

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE  
STATE OF CALIFORNIA



**FILED**  
05/17/21  
03:21 PM

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

Order Instituting Investigation on ) EVIDENTIARY  
the Commission's Own Motion into the ) HEARING  
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 ) Investigation  
Uncontrolled Release of Natural Gas ) 19-06-016  
from its Aliso Canyon Storage )  
Facility. (U904G) )

REPORTERS' TRANSCRIPT  
Virtual Proceeding  
May 10, 2021  
Pages 2461 - 2617  
Volume 18

Reported by: Andrea L. Ross, CSR No. 7896  
Shannon Ross, CSR No. 8916

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

I N D E X

WITNESSES:	PAGE
CHARLIE STINSON and TIM HOWER Cross-Examination Resumed By Mr. Gruen	2468
CHARLIE STINSON and TIM HOWER Cross-Examination By Ms. Bone Redirect Examination By Mr. Lotterman	2546 2567

Exhibits:	Iden.	Evid.
SoCalGas-04.2		2594
SoCalGas-04-R		2594
SoCalGas-05		2594
SoCalGas-27 and		2594
SoCalGas-28		
SED-302, SED-303 and SED-304		2595
SED-306		2595
CalAdvocates-408		2595
CalAdvocates-410		2595

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

VIRTUAL PROCEEDING

MAY 10, 2021 - 10:05 A.M.

\* \* \* \* \*

ADMINISTRATIVE LAW JUDGE HECHT: We'll be on the record. This is -- I don't even know any more what's the day -- I think 18 of hearings the Aliso Canyon adjudicatory OII. The number is Investigation 19-06-016. We are resuming hearings today on Monday and we are continuing the panel of witnesses that we started last week, Witnesses Hower and Stinson.

Before we begin with that, I will remind witnesses Hower and Stinson that they made attestations and things last week and that those still apply.

I understand for everybody else that we have some housekeeping issues that we should discuss, one of which is schedule and whether we think that this panel is going to take all day for cross-examination and how much of tomorrow for redirect or whether that schedule might be shifting.

I was going to wait until a little later to do that, but Mr. Gruen suggests we get an understanding of it now for the purposes of knowing whether to serve cross-examination exhibits, I believe.

1 MR. GRUEN: Yes, your Honor.

2 ALJ HECHT: Mr. Gruen, what is your  
3 concern?

4 MR. GRUEN: Just to know whether  
5 Mr. Schwecke would -- if Messrs. Hower and  
6 Stinson should run shorter than anticipated  
7 by the schedule due to any of the parties  
8 limiting their time, I think we're likely to  
9 keep our cross-estimate ready for  
10 Messrs. Hower and Stinson about where we are.

11 I believe SoCalGas may have  
12 indicated off the record that they may not  
13 use all of the redirect time that they had  
14 reserved maybe. And if it turns out that we  
15 finish up with Messrs. Hower and Stinson  
16 before the -- earlier than the cross-estimate  
17 contemplated, then the question becomes what  
18 do we do with the remaining time tomorrow?  
19 Should we use that time to cross-examine  
20 Mr. Schwecke or not because, if we do, just  
21 we're mindful of the need perhaps to serve  
22 any exhibits we may have today in order for  
23 us to be able to properly examine him  
24 tomorrow.

25 With that, I might suggest it might  
26 just be cleaner if we avoid cross-examining  
27 Mr. Schwecke just to avoid any interruption  
28 in the flow of the cross and, therefore, we

1 wait until after tomorrow to begin the  
2 cross-examination of Mr. Schwecke.

3 ALJ HECHT: Thank you. I think that  
4 that leaves me with a couple of questions,  
5 the first of which is that the Public  
6 Advocates Office estimated having minimal  
7 cross, it looks like not more than about an  
8 hour for this panel.

