr. Neville.

Do you see the total well depth of SS-25 identified?

A Yes.

Q And then above that I see 1, 2, 3,

4, 5, 6, 7, 8, areas marked S1 through S14.

Could you explain very briefly what those depict?

A So those are individual sands within the sesnon zone. And I'm not a geologist, so -- but I do know that these -- these are individual sands within what's called the "sesnon" -- "sesnon zone." They would include -- in some of these sands, they appear to be connected. Some appear to have claystone in between.

Q And do you see on page 23, the sesnon cap rock depicted?

A Yes.

Q Could you -- I know you can't do this visually.

But can you at least describe where that is on this table?

A So the cap rock is -- is a section approximately 213 feet of thickness above the S1 sand.

Q Okay. And I believe at one point during Mr. Gruen's examination, he asked you about the thickness of the S1 sands.

Do you wish to clarify your question earlier? -- your answer earlier, excuse me.

A Yes. I believe -- I thought they

were -- the S1 was in the 10-foot -- maybe I said 10- to 15-feet range. It appears to be thicker than what I had thought. It shows 39 feet.

Q Okay. And then just above the row that says "sesnon" -- before we go there, so why is cap rock important in a storage zone?

A The cap rock is the seal. That's the top seal that prevents the gas from moving to the surface within the storage reservoir.

Q And just above the sesnon cap rock row, there's a row in red that says "Miocene-Pliocene unconformity."

Do you know what that depicts?

A That's the -- that's what we refer to as the "MP." It depicts the -- an easily-identifiable marker at the top of the cap rock.

Q And why is an MP important in a well schematic or the geology of a particular well or storage zone?

A Since it’s -- since it marks the top of the seal, it really defends -- in the case of shoe leaks, it defends the area that you do not want to hear any noise or see any noise. You want to ensure that there's no movement of gas above the Miocene-Pliocene

unconformity.]

Q Now would you, if you can, would you place for us on this table, on page 2, page 23 to be precise, would you place within these various zones where the shoe of SS -- where the production casing shoe of SS-25 is located?

A The production casing shoe, I believe, was -- I have to look back. It was somewhere around 8490, if I remember.

Q Okay. So where would that put you in the S-sands' layers?

A That puts you down into the S4, S6 area. And that depth is -- just for clarity, would you mind if I just look at my testimony to get the casing, the shoe depth?

Q Of course.

ALJ POIRIER: Let's go off the record.

(Off the record.)

ALJ POIRIER: Back on the record.

Please go ahead.

BY MR. LOTTERMAN:

Q Mr. Neville, during our brief break, were you able to determine where the shoe of SS-25 -- where the bottom of the shoe is located on -- both in terms of feet and where it would be located on this table we're looking at?

A Yes. The shoe is at 8585, which is within the S6 sand.

Q All right. So, to be clear, the bottom of the shoe on the production casing is below the S1 and S2 and for that matter S4 sands, as well as below the Sesnon caprock; is that true?

A Yes.

Q All right. And by the way, I know we've used the term "shoe" elsewhere. Is there also a surface casing shoe on SS-25?

A Yes.

Q All right. Mr. Moshfegh, let's go to, if we could, Figure 9 in the Blade Main Report, and again this is Commission Exhibit 1000, and at page 27. All right. If you could give us, Mr. Moshfegh, just a complete picture of the schematic and then we will focus in on the bottom for purposes of my remaining redirect. All right.

So, to be clear, Mr. Neville, could you point out to us the two shoes that are on SS-25 and would you do us a favor and distinguish between the two?

A Sure. The upper casing -- the surface casing shoe where you have your pointer is approximately 990 feet.

Q All right. And where is the

production casing shoe on SS-25?

A The production casing shoe is at 8585 feet.

Q Okay. Now, Mr. Moshfegh, if you would just blow up as best you can that bottom portion of Figure 9. Great. Okay.

So, Mr. Neville, what is a shoe leak?

A A shoe leak is the movement of gas around the bottom of the casing, which in this case be 8585 feet and up through the cement of microannulus in the cement to the point that it enters or gets to the MP zone which represents the top of the caprock, which would mean that gas has moved around the bottom of the casing up through the cement and to the MP, and at that point, exits the seal of the reservoir.

Q What causes gas to take that path?

A It's microannulus in the cement. It could be -- it's just a small area, small pass between the cement and the steel. It could be cracked within the cement, I suppose, but some pathway from the shoe through, in this case, two or 300 feet of cement column.

Q Is the cement you're talking about depicted on the Figure 9?

A Yes.
Q Could you describe where?
A The cement is noted as the dots that are outside of the production casing on each side shown, yes. And it's illustrated as the top of cement, the T-O-C as being at 7,000 feet.
Q Is it fair to assume that that cement goes completely around the production casing from 7,000 feet to the bottom of the cement?
A Yes.
Q Okay. So if I understand you correctly, when -- if and when SoCalGas believed there's a casing shoe, potential casing shoe leak issue, is it an issue with the integrity of the production casing itself?
A No.
Q Is it an issue with some sort of corrosion on the production casing itself?
A No.
Q In those circumstances, in your experience, does SoCalGas consider potential shoe leaks as a safety issue?
A Well, the shoe leak is such a minor amount of gas and it's at the bottom of the well. I wouldn't consider it as a safety

issue.

Q Then why are shoe leaks monitored and from time-to-time remediated?

A Well, they're not generally -- well, the reason is because that it's a loss of inventory, for one.

Q What does that mean?

A It's a loss of gas inventory out of the storage cell. And it warrants, even though they could potentially be small, it warrants repair.

Q And would you explain how a shoe leak is repaired, just very briefly?

A Yes. The -- it requires a workover rig. The well is killed with workover fluid. The tubing's removed, sometimes the packer. And it requires perforating, shooting holes in the casing within the caprock itself right above the storage zone, to try to establish a communication to the microannulus channel of gas that's coming through it. So the casing is perforated. And once it's found that, you know, that the rig could pump into it, then a certain amount of cement is pumped into -- through those perforations hoping to stop the shoe leak.

Q Okay. And is that a typical practice in the gas storage business?

A I believe so. I know it is in SoCalGas, I believe to be the case, yes.

Q Okay. All right. So let's turn briefly then to how you monitor a well like SS-25 for shoe leaks. And, again, we don't need to re-plow this field, but staying with that diagram and let's maybe zoom out a little bit so we can get a full visual here.

Mr. Neville, I believe you spoke in response to some questions by Mr. Gruen. You talked about how a temp log is run in a well. And I believe you actually even put it in your testimony. And you talked about anomalies and the like. We don't need to talk about that again.

But I guess the question I have for you is why did SoCalGas typically run a temp log first?

A Well, a temp log serves as kind of a baseline top-to-bottom view of geothermal gradient, and it would show deviations from gradients which could then be further investigated.

Q Okay. And who typically sort of performs or runs a temp log at Aliso Canyon for SoCalGas?

A The company uses outside contractors to run these temperature surveys.

Q Who typically interprets the results?
A Field engineers.
Q And was that your responsibility from time-to-time during your career at SoCalGas?
A Yes.
Q You mentioned also using earlier temp logs. Why would you use earlier temp logs when you're running a new one say in, you know, 1985?
A Well, the new one, what I would do would be to take the new one and I would overlay it on the older ones. And it was a lot easier to see if there are any changes. We're looking for changes from year-to-year. And to have the older surveys with you when you do the analysis of the new survey is the proper way to identify -- review a new temperature survey.
Q Why are changes important?
A Change could indicate a new anomaly, which may need to be investigated further.
Q Can a change also indicate where -- an anomaly that showed up earlier but did not show up in a subsequent temp log?
A I'm sorry. Could you repeat that?

Q Could a -- could reviewing the sort of the historical temp log versus the one that was just run also have the opportunity to see where an older temp log showed an anomaly but the current one did not?

A Oh, yes. Yes.

Q And you mentioned seeing anomalies at the depth of the shoe from time-to-time. Why would SoCalGas not assume that every anomaly was a shoe leak?

A Well, it would -- if it assumed just based on a temperature anomaly that there was a shoe leak, there would be workovers done on the well and casing perforated unnecessarily.

Q What else can cause an anomaly and a temp log at the shoe level?

A I think I mentioned possibly the -- well, small movement of gas through valves at the surface could give a noise level near the shoe because there's a small amount of gas flowing out of the reservoir. The other thing that could occur would be cross flow within the top sand sections, such as the S1 and S2 and S4.]

Q I guess my question was a little bit different, Mr. Neville. Let me restate it. What else can cause temperature drops at

depths in a well, if not a genuine shoe leak?

A Well, the storage zone itself is a coolant, so there's a large temperature drop when the temperature survey gets to the storage zone.

Q Okay. And are the temp logs themselves kept in the well files at Aliso Canyon?

A Yeah, they're kept in one of the component well files called the well survey file.

Q Would noise logs also be kept in that file?

A Due to the -- the noise logs are in the well log file.

Q Okay. So why would SoCalGas typically run a noise log after a temp log if it sees an anomaly in the temp log?

A Well, it needs to assure that the anomaly is not an actual movement of gas, that there isn't a leak.

Q Is it your experience that noise logs tend to be more focused than sort of the top-to-bottom survey of a temp log?

A Yes. In fact, when running a noise log, one would zero in on the anomaly and run -- I think I mentioned in earlier testimony that a noise log -- you actually,

when you run the log, you have to stop, let the noise settle for a minute or so before you get a reading, so a noise log is run over the temperature anomaly in a much finer course where there's more frequent stops to help better define the noise anomaly.

Q Okay. I think you answered this question earlier, but let me re-ask it in this context. What else can cause noise at the shoe of a well besides a legitimate shoe leak?

A As I mentioned earlier, I think cross flow between some of the zones in the storage zone, the S1, the S2. Even noise from gas moving in the storage reservoir can cause noise.

Q Let's turn finally to radioactive tracer studies. How do those studies differ in terms of investigation and results with a temp or noise log?

A I'm sorry, could you repeat the question.

Q Yeah. We've talked about temperature logs. We've talked about noise logs. I wanted to finally just quickly touch on radioactive tracer studies. My question is how is the function of a radioactive tracer study different from a temp and a

noise log?

A Well, it's another tool in the tool box, so to speak. I think it would help even -- help confirm the results from the noise log. It's usually the third investigative tool used in a shoe leak investigation.

Q And what exactly is traced in a radioactive tracer study?

A So there's a small amount of radioactive element that's injected into the well. The well is put on a low amount of injection, and so the tracer survey follows this radioactivity down the well and it looks to see that it will not make a -- kind of a U-turn and progress back up through the casing. No shoe leak would be one that, you know, the gas would go into the reservoir and it wouldn't return back up the outside of the production casing.

Q Okay. So once SoCalGas has analyzed the potential shoe leak using a temperature log, a noise log, and potentially a radioactive tracer study, how does it decide -- just generally, how does it decide whether, for example, to continue to monitor the issue or to go put a workover rig on it and remediate the issue?

What are the factors that come to play in that type of analysis if you know?

A Well, the most important factor is the location of the noise. And, again, it's the summation of all of these tools. But the noise is what I would consider the most important. If there's noise that continues up through the caprock into the MP, that's a high indication -- higher indication that there's a shoe leak.

Q All right. And was that process to your knowledge followed by SoCalGas during that mid-1980s time frame that Mr. Gruen walked you through during cross-examination?

A Yes, based on the surveys and the notes in the files, yes.

Q All right. And to be clear, when that type of analysis is done, whether it's by you or an engineer back in the 1990s, is he or she applying his or her professional judgment?

A Yes.

Q All right. And were the results of that mid-1980s analysis, was that reflected in that daily activities report that we viewed during Mr. Gruen's cross-examination?

A Yes.

Q All right.

And so, Mr. Moshfegh, just so the record is clear, let's pull up Exhibit 267. I want to go to jump page 0030.

ALJ POIRIER: Just for the record, this is SED-267?

MR. LOTTERMAN: Yes. Thank you, your Honor.

Q So we're going to page 030, and I wanted to hone in on the entry dated 7-16-85. Do you see that entry, Mr. Neville, dated 7-16-1985?

A Yes.

Q I don't need to read it into the record, but is that the evidence that you point to that in the 1983 to 1985 time frame some engineers at SoCalGas ran these temperature logs, noise logs, and tracer studies and wrote down the conclusions which are captured in that entry on 7-16-1985?

A Yes.

Q Okay. And, again, I'm not going to belabor this point, but if we go earlier in time, this activity remarks also lays out the various temperature surveys run and the tracer surveys run and that type of thing; correct?

A Yes.

Q And if you go later on in this well

activities report through, I believe, 1997, it also lays out subsequent temperature and noise logs run on SS-25, including in and around the location of that well's shoe; is that right?

A Yes.

Q And as far as you know, were those temperature and noise logs run on SS-25 through and including October 2014?

A Yes.

Q Okay. In fact, did Blade summarize in a figure the various noise and temperature logs that were run on SS-25 through the course of that well's operations by SoCalGas?

A Yes.

MR. LOTTERMAN: Mr. Moshfegh, very briefly, let's go to Figure 13 of Blade's main report. That's page 30. Let's just blow up, if we could, that figure.

Q Mr. Neville, is it your understanding that the information depicted on Figure 13 of Blade's main report, which is Commission Exhibit 1000, depicts the more than 30 years of noise and temp logs that were conducted on SS-25?

A Yes.

Q Now, did you undertake your own analysis of this logging data at this well?