9 Do you think that is still accurate?

10 MS. BONE: Yes, your Honor that is  
11 accurate. We are also willing to waive cross  
12 if SoCalGas is willing to allow us to  
13 stipulate to entry of our exhibits into the  
14 record. Those are Exhibits 408 and 410,  
15 CalPA Exhibits 408 and 410. So if SoCalGas  
16 will stipulate to entry, we do not have to do  
17 cross of Mr. Hower and Mr. Stinson.

18 ALJ HECHT: All right. I appreciate  
19 that. I don't want to discuss the exhibits  
20 now because I think it depends on how things  
21 go today but it is good to know that and it's  
22 something we can all be thinking about and  
23 check out.

24 It looks to me, then, like we have  
25 most of the day of cross from SED for this  
26 panel and then however much redirect we  
27 expect to get from SoCalGas after that,  
28 which, of course, again, depends on how

1 things go today.

2 I would say that if we finish with  
3 this panel after noon tomorrow, I definitely  
4 would not want to start with Mr. Schwecke. I  
5 don't feel that that would be the best use of  
6 time, but if we finish tomorrow at some point  
7 before lunch, I think it's kind of an open  
8 question.

9 So now I will ask SoCalGas if they  
10 have any preferences and then go back to the  
11 other parties.

12 MR. STODDARD: Thank you, your Honor.  
13 Having heard the exchange and given that  
14 there may be -- you know, sounds like SED is  
15 planning to go the entire day today and, in  
16 light of that, I think it probably just take  
17 it as we go. If we were to have a few hours  
18 of redirect tomorrow morning because SED uses  
19 today, it sounds like your Honors' preference  
20 would be to keep the schedule as is, which  
21 probably makes sense given the break. And so  
22 we can just see how the day progresses and  
23 maybe revisit in the afternoon if that is  
24 okay with your Honors.

25 ALJ HECHT: I think that's fair enough.  
26 Do we have any concerns or  
27 objections from Public Advocates or SED?

28 MR. GRUEN: Only the matter of timely

1 service of exhibits, your Honor. If we don't  
2 know today and we decide we need to serve  
3 exhibits today -- if we don't know if we're  
4 cross-examining Mr. Schwecke tomorrow, then  
5 we won't know whether it's timely to serve  
6 them today.

7 ALJ HECHT: Certainly. And in light of  
8 that, I think that I probably would not hold  
9 me to a 1 o'clock deadline today to serve  
10 them since we're going to see what happens,  
11 so let's just see what happens.

12 MR. GRUEN: Okay.

13 ALJ HECHT: All right.

14 With that, are there any other  
15 housekeeping issues that anybody wants to  
16 address before we go back into  
17 cross-examination?

18 (No response.)

19 ALJ HECHT: I am not seeing any. That  
20 being the case, I'm going to say, Mr. Gruen,  
21 you may resume cross-examination.

22 I do want to thank witnesses Hower  
23 and Stinson for coming back this morning. I  
24 know having a break over a weekend and still  
25 coming back is not the best thing, but I  
26 appreciate that you have made this time and  
27 that we can hear from you.

28 Mr. Gruen.

1 MR. GRUEN: Thank you, your Honor.

2 CHARLIE STINSON and TIM HOWER,  
3 resumed the stand and testified further as  
4 follows:

5 CROSS-EXAMINATION RESUMED

6 BY MR. GRUEN:

7 Q Good morning, Mr. Hower, and good  
8 morning, Mr. Stinson.

9 WITNESS HOWER: Good morning.

10 WITNESS STINSON: Good morning.

11 Q Just to refresh our memory coming  
12 back from the weekend, I wonder if we might  
13 be able to just unpack or define a couple of  
14 terms that were used on Friday and just move  
15 forward with that. I think we used the term  
16 "failure analysis" several times on Friday.

17 Do you recall the use of that term?

18 WITNESS HOWER: Yes, I do.

19 Q So with regards to the term  
20 "failure analysis," is that a term that  
21 metallurgists use strictly to discuss metal  
22 failure?

23 A No, I don't think so.

24 Q Okay. How about the term  
25 "workover." The term "workover" is a term  
26 used, generally speaking, to refer to the  
27 killing of a well.

28 Would you agree with that?

1           A    No, not necessarily.  I think the  
2 term "workover" is a broader term that really  
3 can apply to any time you need to do work on  
4 a well, and that might not always entail  
5 having to kill the well.

6           Q    Okay.  But it's limited to work  
7 that's done on the well that includes killing  
8 the well; is that accurate?

9           A    That's correct.

10          Q    Okay.  And so during the workovers,  
11 if there was a workover related to a leak on  
12 a well, then SoCalGas used the workover to  
13 examine the location -- or maybe more  
14 precisely put -- the depth of the leak in the  
15 well; is that correct?

16          A    I didn't follow the question.  Are  
17 you asking me if location and depth are  
18 equal?

19          Q    No.  Workovers -- when a workover  
20 is done --

21          A    Yeah.

22          Q    -- on a leak in a well for  
23 SoCalGas, is SoCalGas examining the location  
24 and depth of the leak as part of the  
25 workover?

26          A    Yes.

27          Q    Okay.  But when doing a workover,  
28 one does not look at the outside condition of

1 the casing in a well; is that correct?

2 A That is correct.

3 Q In doing these workovers, did  
4 SoCalGas investigate how or why the casing  
5 failures were caused?

6 A Yes.

7 Q Okay. Let me just clarify that  
8 explanation. Did the workovers -- as part of  
9 the causes, did the workovers in particular  
10 consider water that was on the outside of the  
11 casing that was related to the cause of the  
12 leak if it was?

13 A Yes.

14 Q Did it consider external corrosion?

15 A Yes.

16 Q Did the workovers consider  
17 deteriorated cement?

18 A Yes.

19 Q Did the workovers consider missing  
20 drill mud?

21 A That I don't know.

22 Q Did the workovers consider what was  
23 causing how or why the corrosion -- what was  
24 the cause of the corrosion?

25 A Yes.

26 Q Did the workovers consider other  
27 environmental factors that could cause the  
28 leak?

1           A    Such as?  What kind of  
2 environmental factors are you talking about?  
3 Could you be more specific.

4           Q    Let's say the -- whether the -- a  
5 fault line, for example, twisted metal --  
6 twisted the metal of the wells and,  
7 therefore, was -- had something to do as a  
8 factor in the cause of the leak?

9           A    I'm aware of a few specific cases  
10 where those types of effects were considered,  
11 yes.

12          Q    Okay.  Which cases?

13          A    Well, the Northridge earthquake,  
14 for one, had an impact on a well, so that was  
15 an obvious case.  I believe we -- Mr. Neville  
16 spoke last week about the study that looked  
17 at potential for landslide impact on wells  
18 and work that was done on those wells because  
19 of their location relative to that study.

20          Q    Okay.  Let's go to page  
21 Exhibit 4-R, SoCalGas-04-R, page 25, if we  
22 can, please.  We'll go to line 17.

23                   And I'll wait, Mr. Zarchy, if you  
24 could pull that up.

25                   Again, just for the record, this is  
26 Prepared Reply Testimony, Exhibit  
27 SoCalGas-04-R.  I believe this is the  
28 Corrected Version of the Prepared Reply

1 Testimony of Messrs. Hower and Stinson of MHA  
2 Petroleum Consultants, March 20, 2020. This  
3 is the original service date of the original  
4 testimony. Let's go to page 25. If we could  
5 scroll down. There's page 25. If we could  
6 go to line 17.

7 Here you see subheading f. You  
8 talk about cathodic protection is not the  
9 industry standard and was not necessary for  
10 SS-25.

11 Do you see where I'm looking?

12 A Yes, I do.

13 Q If we could pull up the next  
14 exhibit, which is Exhibit SED-303.

15 Your Honor, we tried, but we  
16 weren't able to place a cover page on this  
17 document. I suspect it may have been for  
18 proprietary reasons that the document  
19 actually prevented us from adding or  
20 manipulating it in any way, but I did want to  
21 clarify that.