A Yes.
Q In fact, is that analysis outlined in your sur-reply, which we've marked as SoCalGas Exhibit 21?
A Yes.
Q And did you undertake that analysis to dispute Ms. Felts' view that the 30 years of logging data showed a shoe leak at SS-25?
A Yes.
Q And did you agree with Ms. Felts' view?
A No.
Q Did the SoCalGas engineers in the 1983 through 1985 time frame agree with Ms. Felts' view?
A No.
Q Did Blade agree with Ms. Felts' view?
A No.
MR. GRUEN: Objection, your Honor, calls for speculation. He's now testifying as to what Blade's views are on the matter.
MR. LOTTERMAN: Okay. Then --
MR. GRUEN: That's most appropriate for Blade.
MR. LOTTERMAN: I'll withdraw the question, your Honor.
Mr. Moshfegh, would you highlight

and expand on the last two paragraphs below Figure 13.

Q While he's doing that, Mr. Neville, let me ask the question this way to address Mr. Gruen's objection: Is it your understanding that Blade disagrees with Ms. Felts' view that the logging data of SS-25 showed a shoe leak, just your understanding?

A Yes, it is my understanding.

Q And is your understanding based on those two paragraphs that Mr. Moshfegh has highlighted on page 30 of the main Blade report, Commission Exhibit 1000?

A Yes.

Q Would you read those two paragraphs into the record.

A It says:

> No anomalies were ever recorded during the measurements.
>
> Figure 14 shows the temperature survey from October 21, 2014, the last survey before the incident of October 23, 2015, and shows no anomalies related to casing integrity. A cooling feature was found below approximately

8,200 feet related to gas injection and withdrawal, but it was not related to a casing integrity issue.

Q And do you agree with Blade's conclusion as set forth on page 30 of Commission Exhibit 1000?

A Yes.

Q All right. So let's go back, if we could just -- and I've got just a couple more questions. Let's just go back to Figure 5 of the Blade geology report, page 14.

Mr. Neville, just a couple more questions and then I'm done. So I want you to assume -- vis-à-vis this figure, I want you to assume that gas is leaking around the bottom of the well but below the caprock. Okay. Are you with me?

A Yes.

Q Where would that gas go?

A Well, it would stay within the S1, the S2, and the S4. Basically there's different sands that are associated with the storage zone.

Q And by definition, would it stay below the caprock?

A Yes.

Q Let's modify the hypothetical just

barely. Let's assume that a gas is leaking from the bottom of the well and it's actually working its way through that cement and going sort of above the caprock into the MP area there as we talked about earlier.

Where would that gas go?]

A It would go into, potentially, most likely, the Del Aliso zone. That's the first tan section above the storage zone of cap rock; potentially, the Del Aliso zone or the Porter zone, yes.

Q Okay. And in your experience, Mr. Neville, in those instances where there actually was a shoe leak at a well at Aliso Canyon, and so -- and it made its way, sort of, through the cement and showed up just above the cap rock, have you ever seen that gas make its way up a mile and a half of formation and come out at the surface of that well?

A No.

Q And what, in your professional view, is the likelihood that something like that could happen?

And when I say "that," I mean gas leaking around a shoe at a well like SS-25, at 8,500 feet, roughly, making its way to the surface at the Aliso Canyon facility?

A Extremely low.

MR. LOTTERMAN: I have no further questions, your Honor.

ALJ POIRIER: Thank you. Let's go off the record.

(Off the record.)

ALJ POIRIER: We'll be on the record. We're going to take a break until 11:00.

Thank you, and off the record.

(Off the record.)

(Recess taken.)

ALJ POIRIER: We'll be back on the record. We just took a short break.

I believe Mr. Lotterman has a clarification on the exhibit number. Please go ahead.

MR. LOTTERMAN: I do. Thank you, your Honor. I misspoke during my redirect of Mr. Neville. And I would like to walk through the correct exhibit numbers for the record.

Basically, the geology summary report dated May 31, 2019 is actually Commission Exhibit 1002, not 1,000. So, to be clear, the Figure 5 that we looked at, that was from Exhibit 1002. Table 3 that we looked at was from Exhibit 1002. Figure 9, the wellbore schematic, that was from the main report; so that is Commission

Exhibit 1000. And, finally, the summary of temp and noise logs that Blade put in its main report under Figure 13 was also Commission Exhibit 1,000.

Thank you, your Honor.

ALJ POIRIER: Okay. Thank you.

We'll move to recross with Mr. Gruen. Let's give the presenter ball to Mr. Zarchy, please.

And why don't you go ahead and start, Mr. Gruen.

MR. LOTTERMAN: You're on mute, Mr. Gruen.

ALJ POIRIER: Mr. Gruen, you're muted.

CROSS-EXAMINATION

BY MR. GRUEN:

Q Thank you. Pardon me.

Let’s go back to -- if -- Mr. Zarchy, if you could pull Exhibit SED-274 back onto the screen share.

And I'll ask you --

ALJ POIRIER: Mr. Gruen, let’s -- sorry to interrupt. It doesn't look like he has the presenter ball. Let’s go off the record.

(Off the record.)

ALJ POIRIER: We'll be back on the record.

Please go ahead, Mr. Gruen.

BY MR. GRUEN:

Q Thank you, your Honor.

Mr. Neville, do you see in front of you Exhibit SED-247, the estimated well conditions as of 11-10-15 as shown on the title page?

A Yes.

Q Do you recall Mr. Lotterman asking you questions about this exhibit?

A I believe so. I might have to scroll down to see.

Q Go ahead, Mr. Zarchy.

Why don't we follow you, Mr. Neville.

A Oh, yes. Okay. Yes.

Q Okay. And do you recall -- just for clarity, let’s got to bottom just to have the Bates number for the record, AC_CPUC_SED_DR_17_0046340.

And if we go about to the middle of the page there -- that's good. Thank you.

Do you see on the right, the note that says:

Unable the use lower
nipple, use M Lock for SSSV
nipple. See wire-line
tickets.

Do you see that?

A Yes.

Q I believe Mr. Lotterman asked you about this note in his redirect.

What does "M Lock for SSSV nipple" mean?

A It's a -- I'm not familiar with that, the M Lock. But as its used in the context here, it’s a -- it’s a device that would land at the -- let me -- give me some time, please.

I'm not certain -- familiar with the term "M Lock," but it’s -- it -- I'm just guessing.

Q We don't want you to guess. I'll ask the next question.

Let’s go to the bottom of the exhibit there, if we could, just for purposes of refreshing.

Do you see 6-16-86 notation there?

A Yes.

Q Let me just ask you, at any time after 1986 -- between 1986 and the incident, did SoCalGas put a subsurface safety valve in the well?

A Not after '86.

Q Okay. And going back to the notation that we just -- if you scroll up, Mr. Zarchy.

If I could ask you about wire-line tickets, what are those?

A The wire-line tickets are the -- in the invoice files. They represent the work done by the wire-line company and they -- those -- that work gets stored in the well invoice file.

Q Okay. So it shows briefly what the company did and perhaps how much they charged to SoCalGas?

A Yes.

Q Okay. And, in this case, what was the year of the wire-line tickets referenced in this note?

What was the year those wire-line tickets were produced?

A Oh, it doesn't reference the year.

Q Okay.

A It just references -- it references the tickets. So it doesn't reference the year.

Q So you don't know?

A I don't know.

Q Okay. Let’s go to the upper-right corner of the document. And I'm looking at the dates in the upper-right corner. The last one says:

2-16-79 and 2-20-79, replaced

safety system.

Do you see that?

A Yes.

Q But that -- it doesn't say when the subsurface safety valve was actually pulled there, does it?

A No, it doesn't.

Q When was the subsurface safety valve pulled?

A It would be in the well invoice file. I believe it was sometime in 1980, subject to check.

Q Okay. Thank you.

Let’s go now to another line of questions regarding -- do you recall being asked about Vertilog by Mr. Lotterman?

A Yes.

Q If you're looking for a problem in the casing, isn't it better that Vertilog overstates metal loss than if it understates it?

A Not to the degree that it overstated it, in my opinion.

Q Okay. Bear with me a second.

At what point in time was the accuracy or the quality the Vertilog acceptable in your perspective?

A I don't know.

Q But SoCalGas -- excuse me -- tested and approved the Vertilog technology for the storage integrity management program it created in 2014 and implemented later; is that right?

A It -- it implemented Vertilog -- with Vertilog technology, I guess -- which is magnetic flux technology. It's not a Vertilog. It's a newer version, so to speak, of the Vertilog. It's called a high-resolution Vertilog.

Q Okay. And that technology that -- just so we're on the same page, that's the technology that SoCalGas tested and approved in 2014, that Vertilog technology -- the updated form of it, if you will, that you just discussed; is that not right?

A Yes.

Q Let's go to Exhibit SoCalGas-167, which is the exhibit that Mr. Lotterman used on redirect here.

And if we -- do you remember being asked about this exhibit?

This is SoCalGas -- okay. Let me back up.

This is Exhibit SoCalGas-167, e-mail from Todd Van de Putte to Bret Lane, RE: DOGGR Update, prelim draft November 10,

2015. And if you -- that's on the title page. And if we go down -- scroll down, if you would.

Do you recall being asked about this document from Mr. Lotterman, Mr. Neville?

A Yes.

Q Okay. And for the record, this is an e-mail from Todd Van de Putte to Bret Lane dated 11/10/2015. We'll scroll down and read the Bates number if we could. Ending -- I'll just give the end; -46338.

And if we go just up to the top, I notice it’s from Todd Van de Putte to Bret Lane, but that the introduction of the e-mail says, "Hi, Bruce."

Do you see that?

A Yes.

Q Who's Bruce?

A I noticed that. I don't know who Bruce is though.

Q Okay.

Your Honor, no further questions.

ALJ POIRIER: Okay. Thank you, Mr. Gruen.

Ms. Bone, do you have additional cross?

MS. BONE: Yes, your Honor, we do.

And the presenter ball needs to be transferred to Mr. Benjamin Katzenberg.

ALJ POIRIER: Okay. Let’s go off the record.

(Off the record.)

ALJ POIRIER: We'll go back on the record.

CROSS-EXAMINATION

BY MS. BONE:

Q Good morning, Mr. Neville. You're almost done.

A Good morning.

Q Do you recall yesterday on redirect by Mr. Lotterman where you explained in detail your experience with the Vertilog results for the Montebello well?

A Yes.

Q And how the casing only revealed a scratch, whereas the Vertilog results had identified a larger amount of corrosion?

A Yes.

Q So let’s look again at your 1991 Vertilog memo, which is Exhibit SoCalGas-153.

And, Mr. Katzenberg, if you could scroll down to page 3? And, Mr. Katzenberg, you're going to need to -- let's see, scroll back up. But we're going to need to expand this now so that we can see it better. Is

that possible?

Okay. I think you need to scroll up a little bit more. That's not the last page, sorry. Go to page 3. There we go. Recommendations, number one. Okay.

And, Mr. Neville, can you see those recommendations at point number one?

A Yes.

Q Did you recommend that SoCalGas discontinue the use of casing evaluation tools in this memo?

A No.

Q In fact, didn't you recommend that the next casing evaluation tool be done using a different vendor, such as Schlumberger or Halliburton?

A Yes.

Q Did you ever recommend that SoCalGas just stop all use of casing evaluation tools?

A No.

Q Mr. Lotterman, several times in his redirect of your testimony, referred to the year 1999.

Did you hear that when that was happening?

A I don't recall the significance of 1999.

Q I believe that he was referring to your memo; but your memo was drafted in 1991; correct?

A Yes.

Q And the quality of casing evaluation tools to detect corrosion has improved since 1991, hasn't it?

A Yes.

Q And were there other tools available to evaluate well casings even in 1991?

A I believe that, as I mentioned here, there was a Schlumberger tool and a Halliburton tool.

Q In your opinion, is a casing evaluation an important component of an integrity management program?

A Yes.

MS. BONE: I have no further questions, your Honor.

ALJ POIRIER: Thank you, Ms. Bone.

Mr. Lotterman, do you have any additional redirect based on this?

MR. LOTTERMAN: Just a clarification, your Honor, to the extent during my redirect of Mr. Neville on SoCalGas Exhibit-153 I did say "1999," I meant 1991. And I thank Ms. Bone for that clarification.

ALJ POIRIER: Okay.

Mr. Neville, you are done. I want to thank you for your participation in this hearing since four -- almost four and a half days. So I appreciate your time and everybody else's. Again, as ALJ Hecht said yesterday, it's been a learning experience, for sure. I know about more about shoes than I ever thought I would.

THE WITNESS: Thank you.

ALJ POIRIER: So let’s go off the record.

(Off the record.)

ALJ POIRIER: So let’s go back on the record.

Mr. Stoddard --

MR. STODDARD: Your Honor, can I just have three minutes before we go back on the record?

ALJ POIRIER: Sure. Let’s go back off the record.

(Off the record.)

ALJ POIRIER: Back on the record.

We'll take a break until 11:25. Thank you.

Off the record.

(Recess taken.)

ALJ POIRIER: So we'll be back on the

record. We just had a short break. We're going to be moving to the exhibits.

And we'll start with Mr. Stoddard.

MR. STODDARD: Thank you, your Honor.

Are we back on the record?

ALJ POIRIER: We are.

MR. STODDARD: So starting -- and to begin with, we did confer also with SED. And we have, I believe, resolution on stipulations for all of the exhibits, as well, that are going to be moved in.

To identify SoCalGas's exhibits from both direct and redirect that need to be moved into the record, the first is SoCalGas-01, which is the prepared opening testimony of Dan Neville dated November 22, 2019.

Next is SoCalGas-15, which is the prepared reply testimony of Dan Neville dated March 20th, 2020.

Next is SoCalGas-16, Exhibit to the prepared reply testimony of Dan Neville, dated March 20, 2020.

SoCalGas-21, prepared surreply testimony of Dan Neville, June 30th, 2020.

SoCalGas-22, exhibits to prepared surreply testimony of Dan Neville June 30th, 2020.

And then there was one redirect exhibit which was discussed, which is SoCalGas-167. And the description of that is e-mail from Todd Van de Putte to Bret Lane, RE: DOGGR update, preliminary draft.

ALJ POIRIER: And you're requesting to move those exhibits into the record?

MR. STODDARD: SoCalGas requests to move those into the record. And on the last item, I believe SED stipulated to admission of SoCalGas-167.

ALJ POIRIER: Let’s hear from -- do we have any objection for moving these exhibits into the record?

MS. PURCHIA: Your Honor, did you say Exhibit 16?

ALJ POIRIER: No -- um -- we're looking at Exhibits SoCalGas 1, 15, 16, 21, 22, and 167.

Do any of the parties have objections to moving these into the record?

MS. PURCHIA: Your Honor, SED stipulated to moving those exhibits into the record. But we do have remarks that we would like to make about SoCalGas-167.

Would this be an appropriate time?

ALJ POIRIER: Sure. Go ahead.

MS. PURCHIA: Okay. As Mr. Gruen

pointed out yesterday, SoCalGas objected when SED attempted to introduced SED-218 in record on redirect of Ms. Margaret Felts, our witness. SoCalGas's objection was sustained, and parties were instructed not to introduce redirect exhibits. Then yesterday, after SoCalGas completed its cross-examination, SoCalGas introduced a redirect exhibit and expressed it was only demonstrative.

For efficiency purposes and clarity of the record, SED stipulates to SoCalGas-167 going into to record. But we would request your Honors to direct SoCalGas not to serve, display, and request to move any more redirect exhibits into the record during this set of hearings.

ALJ POIRIER: Mr. Stoddard?

MR. STODDARD: Thank you, your Honor.

The response to that is simply that SED that was introducing an exhibit that was an incomplete document. It was an attachment that was included with an email that was produced together and Bates-sequential order to SED. And the redirect exhibit was being offered as an exception, which your Honors I believe recognized at the time, for the sake of completeness. To the degree that parties introduced exhibits which are incomplete

portion of documents, SoCalGas will continue to reserve the right to introduce redirect exhibits for the purpose of making sure the complete version of the document is in the record.

ALJ POIRIER: Thank you. I'll make some brief remarks.

I think yesterday was an exception. It was an excerpt. I think if we're serving exhibits that have excerpts, they should at least have -- if we can serve the whole document shorter, I think it’s better for the record. If we have excerpts of longer documents, usually we ask for a table of contents or that some type of cover page is included so that we understand where it’s coming from.

So I do think, generally, we're not going to allow exhibit on redirect. But I think if it’s going to a complete document, that's something that we're going to consider on a case-by-case basis. Because we want to have a clear record.

With that, I will grant SoCalGas's request to move Exhibits SoCalGas-01, SoCalGas-15, SoCalGas-16, SoCalGas-21, SoCalGas-22, and SoCalGas-167.

(Exhibit No. SoCalGas-01 was received into evidence.)

(Exhibit No. SoCalGas-15 was received into evidence.)

(Exhibit No. SoCalGas-16 was received into evidence.)

(Exhibit No. SoCalGas-21 was received into evidence.)

(Exhibit No. SoCalGas-22 was received into evidence.)

(Exhibit No. SoCalGas-167 was received into evidence.)

ALJ POIRIER: Now we'll move to SED.

MS. PURCHIA: Thank you, your Honor.

I've got a cough a little bit -- one second -- swallowed my water wrong.

Okay. So we have quite a few exhibits that we're moving in. Would it be okay just to read the numbers? Or would you like me to read the titles?

ALJ POIRIER: The numbers are fine. Just please don't go too quickly, because I'm going to be noting them and so is the court reporter.

MS. PURCHIA: Okay.

So, SED-231, SED-238, SED-241, SED-257, SED-262, SED-263, SED-264, SED-265, SED-266, SED-267, SED-268, SED-269, SED-274, SED-275, SED-277, SED-279, SED-280, SED-283, SED-284, SED-285, SED-286, SED-287, SED-294.

Then we have SED-R-295, which was served this morning. This is a revised

exhibit of the SS-25 well file. And we called that "Portions of the SS-25 well file."

We have SED-R-269, which was served this morning. This is the revised SS-29 well file. And we have called that "Excerpted portions of the SS-29 well file."

We have SED-R-297, which is the revised exhibits for the tubing invoices for SS-25. And we have -- I believe we called that "Excerpted portions of SS-25 tubing invoices."

And then we have SED-298 and SED-299.

So SED requests to move these into the record. And we believe that SoCalGas has stipulated to that.

ALJ POIRIER: Mr. Stoddard?

MR. STODDARD: Thank you, your Honor.

Yes; with the one note, which is, Ms. Purchia didn't describe and didn't read the descriptions of most of the exhibits, but she did read the description, which are important for purposes of the stipulation -- the meet and confer for the revised exhibits. And provided, and so long as the court reporter caught that, and they are admitted as retitled as Ms. Purchia, SoCalGas

stipulates to admission of these exhibits.

ALJ POIRIER: Thank you.

Ms. Bone, do you have anything --

MS. BONE: Yes, I --

ALJ POIRIER: Do you have anything further on these exhibits? I just want to be --

MS. BONE: No.

ALJ POIRIER: Okay. Thank you.

So we will grant SED's request and move exhibits SED-231, SED-238, SED-241, SED-257, SED-262, SED-263, SED-264, SED-265, SED-266, SED-267, SED-268, SED-269, SED-274, SED-275, SED-277, SED-279, SED-280, SED-283, SED-284, SED-285, SED-286, SED-287, SED-294, SED-R-295, SED-R-296, SED-R-297, SED-298, and SED-299 are all moved onto the record.

(Exhibit No. SED-231 was received into evidence.)

(Exhibit No. SED-238 was received into evidence.)

(Exhibit No. SED-241 was received into evidence.)

(Exhibit No. SED-257 was received into evidence.)

(Exhibit No. SED-262 was received into evidence.)

(Exhibit No. SED-263 was received into evidence.)

(Exhibit No. SED-264 was received into evidence.)

(Exhibit No. SED-265 was received

into evidence.)

(Exhibit No. SED-266 was received into evidence.)

(Exhibit No. SED-267 was received into evidence.)

(Exhibit No. SED-268 was received into evidence.)

(Exhibit No. SED-269 was received into evidence.)

(Exhibit No. SED-274 was received into evidence.)

(Exhibit No. SED-275 was received into evidence.)

(Exhibit No. SED-277 was received into evidence.)

(Exhibit No. SED-279 was received into evidence.)

(Exhibit No. SED-280 was received into evidence.)

(Exhibit No. SED-283 was received into evidence.)

(Exhibit No. SED-284 was received into evidence.)

(Exhibit No. SED-285 was received into evidence.)

(Exhibit No. SED-286 was received into evidence.)

(Exhibit No. SED-287 was received into evidence.)

(Exhibit No. SED-294 was received into evidence.)

(Exhibit No. SED-R-295 was received into evidence.)

(Exhibit No. SED-R-296 was received into evidence.)

(Exhibit No. SED-R-297 was received into evidence.)

(Exhibit No. SED-298 was received

into evidence.)

(Exhibit No. SED-299 was received into evidence.)

ALJ POIRIER: Did I miss anything?]

MS. PURCHIA: You got it. Thank you.

ALJ POIRIER: Great. Thank you.

Now we'll move on to Ms. Bones.

MS. BONE: Yes, your Honor, Cal Advocates would like to move into the record CalPA-407 and CalPA-411. And we understand that SoCalGas has stipulated to the entry of these exhibits into the record.

MS. PURCHIA: I heard earlier that you did stipulate to that, Mr. Stoddard.

MR. STODDARD: That's correct, your Honor.

ALJ POIRIER: Ms. Purchia, anything?

MS. PURCHIA: No objection from SED.

ALJ POIRIER: Thank you.

Cal Advocates' request to move CalPA-407 and CalPA-411 is granted and those are moved onto the record.

(Exhibit No. CalPA-407 was received into evidence.)

(Exhibit No. CalPA-411 was received into evidence.)

ALJ POIRIER: Let's go off the record.

(Off the record.)

ALJ POIRIER: Back on the record.

We'll be taking a short break to get the witnesses ready, until 11:50. Thank you. Off the record.

(Off the record.)

ALJ POIRIER: Let's go back on the record.

I am returning from a short break to get the witnesses online for the Webex. We also had a brief discussion on how we were going to proceed, since we have a panel of two witnesses. It sounds like we're going to start with general questions. We're going to start with Mr. Hower or Mr. Stinson, first one, and then move to the other.

And then I asked -- just asked all participants to be deliberate and make sure we are not engaging in any crosstalk.

With that, Mr. Lotterman, do you want to call your witnesses?

MR. LOTTERMAN: Yes. Thank you, your Honor.

SoCalGas calls Tim Hower and Charlie Stinson of MHA.

TIM HOWER, called as a witness by Southern California Gas Company, having been sworn and having attested, testified as follows:

CHARLES STINSON, called as a witness by Southern California Gas Company, having been sworn and having attested, testified as follows:

ALJ POIRIER: Mr. Hower, can you state your name for the record and spell your last name?

WITNESS HOWER: Timothy Hower, H-o-w-e-r.

ALJ POIRIER: And, Mr. Stinson, can you state your name and spell your last?

WITNESS STINSON: Charles Stinson, S-t-i-n-s-o-n.

ALJ POIRIER: Thank you. I am now going to read the witness attestation. I am going to read through the whole thing and then I will ask each of you to indicate if you agree with that attestation.

I do solemnly swear under penalty of perjury that the testimony I give in the case now pending before this Commission shall be the truth, the whole truth and nothing but the truth.

I attest I will testify based on my own knowledge and memory, free from external influences or pressures.

I attest I will adhere to all formal requirements of testifying under oath, including the prohibition against being coached.

I attest I will only refer to materials provided by the parties, exhibits

premarked and identified by the parties and previously shared with the opposing party.

I attest I will not make any recordings of the proceeding. I attest that I understand that any recordings of the proceeding held by Webex, including screenshots or other visual copying of a hearing is absolutely prohibited.

I attest that I understand that violations of these prohibitions may result in sanctions, including removal from the evidentiary hearings, restricted entry into future hearings, denial of entry to future hearings or any other sanctions deemed necessary by the Commission.

I attest I will not engage in any private communications by phone, text or e-mail, or any other mode of communication while under oath and being examined.

If I experience any attempts to tamper with my testimony today, I will report the occurrence to the presiding officer immediately, with myself and ALJ Hecht being presiding officers.

First, Mr. Hower, do you attest to this?

WITNESS HOWER: Yes, I do.

ALJ POIRIER: Mr. Stinson, do you

attest?

WITNESS STINSON: I do, your Honor.

ALJ POIRIER: Thank you.

Mr. Lotterman.

MR. LOTTERMAN: Thank you, your Honor.

DIRECT EXAMINATION

BY MR. LOTTERMAN:

Q Gentlemen, I would like to identify your testimony before we proceed.

First of all, do you have copies of your testimony -- hard copies of your testimony and exhibits in your respective offices?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q All right. So let's walk through them and then I will ask each of you to adopt them.

So let's begin with SoCalGas Exhibit 4R entitled Prepared Reply Testimony of Tim Hower and Charlie Stinson of MHA Petroleum Consultants, dated March 20, 2020. And this is a redline version of an earlier submission. And the redline version was served on all parties last week, I believe Wednesday, April 28, 2021.

Next exhibit is SoCalGas 4-2. And this is the final with redlines adopted

version of the Prepared Reply Testimony of Tim Hower and Charlie Stinson of MHA Petroleum Consultants, dated March 20, 2020 and also served on April 28, 2021.

We then have SoCalGas Exhibit 5, which is a multi-volume compilation of exhibits to Prepared Testimony of -- excuse me, to Prepared Reply Testimony of Tim Hower and Charlie Stinson of MHA Petroleum Consultants, dated March 20, 2020. And that was served on March 12, 2021, with no corrections.

We then have SoCalGas Exhibit 27, which is the prepared Sur Reply Testimony of Tim Hower and Charlie Stinson of MHA Petroleum Consultants, dated June 30, 2020 and served on March 12, 2021.

And finally we have SoCalGas Exhibit 28, which are the Exhibits to Prepared Sur Reply Testimony of Tim Hower and Charlie Stinson of MHA Petroleum Consultants, dated June 30, 2020 and served on March 12, 2021.

Mr. Hower, were these documents prepared and/or compiled by you?

WITNESS HOWER: Yes.

Q Mr. Stinson, were these documents as marked prepared and compiled by you?

WITNESS STINSON: Yes.

Q Mr. Hower, do you adopt these five exhibits as your testimony in this proceeding?

WITNESS HOWER: Yes.

Q Mr. Stinson, do you adopt these five exhibits as your testimony in this proceeding?

WITNESS STINSON: I do.