22 But for the record, if I could read  
23 this, this is Exhibit SED-303. The top of it  
24 is entitled NACE International, Standard  
25 Practice Application of Cathodic Protection  
26 for External Surfaces Of Steel Well Casings.

27 Let me just ask you with this.  
28 Mr. Hower and Mr. Stinson, are you familiar

1 with the information on this document?

2 A Yes.

3 Q And here we see the date of this  
4 standard is 2007 in the upper right corner;  
5 correct?

6 A Correct.

7 Q Of course, just to clarify for the  
8 record, it's before you wrote your testimony;  
9 right?

10 A Yes.

11 Q Okay. Let's go to Exhibit SED-304.  
12 This is Interoffice Correspondence FF-34A,  
13 Casing Corrosion, Aliso Canyon. If we go to  
14 the first page of this document -- I'm sorry,  
15 that's on the title page. On the first page  
16 of this document, if we can go to the Bates  
17 number here. The Bates number is  
18 AC\_CPUC\_0021865.

19 If we scroll back up, do you  
20 recognize this as part of SoCalGas' Data  
21 Response to SED Data Request-12?

22 A I recognize the document. I'll  
23 take your word that it was part of the  
24 response to Data Request-12. I don't see  
25 that stated anywhere.

26 Q Fair enough. So let's just talk  
27 about this. The subject of this is FF-34A,  
28 Casing Corrosion, Aliso Canyon.

1                   So do you see where I'm looking  
2 there?

3                   A    Yes.

4                   Q    And you see this is Interoffice  
5 Correspondence of SoCalGas Company; right?

6                   A    Correct.

7                   Q    And FF-34A is the well at Aliso  
8 Canyon; is that right?

9                   A    Also correct, yes.

10                  Q    If you had a chance to review this,  
11 does the subject of this memo in the body of  
12 it include discussion of cathodic protection?

13                  A    Yes, it does.

14                  Q    Okay.  If we scroll down to the  
15 third paragraph, there, if you want to have a  
16 look at it, we're talking about metal loss of  
17 Well SS -- excuse me, FF, Fernando fee --  
18 FF-34A is stated as severe and shallow there;  
19 isn't that correct?                                   ]

20                  A    It's stated there, yes.  That's  
21 correct.

22                  Q    The first sentence of this memo  
23 shows -- recommends cathodic protection on  
24 Well FF-34A; right?

25                  A    It states that this well  
26 demonstrates a need for cathodic protection.

27                  Q    Doesn't it say in the first  
28 sentence:

1                   It is recommended that FF-34A be  
2                   equipped with cathodic protection?

3           A    I thought you had me in the third  
4 paragraph.

5           Q    Excuse me.  If I did, then let's go  
6 to the first paragraph, quoting from the  
7 first sentence of it:

8                   Does it recommend equipping Well  
9                   FF-34A with cathodic protection?

10          A    Yes, it does.

11          Q    If we turn back to Exhibit  
12 SoCalGas-04-R on page 32, line 20, and we're  
13 going to continue on to line 21.  So starting  
14 at line 20, it says:

15                   Running a casing inspection log in  
16 a well, such as the SS-25 well in  
17 Aliso Canyon necessarily requires  
18 conducting a workover on the well.  
19 A workover entails killing the gas  
20 production from the well by  
21 filling the wellbore with fluid  
22 and then pulling all of the tubing  
23 out of the wellbore.

24                   Did I read that correctly?

25          A    Yes.

26          Q    What technology would normally be  
27 used to run a casing inspection log?

28          A    At what point in time?

1 Q Well, let's start at I'm going to  
2 ask it generally, so before the incident.

3 A Well, are you asking me about --  
4 well, let me just answer the question. If I  
5 don't get it right, I'm sure you'll tell me.  
6 So as we heard testimony from Mr. Neville  
7 last week, in the late '80s, 1990 time frame,  
8 Vertilogs were the technology that was used  
9 to run casing inspection logs.