Q Mr. Hower, would you briefly describe your experience and background?

WITNESS HOWER: Sure. I have 40 years' experience in oil, gas and gas storage engineering; specific to gas storage, I've been involved in the evaluation and optimization of underground gas storage projects in the United States, Europe and Australia. I have conducted industry training courses in gas storage. I've co-authored a textbook that dealt with reservoir management of gas storage reservoirs.

I have personally been to approximately 30 storage sites in the U.S. and worked data associated with over 70 storage reservoirs. And I've had the opportunity to testify before numerous state regulatory bodies, as well as

internationally, also.

Q Mr. Stinson, would you briefly describe your experience and background?

WITNESS STINSON: Yes. I have over 42 years of experience in the oil and gas industry. A large portion of that, about 32 years of that, was working for an Australian company for Northwest Natural Gas. These are primarily nonutility, unregulated companies in gas exploration and gas transmission and then primarily in underground gas storage, permitting, development and operations.

I -- while at Northwest Natural, I served for over 20 years on the American Gas Association Underground Storage Committee, including one year as Chairman. And I am a Licensed Petroleum Engineer.

Q Mr. Stinson, how many gas storage facilities have you visited over your career?

A Yeah. I have visited over 30 gas storage facilities on the ground primarily through my work with the American Gas Association and also early in the development stages of storage for the Mist Gas Field in Oregon. I visited with several companies, primarily here in California regarding their development and operational activities for

underground storage.

Q Mr. Hower, would you mind just briefly describing the respective role that you and Mr. Stinson took in preparing the testimony that has been presented in this proceeding?

WITNESS HOWER: Sure. I typically took the lead role in preparing our testimony. I would then, once I had an outline or a draft or the testimony started, I would pass it off to Mr. Stinson. He and I would then worked with it collaboratively, and then typically I would finish it up and work with the counsel.

MR. LOTTERMAN: Thank you.

Your Honor, Mr. Hower and Mr. Stinson are available for cross-examination.

ALJ POIRIER: Thank you, Mr. Lotterman. I think at this point it makes sense to break for lunch and SED can start after that.

So we will take a lunch break until 1:15. And we will be off the record.

(Whereupon, at the hour of 12:01 p.m., a recess was taken until 1:17 p.m.)

* * * * *

AFTERNOON SESSION - 1:17 P.M.

* * * * *

TIM HOWER and CHARLES STINSON,
resumed the stand and testified further as follows:

ALJ HECHT: We'll be back on the record.

We are returning from lunch on Friday, May 7th. This morning two new witnesses were sworn and gave their direct testimony. So we're going to pick up with the cross-examination of Mr. Hower and Mr. Stinson.

Are there any questions or housekeeping issues before I tell Mr. Gruen he may begin?

(No response.)

ALJ HECHT: It doesn't look like it. Okay. Mr. Gruen, you can go ahead.

MR. GRUEN: Thank you, your Honor.

CROSS-EXAMINATION

BY MR. GRUEN:

Q Good afternoon, Mr. Hower and Mr. Stinson. My name is Darryl Gruen and I am an attorney on behalf of the California

Public Utilities Commission's Safety and Enforcement Division in this proceeding.

And just a couple of clarifications and questions to establish common understandings of certain terms that may be applicable throughout the cross-examination to get us started.

So, since both of you -- just as a matter of starting, since both of you together are testifying as part of a panel, just to clarify, when I use the term "you" I mean it to refer to either or both of you. So it may turn out that certain questions end up being answered by one of you, based on your knowledge or background, but either of you is welcome to answer.

In certain cases, I will have questions directed to one of you, such as when I'm asking about your specific background, for example, and we'll do our best to clarify that for the record. And if you could help with that, that would be appreciated as well, so we have a clear record of which one of you is talking.

All right. Just with that understanding, if I could just ask, and these questions are really directed for both of you, so if you could take turns answering,

I'd appreciate it.

First of all, are each of you alone at the moment?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q Thank you. And are you able to communicate separately or privately with anyone, while you communicate through the Webex connection you have to the hearings here today?

WITNESS HOWER: No.

WITNESS STINSON: No.

Q Thank you. Do you consent to allow anyone to record or in any way transcribe your testimony in this proceeding, other than the court reporter approved by the California Public Utilities Commission?

WITNESS HOWER: No.

WITNESS STINSON: No.

Q Okay. And if I press your memory, please feel free to say that you don't recall. And if you don't know, please also let me know that, and I will work with that. I will take that answer and continue to move on with the questions as quickly and as expeditiously as I can. Do you understand?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes, I do.

Q Thank you. Okay. And just to clarify a couple of common understandings for terms that we may use today, when we talk about "Blade" today, can we agree that we are referring to Blade Energy Partners?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q Thank you. And when we use the term "Aliso Canyon" or "Aliso Canyon facility" or "Aliso," can we agree that we are all talking about SoCalGas Aliso Canyon Natural Gas Storage Facility?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q And if we use the term "root cause analysis" or "RCA," can we agree that refers to Blade's root cause analysis and supplemental reports issued in May of 2019?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q And the use of the term "SS-25," with regards to that term, can we agree that that refers to Standard Sesnon 25 well at the Aliso Canyon facility?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q Okay. And the use of the term "incident," when we use that term, if we use

that term, can we agree that refers to the release of gas from the SS-25 facility that was discovered beginning October 23rd, 2015?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q Okay. Thank you. All right.

So just to do a bit of background first, and these questions are directed to Mr. Stinson. We'll start with you, if I can. This is questions about your background.

So if we could, as a start, go to your résumé or CV which was included as an exhibit in your reply testimony. I believe that's, for the record, SCG Exhibit 4R. And if we could go to the page with the Bates stamp on it 5.1159. And for the record, you see that title of the cover page Prepared Reply Testimony of Tim Hower and Charlie Stinson MHA Petroleum Consultants, March 20, 2020. And that is SoCalGas-4R, and if we go to the Bates stamp 5.1159?

WITNESS STINSON: Yes, I am looking for that.

Q I believe this should be toward the end of the document.

ALJ HECHT: We'll be off the record while we find our place.

(Off the record.)

ALJ HECHT: We'll be back on the record.

While we were off the record, we had some conversation about page numbers and Bates numbers. I am going to ask that all of the attorneys and witnesses try to be careful in identifying exactly which exhibit and what page numbers of that exhibit they are referring to. That will help our court reporters and will help me and my co-assigned ALJ later to keep track of what you're referring to and I want to make sure that the right version of this, which I think is SoCalGas Exhibit-4R, is the one that gets onto the exhibit list and ultimately is entered into the record.

With that, I will say, Mr. Gruen you may go ahead.

MR. GRUEN: Thank you, your Honor.

Q Okay, Mr. Zarchy. If we could go to your CV in Exhibit -- SoCalGas Exhibit 05. Pardon me. SoCalGas-05, Part 2. And I think we have there -- there we are. Okay. Pardon the oversight, your Honor.

So here, Mr. Stinson, do you see the Bates number at the bottom of the page SoCalGas-5.1159?

WITNESS STINSON: Yes, I do.

Q And if you're following along using a hard copy, I will just ask you to let me know when you're ready so we can proceed.

A I can read the one on the screen. Thank you.

Q Okay. Very good. Thank you. Okay. Looking at your background here, I see that you have background as a mathematician and I would like to understand if that background qualifies you as a Petroleum Engineer as well.

So if we can scroll down, I believe you had clarified that you have background as a -- you are a Registered Petroleum Engineer in your direct testimony, and I believe here you also -- your résumé states, and let's go down a little bit further. There it is. Okay. The Professional Registration you're a Registered Petroleum Engineer in the state of Oregon, No. 11498, February 1982. Do I have that right?

A Yes, that's correct.

Q Okay. What requirements do you have to meet in order to get licensed in Oregon as a Petroleum Engineer?

A Oregon follows the -- sort of the federal guidelines for engineering registration. And they issue -- annually

they issue tests for engineers. So I had to -- my degree is in Applied Mathematics, Bachelor of Science Degree from University of Colorado. When I got -- as I was getting close to getting out of the Navy, I took an engineering training exam.

I subsequently got employed by Northwest Natural Gas in December of 1978. And early in 1979, I got involved in their gas exploration activities in the gas field. That led to a discovery which ultimately led to the development of underground storage. In the course of that, I was working with a petroleum engineer out of Bakersfield. He sort of became my mentor. And after about three years of doing that, I had documented enough experience between that and the time I had spent in the Navy, to quality for a Professional Engineering License. And I took the exam, passed and got my registration.

Q Okay. Thank you. Did you take any petroleum engineering classes in order to get registered -- to get licensed as a Petroleum Engineer?

A I did some -- I will call them short-form classes. I did a class at the University of Michigan from Dr. Donald Katz. He was kind of the father of Natural Gas

Engineering and had a large hand in some of the early underground gas storage reservoir work; a couple of other seminars and whatnot, so that was part of my training, plus this engineer in Bakersfield, working hand-in-hand with him.

Q Okay. So I think you talked about it -- an exam, but I want to clarify, if you could tell me, are you familiar with an Engineer-in-Training exam?

A Yes.

Q Okay. And if I refer to that Engineer-In-Training exam using the shorthand EIT, will you understand that?

A Yes.

Q Did you pass the EIT exam?

A Yes, I did.

Q Okay. Let's see. And did you take the professional engineering exam for the Oregon registration?

A Yes.

Q What year was that?

A 1982.

Q Okay. And do you have to take any continuing education courses to maintain your registration as a Petroleum Engineer?

A Yes, I do. I have to document, I believe now the requirement is 40 hours every

two years. I have to renew my license every two years.

Q Okay. Thank you. Let's -- if I could explore your background, Mr. Stinson, and how it relates to certain particulars in this proceeding.

So, on the same page, if we scroll up to Areas of Expertise, you talk about management and executive roles with operational and fiscal responsibilities for activities related to Underground Storage Development and Ops. You see? Would you agree?

A Yes.

Q What did that work entail at a high level?

A Well, over the course of my career, as I mentioned, we made a natural gas field discovery in Oregon of the Mist Gas Field in 1979. That, subsequently starting in about 1982, the -- a couple of those reservoirs were purchased by my company from the -- from their partners and we started the development process for underground storage in those two reservoirs, went through a fairly long permitting process, since there wasn't an underground storage in Oregon. That included establishment of regulations and we were able

to get those two reservoirs permitted, constructed and in service in 1989.

Since that time, and prior to my retirement from Northwest Natural, in 2011 we developed actually a total of seven separate underground gas storage reservoirs in that same gas field.

Also, part of my leaving Northwest Natural's family of companies, we did a fairly exhaustive reservoir evaluation in the state of California. We identified a reservoir called Gill Ranch Gas Field and were able to over, from the period of about 2007 to 2010, able to design, permit, construct and start operation of that field, as well.]

Q Okay. Let me ask you some specifics about that background and just your areas of expertise in general, but I thought that background might be applicable here.

Have you done failure analysis on wells?

A I have not.

Q And have you ever examined how or why a leak on natural gas storage wells happened?

A We have certainly had leaks on natural gas wells and, yeah, those -- we've

investigated those and repaired or plumbed those wells. So, yes, we've -- I've been involved in that.

Q And I noticed you answered that question with the word "we." When you say that word here, what do you mean?

A Yeah, myself and the engineers I had working for me at the time at Northwest Natural.

Q I see. Okay. And you in particular, not your team necessarily, but you in particular, did you have a role in examining how or why a given leak happened in a natural gas storage facility well?

A Yeah, from a management standpoint. I certainly had qualified engineers working for me. I was directing their activity.

Q Okay. And have you personally recommended what to do about those leaks?

A Yes.

Q How many times?

A I can recall at least on two occasions where we had to take some action based on the analysis.

Q Okay. Have you reviewed and recommended well designs?

A Certainly.

Q Have you evaluated reservoirs?

A Yes, I have.
Q Have you ever modeled a well kill?
A I have not.
Q In terms of your review and recommendation of well designs, can you estimate approximately over your career how many times you've done that?
A Yeah, many, many times. It goes back to the very early days of gas storage development in Oregon. We -- I personally made a visit to other storage field operators looking at their well design, and we ended up settling on a design based on what we felt was sort of the best technology at the time.
We -- and then subsequent to that, we upgraded that design as technology improved to include different downhole completions, horizontal technology, different well screens, different gravel pack arrangements. We also in 2010, when we constructed the Gill Ranch storage facility, we applied that same technology there. Those wells were designed on the same basis.
Q Okay. And, again, just to parse out, when you use the term "we" there, can you tell me who you mean.
A Yeah, so I had a team of geologist engineers working for me and, you know, I

certainly didn't do all this work on my own. I was -- I was -- at Gill Ranch I was in charge of the overall project development, I was (inaudible) engineering and operations for Gill Ranch storage, so I had engineers working for me. Those same engineers had worked for me in the design of the gas storage wells in the Mist gas field, so we had a good common understanding of what those wells should look like.

Q Let me see if I can just parse it. In that case those engineers were doing the design work and you were managing them.

Am I tracking that right?

A That's correct.

Q Okay. How about the evaluation of reservoirs? Approximately in your tenure how many have you evaluated?

A Well, we've done that on multiple occasions. As I mentioned in the Mist gas field, those individual reservoirs had to be evaluated as to their suitability for development for storage. There are approximately -- I think over the -- since its discovery, there have been about 40 individual reservoirs in the -- that approves gas in this field. Some are suitable for storage development; some are not.

We've evaluated each one of those reservoirs as to its suitability for storage. And, as I mentioned, at this point in time, eight of those have been developed, seven while I was at Northwest Natural, one since then. We also did a fairly exhaustive search of reservoirs here in California looking for an opportunity to develop underground gas storage. We probably looked at 50 reservoirs. We came up with a short list and then boiled that down to ultimately developing the Gill Ranch gas storage reservoirs. I also was involved --

Q (Inaudible) -- I'm sorry to interrupt. Go ahead.

A I was also involved in a project with Pacific Gas and Electric. This was an underground air storage project. We evaluated multiple reservoirs to -- this was more of a research and development project, but we had to do the same kind of reservoir evaluation for that project so I was --

Q Okay.

A -- involved in that as well.

Q And I think you mentioned 40, approximately 40, reservoirs if I -- did I track that right?

A Yeah. I would say 40 at Mist, and

then we have -- we looked at probably another 50 in California. I would say overall I probably looked at the date on a hundred reservoirs looking for underground storage opportunities.

Q Within how many fields?

A Well, the ones in California are all individual fields, you know, single reservoirs in a single field. The ones in Oregon are all -- all those reservoirs are in one field.

Q And I just want to clarify, the background that we're talking about -- just to understand -- that's not relating specifically to failure analyses; is that right?

A The development of reservoirs is not related to failure analysis, that's correct.

Q Any of the others? Any of the other pieces of your background, are any of those related to failure analyses?

A I don't understand what you're saying.

Q Let me ask it this way: Do you have any background working on failure analyses?

A I've been involved from a

management standpoint where we had a failure and had to have an analysis done, but I have not done firsthand failure analysis.

Q Understood. Okay. Thank you, Mr. Stinson. I appreciate that.

Mr. Hower, if you could turn to your background and do a similar exercise if we could and actually just at a higher level. This is going to be slightly different, but, Mr. Hower, I'd like to understand your familiarity with SoCalGas' leak records and failure analyses.

So with that introduction, one of the things I wanted to ask is my sense is the utility would typically rely on its own employees who may have more access and familiarity with the records and analyses. So maybe just at a high level if we could turn to Mr. Hower's.

I think it's just the prior page, Mr. Zarchy. If we could turn to that.

And you can guide us anywhere you'd like, Mr. Hower, but if you could identify how your experience shown here qualifies you to testify about SoCalGas' records -- their well records in particular, excuse me.

WITNESS HOWER: Probably the best place would be the fourth bullet point from the

bottom on that page starting with "Evaluation and optimization."

Q Okay.

A Keeping in mind, this is a CV of a few pages describing 40 years of experience so I didn't put a whole lot of narrative in here, but the way that I typically worked with my clients over the years in gas storage is that I was the outside consultant that worked with them year on year essentially parachuting in, working with someone like Mr. Neville and sitting down and going through the well records, the field performance, workovers that were done, plans for work the following year and essentially working with them as part of the team to review what happened in the field previously and make plans for what we wanted to do in the field going forward.

Q I appreciate that, and I appreciate the difficulty of explaining the amount of experience in a short CV, so I understand. Thank you for that elaboration. When did you first look at the well files that are referenced in your testimony?

A I would have to guess. I don't know. I'm not supposed to guess. I'm thinking through -- I believe it would be in

the summer in 2018 I think.

Q Okay. Let me just ask you more specifically -- and maybe we're at the right line here of your CV -- can you tell me about your expertise as it relates to natural gas leaks and their causes at a high level.

A Specific to wells?

Q Yes, specific to wells in natural gas storage facilities.

A Well, similar to the work I've done on this project with SoCalGas, when I worked with my other clients working on those fields year after year, we would look at well performance, we would look at the results of temperature logs, noise logs, any workovers that were done, and we would evaluate if there were leaks, look at what the causes of those leaks were, were they mechanical, were they corrosion related, were there patterns, were there hot spots in the field, so just trying to analyze and understand what the cause and effect is of leaks when they occurred.

Q Okay. You mentioned there cause and effect so maybe if I could just probe that. When you talk about cause there, are you talking about causes in a strict metallurgical sense or were you looking also

at environmental factors that had to do with the cause of leaks?

A Not necessarily environmental factors. I was thinking more along the lines of would a leak be caused by corrosion or would a leak be caused by a failure in the mechanical portion of a well. And also there can be -- we've just been talking about wells, we would also look at leaks, if you will, or gas losses in the reservoir due to potential geologic breaches.

Q Okay. Let me ask you, have you ever modeled a well kill?

A No.

Q Have you reviewed and recommended well designs?

A Yes.

Q Have you evaluated reservoirs?

A Yes.

Q Are you familiar with the models that -- by the way, let me just back up on this. When I use the term "Boots & Coots," do you know who I mean?

A Yes, I do.

Q And for the record, those are the well-kill contractors that Southern California Gas Company hired to attempt to and ultimately to kill Well SS-25.

Is that your understanding as well?
A That's correct.
Q Are you familiar with the models Boots & Coots said that they developed to kill Well SS-25?
A No, I'm not.
Q Okay.
A Let me clarify that. I guess to the extent that they were discussed in the Blade report, I have familiarity with -- that they exist and that that work was done, but the specific details of the modeling itself, no.
Q So your familiarity is limited to your reading of the Blade report?
A Insofar as we're talking about the well-kill models that Boots & Coots used, yes.
Q Understood. Are you familiar with the gas reservoir inventory reduction that SoCalGas performed after SS-25 failed?
A Do you mean the drawdown of the gas?
Q I think that would be an accurate way to put it. And maybe just for the record, if you could clarify what your understanding is of drawdown.
A Well, by drawdown, I meant

essentially producing the gas to draw down the reservoir pressure.

Q Or producing or perhaps withdrawing it from the reservoir?

A Correct.

Q Yeah. Okay. I think we're on the same page there. And it sounds like, based on your response, it would be fair to say that you are familiar with the drawdown as you described it?

A Well, I guess I would qualify that in that really the focus of my work and Mr. Stinson's work was preceding the incident at the SS-25 well. Am I aware that there were attempts made or there was a process done to lower the reservoir pressure to try and reduce any gas losses after the leak? Yes.

Q But not with the details of how the drawdown was done or what SoCalGas was doing in order to do the drawdown?

A That is correct, not with those details.

Q Okay. Understood. Let me just ask you just based on your experience. Should reducing reservoir pressure in your opinion be an immediate response when the initial well kill fails like it did in the case of

Well SS-25?

MR. LOTTERMAN: Objection, I believe that's outside the scope of Mr. -- actually either Mr. Hower's or Mr. Stinson's testimony.

ALJ HECHT: Is there a way to rephrase that question so that it applies directly to these witnesses' testimony? If so, please do so.

MR. GRUEN: I'll certainly try, your Honor.

Q Just based on your experience, Mr. Hower, should reducing reservoir pressure be an immediate response when a well-kill operation fails, do you know?

A Well, I think you're simplifying a very complicated process that was going on. I'm not certain that there was a direct connect-the-dots link between well-kill number one and trying to lower the reservoir pressure.

But to answer your question, I think lowering the reservoir pressure, or attempting to lower the reservoir pressure, when you have a gas leaking like the SS-25, would be a good course of action.

Q Okay. Understood. Maybe I can clarify -- get a little bit of -- with that

understanding.

Mr. Hower, if you're able to maybe say at a high level just with regards to Chapter 1, your sur-reply testimony, I know you said at the outset in direct that you look the lead on preparing the testimony, but are you able to share with us, if possible, what parts of Chapter 1 you are sponsoring today?

A I believe I already attested to the fact that I'm sponsoring both my reply testim -- both our reply testimony and the sur-reply. But if you want me to look specifically -- you're asking me to look at Chapter 1 of the sur-reply?

Q Correct. Yeah. So this may be adequate to cut through this. It sounds like, Mr. Hower, that you're prepared to answer questions about the entirety of Chapter 1.

Am I tracking that correctly?

A I'm prepared to answer questions about the entirety of our reply and our sur-reply.

Q Fair enough.

And, Mr. Stinson, would the same go for you as well; you're prepared to answer questions about the entirety of both?

WITNESS STINSON: To the extent of my knowledge, yes.

Q Fair enough. We'll work with that.

Okay. Let's go to the corrected redline version of the reply testimony then. It's Exhibit SoCalGas-4R. There's a table that begins on page 4 there.

Mr. Zarchy, if you would, when we get a chance, let's see if we can go to that table. We'll just go to the top.

I'll wait for both of you gentlemen to tell me when you're there if you're using a hard copy as well.

WITNESS HOWER: I am there now.

Q Okay. And this is both -- I'll just specify for the record, both of you are welcome to answer questions on this.

So going to the corrected redline version of your reply testimony and the table there --

Let's scroll down a little bit, if we could, Mr. Zarchy. Keep going to the bottom page number. I want to be sure we're there. Yeah. If we scroll to the top one more time.

There in the fourth column you talk about the heading there. It says, "Industry standard practice as of 10-23-2015."

Do you see where I am?

A Yes.

Q Okay. Just a clarity there. What do you mean there by the term "Industry standard practice" as used in that column heading?

A It's defined immediately below the table, Footnote 15, "For purposes of this testimony, industry standard practice means prevailing practice within the industry."

Q So when you say "prevailing practice within the industry," you're talking about industry standard practice that applies to natural gas storage operators as of the date of the Aliso Canyon incident, as of the date that it began?

Am I understanding that correctly?

A As we've defined industry standard practice, yes, that's correct.

Q Okay. And natural gas storage operators in California include SoCalGas, as well as Pacific Gas and Electric Company, or PG&E.

Is that your understanding as well?

A Yes.

Q Okay. Let's go to Footnote 19. If we could just -- I see -- we're at the right spot, but if -- I believe Footnote 19 --

Your Honors, I can enlarge this if it would be helpful. Maybe we should.

Mr. Zarchy, if you could enlarge this a little bit. I want to be able to see the footnotes.

ALJ HECHT: Thank you.

BY MR. GRUEN:

Q Just for the record -- if you scroll up a little bit -- Footnote 19 is referenced by the column heading there, "Industry standard practice as of 10-23-2015." If we go to Footnote 19 at the bottom where it says, "Based on personal knowledge and experience of Tim Hower and Charlie Stinson" -- do you see where I am there?

A Yes, I do.

Q So I have some questions about some of the entries in this table and in particular in this column. I'll rely on both of you to answer the questions that are based on your particular knowledge and experience given this footnote; okay?

A Yes.

Q Okay. Can you explain how your personal knowledge and experience informs your discussion of PG&E's industry standard practices.

A Well, yeah, it -- first of all, there would be Charlie's experience in working with the American Gas Association's underground storage committee, as well as working directly with PG&E. There's -- you know, both of us, Charlie and I -- sorry -- Mr. Stinson and I have significant experience working with other operators, attending workshops, attending conferences where there's a lot of discussion.

The way the gas storage industry works is there's typically a lot of discussion regarding operating practices of different companies. It's not something that gets published quite often. It's more of a communication between operators and engineers and staff that work for those companies, and PG&E is one of them.

Q Okay.

And, Mr. Stinson, since Mr. Hower referred to you about your work on working with PG&E and your exposure, I wonder if you could speak to that.

WITNESS STINSON: Certainly. Yeah, I've -- as I mentioned in my direct testimony, I've done some work early on in the 1980s with PG&E, using them in helping with well design for what we had as a pending

storage business in Oregon. That was sort of my first exposure of PG&E.

During my course on the AGA committee, PG&E was a very active member and certainly provided their input. I also worked with PG&E on the Gill Ranch storage development. As it turns out, PG&E is a 25 percent owner of that facility. So I got to know, you know, their -- certainly their engineers and their management as we went about that development.

PG&E has been a client of mine working on this -- I mentioned this underground air storage project. That project went on for about three years, and I worked with their storage staff, some of their storage engineers as it relates to that project, so I'm fairly familiar with PG&E.

Q Okay. And when you talk about air storage, that's -- just for my lay understanding -- not the same thing as natural gas storage; right?

A No, it's not the same as a natural gas storage, but it uses the same principles. In this particular case, it was using a depleted gas reservoir for the injection and removal of air. So well designs, reservoir evaluation and development, are --

(Coughing interruption.)

WITNESS STINSON: -- the same as for an underground gas storage project.

BY MR. GRUEN:

Q Okay. And I think maybe if you could help explain, since this is an industry standard practice we're talking about, there's really no qualification to it, meaning could -- this is an industry standard practice to natural gas storage operators outside of California as well; is that right?

WITNESS HOWER: That's correct.

Q Both nationally and international?

A We only focused on nationally.

Q Okay. Let's go to the entries now under this column, and if we could go -- bear with me. Actually just to clarify, to better understand the basis of the entries under the -- oh, that's right. Let's go to the fifth column and it's the heading "Practice at Aliso Canyon as of 10-23-2015."

So with each row in the table, just to get clarity on the meaning of these column headings, you're comparing the practice at Aliso as of 10-23-2015 with what you're calling the industry standard practices of 10-23-2015.

Am I tracking that correctly?]

A Yes, you are. That is correct.

Q Okay. With that understanding now, let's go to the next page and get to an entry.

So if we look at the entry "Well casing design," as -- towards the middle of the page as shown on the screen here --

Do you see where I am?

A Yes. How we are --

Q Okay. I want to unpack how you were using the terms in that row. Because I'm not clear exactly how the description of industry practice fits with what SoCalGas was doing at Aliso at the time of incident.