10 As we moved into 2000 and towards  
11 2010, ultrasonic inspection tools also were  
12 being used, and there's been improvements. I  
13 think, as we've discussed in these hearings,  
14 there's been improvements to these tools  
15 through the years.

16 Q Okay. Let's focus on the  
17 ultrasonic inspection technology or you  
18 understand that acronym to be USIT?

19 A Yes.

20 Q Okay. So is the -- with regards to  
21 casing inspection logs, when those began to  
22 be used and the technology came into place,  
23 as you just described, it is your position  
24 that killing wells for -- I'm sorry -- yeah.  
25 Is it your position that killing wells for  
26 inspections to use that technology is not a  
27 routine practice?

28 A Would you repeat the question,

1 please. I'm sorry. I didn't get it.

2 Q Yeah. Is it your position that  
3 killing wells for inspections is not a  
4 routine practice?

5 A No. Killing wells to run casing  
6 inspection logs is what has to be done.  
7 What's not routine necessarily is doing  
8 workovers themselves.

9 Q Okay. Aren't wells commonly killed  
10 for maintenance purposes?

11 A From time to time.

12 Q Okay. Are there safety -- standard  
13 safety practices that are implemented to make  
14 killing a well as safe as possible?

15 A Yes.

16 Q Do you know if SoCalGas had such a  
17 safety procedure in place for killing a well?

18 A I believe the standards that they  
19 had did, yes.

20 Q Okay. Is pulling tubing out of a  
21 well required to inspect a well using USIT?

22 A Using the USIT tools that were  
23 available prior to the incident, yes.

24 Q Okay. And dating back as far as  
25 the technology, the USIT technology, was in  
26 place?

27 A Yes. It's only been really --  
28 well, in the gas storage industry, the type

1 of casing inspection logs that can look  
2 through multiple strings of tubing are not  
3 used. They've been developed very recently.  
4 They're starting to see use, but in the gas  
5 storage industry -- before the incident,  
6 after the incident -- the logs that are being  
7 used, you have to pull the tubing to inspect  
8 the casing.

9 Q Why is that?

10 A Because they can only evaluate one  
11 string.

12 Q And when you say "pull the tubing  
13 out to inspect the casing," you're talking  
14 about doing so using the use of technology;  
15 is that right?

16 A Or Vertilog.

17 Q Okay. Or Vertilog. Okay.

18 A Or multi-flex tool or USIT.

19 Q Okay. Those different  
20 technologies. Okay.

21 And do you have to kill a well to  
22 pull the tubing?

23 A Yes.

24 Q Okay. Based on your review on  
25 average, how frequently does SoCalGas kill  
26 Aliso Canyon gas wells?

27 A I don't know the answer to that.

28 Q Do you know if SoCalGas has had any

1 casualties during its workovers?

2 A I do not.

3 Q Do you know if SoCalGas has had any  
4 injuries that it had during its workovers?

5 A I do not.

6 Q Okay. Before October of 2015, if  
7 SoCalGas had decided to run a USIT log of  
8 SS-25, do you believe SoCalGas could have  
9 successfully killed Well SS-25?

10 A Yes.

11 Q Okay. So if as you say, SoCalGas  
12 could have successfully killed Well SS-25 by  
13 running USIT prior to October 2015, why do  
14 you think SoCalGas could not kill SS-25 after  
15 it failed in October 2015?

16 MR. LOTTERMAN: Objection, your Honor.  
17 I believe this exceeds the scope of either  
18 Mr. Hower or Mr. Stinson's testimony. They  
19 have not opined in anyway what happens at  
20 that site or at that well when the leak began  
21 October 23, 2015.