So there, in the case of well casing design, first we see "Dual barrier not required," "Dual barrier not required," under the first two columns there. And then we get to "Single barrier" in the third column.

So I just want to clarify, maybe if you could explain the difference between dual barrier and single barrier as used in that row?

A Sure. No problem.

Single barrier would be a situation where there's essentially one string of steel, one string of casing or steel, between the gas, the storage gas, and the reservoir

-- or the earth outside of the wellbore.

Dual barrier, you would have two -- two concentric steel barriers between the gas that was either being produced or injected and getting outside the well.

Q Okay. If I could use -- maybe this is slightly using lay terms. But could we say that the gas is running -- there's one pipe that's surrounding the gas in the case of single barrier. And then there are two pipes around the gas in the case of dual barrier -- well -- where the gas is only running through the inner pipe.

Is that a fair characterization? Or perhaps you have a correction to that.

A No. I think that's fair.

Q Okay. So here in the well casing design, we've talked about the Aliso wells, like SS-25, most of wells at Aliso are dual barrier; is that right?

A They were not operated as dual barrier, no.

Q I'm sorry. Thank you. I appreciate the clarification.

Most of them have been operated as single barrier?

A That is correct.

Q But they -- but they have -- even

though they are operated as single barrier, the wells have two, and in some cases more than two, pipes running into the ground; is that right? -- running downhole, if you will?

A That's correct.

Q Okay. And in the -- in the fourth column that we were -- the column heading that we were talking about before, the fourth column here, you say:

> 87 percent of all gas storage wells are single barrier.

Do you see that?

A I do.

Q And the fifth cell, you say, "single barrier operation." So you were just talking about that.

And it also says in that cell, I want to get to this, "Packer installed"; correct?

A Correct.

Q So what does "Packer installed" mean in terms of well casing inside?

A It means you have a tubing string inside the casing.

Q Okay. It means that "you have a tubing string," meaning -- just to unpack this in terms as a non-engineer so I can

understand this -- meaning, that you have got a tubing or a smaller pipe, a kind of smaller pipe, that's running inside the casing, or the outer pipe, all that way down to the bottom of the well. And the two pipes are supposed to be one inside the other and separated from one another; is that correct?

A That is correct.

Q And maybe you can help me understand, then you've got the term "packer" there.

So you're familiar with the term "packer"?

A Yes.

Q And what does that term mean?

A Well, a packer is a device that is installed to anchor the tubing at the base of the well. And, also, it provides a barrier for gas to be able -- for gas to get in the annulus between the tubing and the casing. So the gas would have to go up the tubing. And it cannot get past the packer and the annulus.

Q Okay. And just to unpack a couple of terms there -- I appreciate that answer.

The annulus is the space between the outside of the tubing pipe, if you will, and the inside of the casing pipe?

A That is correct.
Q Okay. Okay.
And if I'm tracking your answer correctly, it’s to say that where the packer is installed, it’s blocking gas from running up above it -- from running from the reservoir past it in the annulus.
Am I tracking that correctly?
A That is correct.
Q Okay. And it's possible, I think -- and I think this is tracking what you're saying -- to have a storage well with a dual barrier -- or two pipes -- maybe that's a better way to put it. Let me restate.
It’s possible that a storage well with two pipes, such as a tubing and a casing, operating as a single barrier well; is that right?
A That is correct.
Q And that's what you mean here; is that right, in this cell?
A Yes.
Q Okay. So this is to say that SoCalGas operates wells with dual -- two pipes, a tubing and a casing, as single barrier wells in Aliso.
Am I tracking you?

A Yes. In those cases, and almost all the cases, the wells are configured with tubing on packer. And the wells are operated using both the tubing and the casing tubing annulus.

Q Understood. Okay.

So because wells are -- have the -- at Aliso have the tubing and the casing, if you will, does that mean that SoCalGas intentionally injected and withdrew gas through both the tubing inside the tubing, as well as in the annulus inside the casing?

A Is your question did they intentionally operate on --

Q Yes.

A Yes.

Q Okay. And are there any entries in your table that discuss the percentage of natural gas storage wells in the industry that are both dual barrier, where the operator injected and withdrew gas through both the tubing and the casing?

Is that possible?

A That's a contradiction.

Q Okay.

A If you have dual barrier, you're not operating the well that way.

Q Let me restate it then.

Are there entries in the table that discuss the percentage of natural gas storage wells in the industry that are single barrier, but with two pipes, and where the gas -- the operator injected and withdrew through both pipes?

A No, not in this table.

Q Okay.

A I can tell you that most of the -- most of the -- in the figure that says 87 percent of all gas storage wells are single barrier, most of those are not going to have tubing and packer. Most of those will just be producing -- many of those will just be producing up the casing without tubing.

Q Okay. Understood.

Let’s go to the citation that's Footnote 22 in the fourth cell. And if we could scroll down -- actually, just for the record, if we could go back to the cell. I'm sorry.

If we go back and say:

> 87 percent of all gas storage wells are single barrier, Footnote 22.

And then if we go down to Footnote 22 -- excuse me. And there you reference

Exhibit I-6 Entitled "Underground natural gas storage operators, tubing -- quote:

> Tubing and packers in underground natural gas storage safety and reliability considerations, end quote. AGA/API/INGAA underground natural gas storage joint industry task force September 16th, 2016.

This is -- did I read that correctly?

A Yes, you did.

Q And I wanted to emphasize the date. That's a publication after October 23rd, 2015, the date that the incident began; correct?

A Yes.

(Audio interruption.)

BY MR GRUEN:

Q Okay. And just the terms "AGA," "API," and "INGAA," those are industry groups; is that right?

A That is correct.

Q Do you know if SoCalGas communicated with these industry groups regarding the publication of this document?

A I do not.

Q Okay. Let’s go to the Exhibit I-6 that you referenced in Footnote 22. And I

will give you both a chance to look at that.

And, Mr. Zarchy, if you could go to the exhibit I-6 in the supporting attachments of Mr. Hower and Stinson.

Your Honor, may we go off the record?

ALJ HECHT: Yes. Actually, it's a good time to go off the record because I think we are approaching our afternoon break.

Off the record.

(Off the record.)

ALJ HECHT: We'll be back on the record. We are going to take our afternoon break now until 2:30. And we will resume at 2:30. We'll be off the record.

(Off the record.)

(Recess taken.)

ALJ HECHT: All right. We are coming back from our afternoon break.

All right. We'll be back on the record. We are getting back from our afternoon break on Friday. And we are resuming cross-examination of the panel Mr. Hower and Mr. Stinson.

Mr. Gruen, you may proceed.

MR. GRUEN: Pardon me, your Honor. I seem to have developed a habit.

Q So we have on the screen share

Exhibit I-6, and Mr. Hower and Mr. Stinson, if you're following along and using a hard copy, if you will just let me know when you're there as well?

WITNESS HOWER: I'm there.

Q Okay. So if we go to the next -- the page that's SoCalGas5.00097, it should be just below. Okay. We'll just go here.

And we see here the title page of the reference from your footnote, the September 16th, 2016 document from AGA/API and INGAA, the natural gas joint industry task force.

Am I saying that correctly?

A Yes.

Q Okay. And I see the word draft marked here. So my -- do you see where I'm looking where it's showing "draft" in the big red letters?

A Yeah. It's hard to miss.

Q It's hard to miss.

So this was not a finalized document almost one year after the October 23, 2015 incident; correct? -- at the end, that date?

A Those dates are correct. Yes.

Q Okay. And I assume having a draft document here, there wasn't a final document

by the date your testimony was published; is that also correct?

A Not that we were able to locate.

Q Okay. So I just -- since Footnote 22 didn't provide a specific page number to this document, I couldn't find the information in this document that shows what you provide in the entry of the table that's the basis for that 87-percent number.

So I'm wondering if you could point me to where in this document it states that 87 percent of all gas storage wells are single barrier?

A It would be page 5, or SoCalGas5.0101.

Q Okay. And let's see if we can follow him, Mr. Zarchy.

If you want to tell us where to go on the document, we can follow you.

A Bullet point 4.

Q Bullet point 4 --

(Crosstalk.)

THE WITNESS: Slide five.

BY MR. GRUEN:

Q Go ahead. Slide five. Understood.

I think it’s one more. I see -- that looks like it might be slide four. So we've got slide five here.

Are we on the right slide?

A That is correct.

Q Okay. And what's that basis for your stating that there's 80 -- that 87 percent of all gas storage wells are single barrier based on this page?

A Well, the fourth bullet point states that:

> 13 percent of existing gas storage wells have tubing on packer completions.

And you can't --

Q So you're -- go ahead. I'm sorry to you interrupt you. Go ahead.

A So you -- you cannot -- you cannot have dual barrier flow without a tubing packer completion. Therefore, if you don't have a tubing packer completion, you have single barrier flow; 1 minus 13 percent is 87 percent.

Q Okay. So you're extrapolating that because this document states that approximately 13 percent of existing gas storage wells have tubing and packer installed in the well, the remaining 87 percent must be single barrier.

Am I tracking the logic?

A Yeah. And it would actually be

higher than 87 percent. Because you -- like the SoCalGas wells, you can have a tubing and packer completion and operate it single barrier.

Q I appreciate that perspective. So -- but let’s --- speaking to this for a second, the point would be SS-25 -- the point the of SS-25 in this context, if we look at your -- if we bear in mind your reference to SS-25, SS-25 is one of the wells among the 13 percent that's shown on this slide; is that right?

A Yes --

Q That contain -- and I'm sorry for interrupting.

A That's all right.

Q I think I may have jumped in front of you. I think -- for the court reporter, I think your answer was "yes" to that last question.

Did I hear you right?

A Yes, you did.

Q Okay. And that's because SS-25 has a tubing and packer like those other 13 percent; right?

A Correct.

Q Okay. Well, what -- let me ask you just about the numbers in this table.

If we go to the bottom of page 13 of this document -- so if we could scroll down. Okay.

And so here, based on looking at this, would you agree that there's some error built into the numbers and the table that's accounted for here based on what the information that's provided in -- on page 13 of this document?

A I'm not sure if I would call it error. I would call it uncertainty.

Q Uncertainty; fair enough.

So if you counted -- accounted for the uncertainty, the percentage of wells that are single barrier, in fact, could be significantly lower than the 87 percent that you identify in your table -- in your testimony; is that right?

A I think that would be unlikely; but, yes, it's possible.

Q Okay. And that's because if we look here, it’s -- there's an 80 -- estimated 80-percent response rate on the number of reported wells; correct?

A Correct.

Q Okay. If we could go back to your testimony so that we can see the table again; and, Mr. Zarchy, if you would, Chapter 1.

And I just wanted to clarify at the top, if we could go to the top, just with regards to the term "Industry standard practice."

Do you -- in -- at the heading on column four, does the term "Industry standard practice" mean the same thing as "Industry standard"?

A No.

Q Okay.

A As I said earlier, we defined industry standard practice as we mean it in the first footnote under that table --

(Crosstalk.)

BY MR. GRUEN:

Q Pardon me for interrupting. Go ahead. I wanted to be sure that your answer -- you defined industry practice, I understood you to say, in the footnote of the table -- I think it’s Footnote 15. I think that was your answer, but I wanted to be sure I got it right.

A That's correct. But when we use the term "Industry standard practice," we mean prevailing practice within the gas storage industry.

Q Okay. What's your understanding of the term "Industry standard"?

A I would interpret that to mean a formal documented standard. But it -- you could also use that term in other ways, I suppose. It could be a -- well, I guess you could use it to be a shorthand for industry standard practice, as we've defined it. But I would use it -- I would tend to consider it as a formal documented standard.

Q Formal documented standard that prescribes certain things, would that be fair?

A Sure. Yes.

Q Okay. Whereas, this is what the industry standard practice is, prevailing practice within the industry; your suggestion is that's what the industry is doing?

A Correct.

Q Okay. Do you know how many wells at Aliso have gas injection and extraction through both tubing and casing?

A The exact number, no, I don't.

Q Approximately?

A I think most of them; but I don't know the number.

Q Okay. And approximately how many wells at Aliso?

A 116 -- sorry -- 116.

Q Okay. Just to switch to a slightly

different line of questions, do you -- are you aware that all the violations in this set of hearings are safety violations pursuant to Public Utilities Code Section 451?

A Yes, I believe that's the case, to the best of my knowledge.

Q Okay. Do you know that Safety and Enforcement Division did not identify any violations in industry standards?

A I'll take your word for that. I'm not aware -- I don't have them all identified, no.

Q And in your view, does SoCalGas have an independent duty to operate its natural gas storage facility safely, regardless of what others in the industry are doing?

A Does it have an independent duty? Is that how you characterized it?

Q Yes, sir.

MR. LOTTERMAN: Your Honor, I'm going to object to that on legal grounds. I believe that calls for a legal conclusion.

ALJ HECHT: I believe that it does. Objection sustained.

MR. GRUEN: I'll rephrase.

Q Based on your engineering judgment, does SoCalGas have an independent duty to

operate its natural gas storage facility safely, independently, and regardless of what others in the industry are doing?

MR. LOTTERMAN: Same objection, your Honor.

ALJ HECHT: We'll be off the record.

(Off the record.)]

ALJ HECHT: We'll be back on the record.

While we were off the record, we discussed a little bit of the boundaries of the meaning of the word "duty" and of what is a legal versus an engineering question of judgment.

The SED attorney is going to rephrase his question and we will continue from there.

Please go ahead, Mr. Gruen.

BY MR. GRUEN:

Q Let me back up and ask a foundational question, if I can. This is directed to both of you.

Based on your experience and your engineering background, do you have an understanding of safe operation?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q And in your view, should SoCalGas

operate its natural gas storage facility safely, regardless of what others in the industry are doing?

WITNESS HOWER: Yes.

Q Mr. Stinson.

WITNESS STINSON: Yes.

Q Including the wells at Aliso Canyon?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q Understood. Let's go to a different line. So let's go to the corrected testimony, SoCalGas-4R, Exhibit SoCalGas-4R. Excuse me. And this is your Prepared Reply Testimony. And if we go to page -- the page identified as 8 here, you state -- there's page 8, and if you could scroll up slightly, Mr. Zarchy. Great. Just right there, line 10:

> SoCalGas act reasonably in investigating prior, quote unquote, "leaks" -- the quote ends there -- at the facility.

Do you see where I am?

WITNESS HOWER: Yes.

Q So, I'd like to understand why exactly you chose to use that word in your testimony and whether someone told you to

write the word "reasonable" in that heading.

WITNESS HOWER: I used that word -- I interpret "reasonable" to mean using sound judgment.

Q Okay. And did someone instruct you to write that word in your testimony?

A Not that I recall.

Q Do you have any communications with anyone at SoCalGas about the use of that word in your testimony?

A Not that I recall.

Q Let me ask you just in terms of your review of SoCalGas' investigation of prior leaks at Aliso, how many Aliso Canyon well files did you review?

A All of them, for every well.

Q Okay. And I think we may have asked, but I just want to be sure in this context, when did you first look at the well files?

A Again, I'm going on memory here and I can, if I go back to my records and my computer and look, I can get to an exact time. I am thinking it was summer of 2018. Let me, if I may, Charlie, do you have a better recollection than me?

WITNESS STINSON: No. I don't. I haven't looked.

WITNESS HOWER: So I --
Q Go ahead. I'm sorry.
(Crosstalk.)
WITNESS HOWER: Go ahead.
Q That's adequate. That answer is sufficient.
WITNESS HOWER: Okay.
Q If you're satisfied with the answer, then so am I.
ALJ HECHT: And a reminder to please not talk over one another. It's often a good idea to take a breath after the previous speaker finishes. Thank you very much.
MR. GRUEN: Understood, your Honor. I appreciate her Honor's instructions. And this is just for clarity of the record. So I'll do my best to give you a chance to finish, Mr. Hower and Mr. Stinson.
Q So just moving on from that, did you review the hard copy and electronic well files?
WITNESS HOWER: Yes.
Q All of them?
A All of the hard copy well files, not all of the electronic well files.
Q Okay. And did you clarify with SoCalGas whether these well files were in the same state, comparing the date that you

reviewed them with the date they existed at the time of the incident?

A I don't believe I asked that question, no.

Q Okay. In your experience, about how many pages, give or take, were in each well file?

A It varied. Some are as big as phone books and others are not. It really depends on the history of the well.

Q Okay. Do you recall what the title of standard folders are in the Aliso well files?

A What do you mean "standard?"

Q What the title of different folders, the organizational structure of the given well file is?

A Well, there were -- my recollection there were three different collection of well files. Some dealt with well histories. Some dealt with surveys, tests, logs, and others dealt with or contained invoices.

Q And you're familiar with the term "casing failures" as it relates to the casing of a well of an underground natural gas storage facility such as Aliso; is that right?

A Yes.

Q And also casing failure analysis, right?
A Yes.
Q What does the term "casing failure analysis" mean to you?
A To do an evaluation and determine why the casing failed.
Q Okay. And I think, just to clarify, I think you've seen a casing failure analysis for participating in this proceeding but you haven't done one; is that right?
A No. I've done plenty of them.
Q Okay. My mistake. Okay. So, wells that had casing failures, would you expect to find an analysis of the failure, such as a failure analysis in the well file?
A Well, Mr. Gruen, I think it depends on what you mean by "analysis." You said would I expect to find an analysis. I think what you're looking for or asking about is a document, but by doing a workover, identifying the leak and repairing the leak, that's also an analysis and a solution to the casing failure.
Q Okay. So that is to say that -- I think just to be sure that we're getting an answer to the question, if we use the term "document," I appreciate your distinction, we

use the term "document" to -- and we've identified whether documents capture a failure analysis in the well file, would you expect to see documents that show failure analysis, a failure analysis in a well file?

A Not all the time, no. I think and just to expand, some casing -- some casing leaks are easily explained, easily fixed, easily mitigated and really require nothing more than an entry in the well file showing the activity.

Q Okay. Let me just parse that view for a second. So if you've done a workover and you don't show a failure analysis and let's say that some or all of the people who did the work, for whatever reason, no longer become available, can't ask questions of them anymore about what happened or why, is that a concern for you?

A Again, it depends upon the situation. If it's a simple casing leak, with a simple easily-explained cause and it's mitigated, any engineer that is familiar with the wells and the operations can go to that and look at the work that was done and he or she will know what the cause was, why the casing failed and how it was fixed.

Q Just so we're clear on the term

"cause" as you're using it in that answer, are you talking about a cause from a strict metallurgical perspective then or are you considering environmental factors as well?

A Again, similar to the last time we talked about that, it could be something like corrosion. It could be a mechanical issue. It could be something to do with environmental. It depends.

Q So your view is that it's not necessary to document the environmental factors that caused a leak, or excuse me, caused the failure.

A That's not what I said. You keep using the term "document" and you want to see a report I am guessing. Maybe I'm putting words in your mouth, but it seems like what you want is there to be an entry in that well file that's a written report, and I am telling you that that is quite often not the case. But it's just as good of a documentation to do the well work and clearly explain why the well work was done or the work that was done to understand why it was done and what the cause was that necessitated the work.

Q Without having a document to capture that?

A I consider the workover history of a well a document.

Q When you say "workover history," you consider it a document, what would explain in the workover history -- which documents would explain the workover history that was done?

A The daily workover records.

Q Okay. So you would -- it would be your understanding that the daily workover records should be included, in order to, at a minimum, in order to be part of the document of failure analysis; is that right?

A Yes. I think that the workover records that would describe the work that was done, the type of leak that it was and how it was repaired, yes, I think that would be important.

Q Okay. If I could turn to a new line now. I want to ask you some questions regarding your description of SoCalGas practices regarding investigation and assessment of well casing failures.

So with that introduction, if you would refer to page 10 of your reply testimony, and Mr. Zarchy, if you would, and if we go to lines 11 through 14, and there it says:

Based on information collected from the casing inspection log and other tests and observations made in the course of the workover, SoCalGas was often able to assess the probable cause or causes of the issue.

Do you see that?

A I do.

Q Your testimony is not to provide any specific examples to support that statement though, correct?

A There are no specific examples cited in the paragraph that we're looking at, correct.

Q Okay. Did you write that sentence?

A I honestly don't recall. I think I did because I drafted most of this report, but I don't recall if I wrote this specific sentence.

Q Okay. Did you see this inspection log?

A Which inspection log?

Q Pardon me. I think I misstated that. Let me ask you about another part of the passage that we just read.

The other tests, based on information collected from the casing

inspection log and other tests, what do you mean by "other tests" there?

A Other work that would have been done to identify the location of the leak or the -- confirm the leak; for example, a pressure test to determine if there was indeed a leak. So generally mechanical tests that would have been done at the time of the workover.

Q Okay. Have you seen or have you observed a workover at Aliso before?

(Audio recording interference.)

ALJ HECHT: We will be off the record.

(Off the record.)

ALJ HECHT: We will be back on the record.

There was a strange noise on the line and I wanted to acknowledge that and ask about it. I am not going to worry about it. We are going to continue with the cross-examination, noting that we have another 40 minutes or so today before we break for the weekend.

Mr. Gruen, you may proceed.

MR. GRUEN: Thank you.

Q Okay. Let's go back to the passage, gentlemen, both of you.

Mr. Hower, I know you have been

taking the lead, but of course you're still welcome to input, Mr. Stinson, and I am assuming when you're not replying, it's because you have nothing to add. Am I correct in that?

WITNESS STINSON: That's correct.

Q Okay. Continuing on then, based on information collected from where you say in your -- the passage we've indicated in your testimony, "based on information collected from the casing inspection log, other tests and observations made in the course of the workover," do you see where I am looking?

WITNESS HOWER: Yes.

Q That's what I am referring to. When I use the term "inspection log" I am referring to that reference specifically. So what -- when you use "inspection log" there, what is the casing inspection log?

A It would have been a casing inspection log that was run at the time of the workover to identify the location of the leak.

Q Would have been. Did you see this inspection log?

A Do you mean actually being run in the field or do you mean the end product, the log itself, no. I mean. Well, as to the

first one, seeing the log being run, no, some of these logs were run in the '90s and historically. So we weren't present for any of those logs being run, but the casing -- the logs themselves were available for us to review, yes.

Q Okay. Do you see a noise log related to this?

A Again, related to what?

Q Did you see a noise log related to the information collected from the casing -- oh, I see. Bear with me. Let me restate.

Are you -- let me just say, when you talk about a casing inspection log, are you specifically referring to a noise log or are you making a more general statement about the log here?

A When I say a casing inspection log, I am not talking about a noise log. We're talking about the temperature logs or surveys are run, noise logs are run, and then if a workover is done to go in and remedy a leak, a casing -- many times a casing inspection log would be run. So that's a separate tool.

Q Okay. Let's go to another line. If we go to page 12 of your corrected redline reply testimony, and starting at page -- at line 4 there. So, there -- underneath there,

you're disputing I think, if I am reading this right, you dispute SED's testimony that:

> SoCalGas failed to perform failure investigations, failure analyses or root cause analyses on failed Aliso Canyon wells, despite more than 60 well casings experiencing leaks, four having parted casings.

You know. I think we're on the -- can we go off the record a moment, your Honor?

ALJ HECHT: Yes. We'll be off the record.

(Off the record.)

ALJ HECHT: All right. We'll be back on the record. Please go ahead.

MR. GRUEN: Thank you, your Honor. Pardon me.

Q Let's start at line 7, so where you say:

> SED alleges that SoCalGas failed to perform failure investigations, failure analyses or root cause analyses on failed Aliso Canyon wells, despite more than 60 well casings experiencing leaks, four having parted casings and several wells having casing corrosion

identified. Therefore, SoCalGas lacked important information and background to properly anticipate the extent and consequences of corrosion in its other wells, including Well SS-25.

Do you see where I am reading?

WITNESS HOWER: Yes, I do.

Q Okay. And on line 13, you recognize that SED's testimony is based on the Blade report, correct?

A Correct.

Q And at line 23, if we scroll down and onto the next page, you identify leaks you believe Blade incorrectly included within its list of casing failures; is that right?

A That's correct.

Q Okay. So on page 13 at line 1, you talk about Blade's list of 63 casing failures. Do you see that?

A Yes.

Q Did you personally review the well files for each of these wells that you identify in these sections -- in this section? Excuse me.

A Yes.

Q Okay. And I think you said you looked at the well files. When did you say

you looked at them again?

A It was over a period. We -- again, I believe the starting point was somewhere around the summer of 2018, but Mr. Stinson and I made, I believe, three, possibly four trips where we spent a significant amount of time with the well files going through them one at a time, individually.

Q Okay. And just these particular documents, these well files, excuse me, that are referencing the wells that you note here that relate to the wells that you note here, were these -- was your review of these particular files in hard copy form or electronic?

A We had access to both, but Mr. Stinson and I, not being as young as we used to be, we're old school and we prefer using the hard copy.

Q So you looked at the hard copy well file for SS-25, as well?

A That's correct.

Q Do you recall was it in a four-part folder?

A I don't recall.

Q Okay. For the others that are listed here, four-part folder?

A They were multi-part folders, yes.

I don't -- I don't have a count as far as how many each. Three or four parts, sorry, my apologies. But three or four parts would have been my recollection for almost every one, yes.

Q Understood. And I will do my best not to jump in as well. I recognize you may need some time to think through to complete your answer. So, understood.

Okay. Let's go to the first bullet then, starting on line 2. And there you say:

> Eleven casing leaks -- and you list them -- identified by Blade, were actually discovered in wells before SoCalGas operated the field or during initial conversion of the field underground gas storage. One of these leaks, SS-17, happened in 1952 and occurred during the original drilling of an oil and gas production well by SoCalGas' predecessor. This leak occurred 20 years before the conversion of the field to gas storage and cannot be attributed to SoCalGas storage operators (sic) and need not have been investigated by SoCalGas.

Do you see that?] (
A I do.
Q Okay. And so here, just the 11 casing leaks in this bullet include Wells P-12, SS-14, SS-17, P-47, P-25R -- and I think the "4x" means four times for P-25R. You can correct me at the end -- FF-35E, also twice, and SF-2.
Did I capture that correctly?
A Yes.
Q And at line 11 there, you state:
> SoCalGas' identification and remediation of these casing failures simply validates the process that SoCalGas used to inspect and repair, if necessary, all wells prior to putting them into service for gas storage.

Do you see that?
A Yes.
Q Can you tell me if SoCalGas conducted failure investigations on these wells?
A Yeah, I believe they did.
Q And that's based on your clarification that we're not necessarily talking about documents but workovers; is that right?

A Right. I guess let me clarify my previous answer. I mean these wells, as I stated, were wells that were identified as having leaks, casing leaks, when SoCalGas began -- before storage operations when they were converting the well to storage.

So at that stage, what I'm getting at is, SoCalGas did not have a history with this field so all previous operations would have been part of the original operation of the field as an oil reservoir. But to the extent I answered your question as far as casing failure analysis, these wells were -- the casing leaks were identified, the casing leaks were located, and they were repaired. And, yes, through that process, you gain an understanding of what caused the leak and what needs to be done to manage that in the future.

Q But you're not seeing documents that show these failure analyses, you're not talking -- you're not understanding failure analysis to refer to the term "documents" other than -- what was the term you used -- was it daily history? You're not talking about a specific type of failure analysis that showed the kind of detail that the Blade root cause analysis did for SS-25 for these

other wells; is that right?

A That is correct.

Q I just want to be sure because your answer had a little bit in there. You're talking really about documentation that's showing the workovers instead of more than that; is that right?

A It's documentation showing workovers, it's compiling information about which wells had leaks, at what depth those leaks were, where the well was located in the field, what was the cause of the leak, was it corrosion, was it mechanical, it's that kind of information.

Q Okay. Do you know, did the predecessors of who owned these wells before SoCalGas conduct failure investigations?

A I do not know.

Q Okay. Would you agree that SoCalGas should have reviewed -- and maybe it did -- but would you agree that SoCalGas should review the history of the wells that it acquired in the case of Aliso?

A Yes.

Q And specifically in assessing the quality and value of the wells that SoCalGas was intending to acquire, should SoCalGas have considered records that showed previous

casing failures in particular?

A I don't think I can say that that -- I can't agree with that because -- and the reason why is that when SoCalGas came in and went through the process of converting the field to storage, that's a big undertaking. At that point you're looking at every well in the field. They went -- when they went through the process of converting -- when SoCalGas went through the process of converting the field to storage, they looked -- they evaluated every well. They pressure tested every well.

So they essentially did a field-wide study and analysis and evaluation to determine which wells had compromised casing, which wells didn't, and the general condition of all of the wells that were in the field at the time. So I think that exercise really is a large study and evaluation in itself and would give them the understanding they needed that would be appropriate in going forward.

Q I think the gist of what I'm understanding from that is once SoCalGas pressure tested wells, that was sufficient in your view, even if they didn't see the history of failure analyses, documented

failure analyses, from the predecessor from which they acquired Aliso.

Am I tracking right?

A No. First of all, I didn't mean to imply -- if I did, I didn't mean to -- imply that pressure testing was the only thing they did. They got on every well. They inspected every well. You don't do that without looking at the well records.

You would never go out into a field and get on a well and enter that well to inspect it, to pressure test it, to test its suitability for gas storage operations -- you would never do that without reviewing the well records.

(Crosstalk.)

BY MR. GRUEN:

Q What's your basis -- I'm sorry for interrupting. I didn't realize you weren't done.

A I was just going to add, unless for some reason if there were a well that the records were lost or unavailable, then you'd have no choice. But if the records were available, I'm relatively certain that they would have been looked at prior to ever going out on the well.

Q What's your basis for saying that

SoCalGas got on every well if you will?

A I -- that's what's required when you convert a field to storage. You need to inspect every well. You -- the regulatory authorities, not just in California, but in my experience, any time I've worked on a storage field where we're converting an existing oil or gas field to storage, you have to physically inspect and mechanically test every well that you want to use going forward in storage operations.

Q Okay. So it's based on your understanding of the regulations, not your review of what -- or not your personal observation clearly -- and '72 was a long time ago when they acquired -- but it's based on -- you're talking about what you would expect based on regulatory requirements at this point. I just want to be clear for the record.

Am I tracking right?

A No. It's based on what I would expect, but it's also based on many conversations that Mr. Stinson and I had with Mr. Neville and other staff at SoCalGas because we -- looking at and evaluating the practices that SoCalGas used to convert the field was part of our scope.

Q Okay. Let's look. I believe you've got -- to support your assertion that Blade incorrectly listed 11 casing leaks, you cite to various supporting exhibits I see. In your recollection, if I could ask you, are these exhibits daily reports of the Division of Oil, Gas and Geothermal Resources?

A I think -- I'd have to look, but I believe a lot of them are the actual workover records that I was talking about, and so those would have been maintained by SoCalGas but probably also submitted to DOGGR.

Q To DOGGR. Okay. Both workover records and submissions to DOGGR then. I appreciate the correction.

Am I tracking right?

A Yes. And, again, I'd have to refresh my memory and go through all the exhibits. There's quite a bit. But I would generally refer to them as the workover records.

Q Okay. I'll see if I can work with that term as you've described it. Thank you. And the workover records describe actions done to fix the well casings; is that right?

A That's correct.

Q Okay. So let's take a look at one of the well casings, one of the workover

records, rather. Do you see the reference to Well P-25R?

A Yes.

Q Okay. And I noted this one in particular because the four times it leaked, so it might be a particularly informative one. P-25R was the one that had four casing leaks; is that right?

A Yes.

Q Okay. And in P-25R then, I think, if my vision is good enough, we're looking at Footnote 54.

And so that's Exhibit I-20, if you'll scroll down on the page, Mr. Zarchy. And maybe if we could enlarge slightly so everyone can see.

And so Footnote 54 is referring us to I-20 at the pages 138 to 144 and 149, if I'm tracking right.

Gentlemen, does that look correct to you?

A Sorry. I was trying to get ahead of you and find the exhibit. I'll take your word for it.

Q Okay. Let's go to the exhibit then.

(Crosstalk.)

MR. GRUEN: Your Honor, if we could go

off the record.

ALJ HECHT: We will be off the record.

(Off the record.)

ALJ HECHT: We'll be back on the record.

Please continue.

MR. GRUEN: If we could turn to Exhibit I-20, Mr. Zarchy, if you would.

ALJ HECHT: And we'll be off the record.

(Off the record.)

ALJ HECHT: We'll be back on the record.

BY MR. GRUEN:

Q Exhibit I-20 you see on the screen share? I assume you're both there, gentlemen?

WITNESS HOWER: Yes.

WITNESS STINSON: Yes.

Q If we scroll down to the Bates -- the page with Bates stamp 50748. Okay. I believe this version does not have the Bates stamp. We don't have a Bates number on this one so I'll endeavor to identify it another way. This is a DOGGR Notice of Intention to Rework Well.

Do you see that?

WITNESS HOWER: Yes.

Q And the rework of the well is for Porter 25; correct?

A Correct.

Q And the stamp, to the best I can see, is April of 1970 -- and I can't make out the last year. Can we tell what year is shown in the upper right corner of the document? Maybe it's 1977.

A It appears that, but I can't be certain.

Q Under "The proposed work" heading toward the bottom, there are five steps if we could scroll down.

Do you see those?

A Yes.

Q The first one discusses moving in and killing the well.

Do you see that?

A I do.

Q Doesn't the phrase "Return to Gas Storage" mean that P-25 is already operating to serve gas storage prior to this well kill?

A I don't think you can say that, no. I -- returned the well to operations and at that time it was gas storage. I don't know that it tells us anything about what the well was being used for before that.

Q Okay. But here we see that the

bottom of this document, the operator is SoCalGas Company; correct?

A Yes, that's correct. That's who did the workover.

Q Do you know when this workover was done?

A Based on the page we're looking at, no. I can't read that date as we discussed. It might be 1977. But based on this page, I cannot.

(Crosstalk.)

BY MR. GRUEN:

Q I'm sorry to interrupt. Go ahead, Mr. Stinson.

WITNESS STINSON: There appears to be more than one document in this particular exhibit. Page 2 shows the operation by Pacific Lighting Service Company dated 1973, and that's where the work occurred that we're referring to here. You can see the first activity is pull the sucker rods, which means it was an oil well, it's now being converted. So that's the specific reference for the work that's in this -- in our testimony.

Q Thank you. If we could follow you just on the screen share. So, Mr. Stinson, just if you'd look up at the screen so we can show others looking on.

Mr. Zarchy, if you could scroll down to the next page.

Is this the page that you're referring to?

A Yes.

Q And in this case, Mr. Stinson, the operator is Pacific Lighting Service Company; correct?

A Correct.

Q So is this the same workover then as the prior one where the operator is shown to be SoCalGas?

A My understanding is Pacific Lighting Service Company was a predecessor for this underground storage development to SoCalGas.

Q I appreciate that and I understand that, but wouldn't it also -- for the same workover, wouldn't the same company name have been used, not the predecessor's name?

ALJ HECHT: Can we hear from Mr. Hower since he seems to have a response.

MR. GRUEN: I appreciate that. Thank you, your Honor.

WITNESS HOWER: If we go back to the page you were on with me, 50748.

MR. GRUEN: Okay. If you could follow, Mr. Zarchy.

WITNESS HOWER: That is a workover that was done presumably after the fact, after the one you're looking at with Mr. Stinson, and if you look at the proposed work that we were discussing at the bottom of the page, it looks like the work was running tubing and a subsurface safety system.

MR. GRUEN: And if I can, Mr. Zarchy, just if we could follow you on the screen share.

Q Mr. Hower, I know you're using your own document, but just so we're consistent, do you want us to scroll down on the screen share so we can see where you're referencing?

A Yes, please.

Q And just tell us, if you would, where to go on the screen share.

A Keep going down a little bit more. Okay. Stop right there, please.

So right in the center there it says, "The proposed work is as follows: Move in, kill well, install blowout prevention equipment, recover the packer."

And you see that the work in No. 5 is "Run tubing and safety system" and then "Return to Gas Storage." So the way this data looks like to me, if we combine this page and the page that you and Mr. Stinson

were talking about, this work was done apparently in 1977 and it has nothing to do with the casing leaks discussed in our reply report. It had to do with running a subsurface safety system in and putting the well back in storage service.

Q Let's go to the next page if we could scroll down. This is the one where, Mr. Stinson, you were just referencing from October 24, 1973, done by Pacific Lighting.

You see where I'm looking?

WITNESS STINSON: Yes.

Q If we go toward the middle of the page, it says --

Mr. Zarchy, if you could scroll down slightly.

Do you see the entry? I believe it's January 22nd. It says "filled hole"?

A Yes.

Q And the entry toward the middle of the page with regards to that, would this document show leak No. 2 on P-25 then?

A Leak No. 2. I'm not following you.

Q The second leak. Didn't P-25 have four leaks according to your testimony?

A No. I believe this whole set of work from January 19, 1973, for the next three months was the testing and conversion

of this well for underground storage. It involved isolating those and then repairing those leaks that we documented in our testimony.

Q Okay. Let me just back up for a second. Mr. Hower, I think you mentioned that the prior document doesn't have to do with the leaks that are referenced in your testimony.

Did I track that right?

WITNESS HOWER: That's how I interpreted it, yes.

Q Why is it provided as a supporting exhibit then when it's referenced there by your testimony? Do you know?

A I don't. I don't know that.

Q Let's go to the next document here in Exhibit I-20. I believe if we scroll down to the next one --

ALJ HECHT: This is Judge Hecht. I'm going to point out that I would like to wrap up in about five to seven minutes. Is this a line that can be done in that time?

MR. GRUEN: Your Honor, I think we can wrap up here. We could end for the day and perhaps adjourn slightly early for the weekend if you'd like --

ALJ HECHT: I do want to --

MR. GRUEN: -- or do housekeeping.

ALJ HECHT: I do want to do some housekeeping before the end, so if you think that this can be done in about five to seven minutes, let me know and you should go ahead. Otherwise, I would prefer to stop for today. We will be having Mr. Hower and Mr. Stinson back Monday morning.

MR. GRUEN: Understood, your Honor. In that case, why don't we end it here for the day.

ALJ HECHT: Thank you.

Thank you very much to witnesses Hower and Stinson. I appreciate your time. This has been very helpful going through this information. Among other things, I've learned a little bit about the history of Southern California Gas Company and that it had a predecessor that was Pacific Lighting. I'm sure that the Commission has records of transfers of control and all kinds of stuff that I am not familiar with but must be out there.

With that, I'd like to do any housekeeping. I'm going to go off the record to identify whether there is anything to discuss and ask a couple of questions and then we'll come back on to adjourn. We'll be

off the record.

(Off the record.)]

ALJ HECHT: We'll be back on the record.

Thank you, everybody. This is the end of the day on Friday. We'll be reconvening on Monday morning at 10:00 a.m. We will resume cross-examination of this witness panel, Witness Hower and Witness Stinson.

While we were off the record, we discussed that we do not yet have an update on the Boots and Coots witnesses and their appearances. And we confirmed that things seem to be remaining on the time schedule that was last presented to us by SED.

With all of that, if there are no other housekeeping items, I'm going to adjourn.

(No response.)

ALJ HECHT: All right. Let’s adjourn for the day. We'll be off the record.

(Whereupon, at the hour of 3:45 p.m., this matter having been continued to May 10, 2021, Commission then adjourned.)

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BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE

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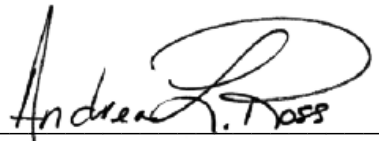

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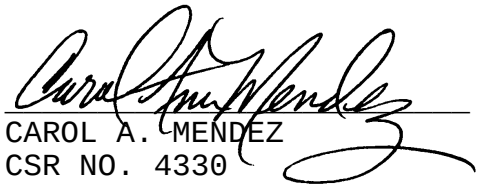

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