22 ALJ HECHT: Thank you.

23 Mr. Gruen can you cite some of their  
24 testimony to which you would tie this  
25 question.

26 MR. GRUEN: Your Honor, I think it goes  
27 directly to their familiarity with the well  
28 files. They've testified that they have

1 extensive knowledge of the well files, and  
2 they testified today that they have  
3 familiarity with USIT and various  
4 technologies that are used to inspect wells;  
5 therefore, they should be able to, given  
6 their testimony as to the ability to use the  
7 technology and kill the well, their opinion  
8 that the well could have been killed prior,  
9 they should have an opinion. It should be  
10 able to flow. They should be able to opine  
11 as to whether it was killed -- why it wasn't  
12 killed successfully during the incident.

13 MR. LOTTERMAN: May I respond, your  
14 Honor, briefly?

15 ALJ HECHT: Yes, please.

16 MR. LOTTERMAN: As of October 23, 2015,  
17 the condition of that well changed  
18 dramatically to the extent that only Blade  
19 was able to determine what its condition was  
20 after a two-and-a-half-year cause analysis.

21 Mr. Hower or Mr. Stinson have not  
22 reviewed those conditions or that  
23 infrastructure or whatever; so Mr. Gruen can  
24 ask them. I think the answer is "I don't  
25 know," but it is well outside their  
26 testimony.

27 MR. GRUEN: Well, your Honor, may I  
28 briefly respond?

1 ALJ HECHT: Yes.

2 MR. GRUEN: Given the -- I think the  
3 concern is -- yeah, let me go through this.  
4 The concern is that that response was,  
5 essentially, coaching the witness and telling  
6 them what their answers are going to be. I'd  
7 like to have an opportunity to cross-examine  
8 them given their familiarity with the Blade  
9 report. I believe the testimony is that  
10 they've read it.

11 And so to the extent that they have,  
12 there was a robust cross-examination of  
13 Mr. Neville -- or robust redirect of  
14 Mr. Neville regarding his familiarity with  
15 the Blade report. We should have the same  
16 ability to cross-examine Mr. Hower and  
17 Mr. Stinson about their familiarity with it  
18 and how it applies to the incident.

19 ALJ HECHT: Can you point me,  
20 Mr. Gruen, to a citation in their testimony  
21 that discusses this issue with reference to  
22 the Blade report?

23 MR. GRUEN: Your Honor, I can endeavor  
24 to do that a bit later. I can't do it at  
25 this exact time. Actually, I probably could  
26 come to think of it. The Blade report --  
27 they've offered a critique of the Blade  
28 report on -- it's the area of their testimony

1 that cites to the -- it has the bullet points  
2 on it. And they've opined that Blade --  
3 they're directly responding to the Blade  
4 report and the leaks on it. I think it's  
5 starting at page 13. If we can go there on  
6 the screen share.

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

8 (Off the record.)

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

11 (Off the record.)

12 ALJ HECHT: While we were off the  
13 record, we discussed whether this is relevant  
14 to the testimony of Witnesses Hower and  
15 Stinson. The relevance is not at this point  
16 clear, but I'm going to allow a little bit of  
17 latitude to ask the question and have the  
18 witnesses answer to the best of their  
19 ability. ]

20 MR. GRUEN: Thank you, your Honor.

21 Q Mr. Hower and Mr. Stinson, did you  
22 review the Blade report?

23 WITNESS STINSON: Yes.

24 WITNESS HOWER: Yes.

25 Q As you say before, given your  
26 review of the Blade report, if SoCalGas could  
27 have successfully killed Well SS-25 to run a  
28 USIT log prior to October 2015, why do you

1 think SoCalGas could not kill SS-25 after it  
2 failed in October 2015?

3 A I don't know the details.  
4 Obviously there was an incident that occurred  
5 so it would have had something to do with  
6 that, but as far as the specific details of  
7 the incident and why that made it difficult  
8 to kill the well, I don't know.

9 Q Okay.

10 Mr. Stinson, same answer?

11 WITNESS STINSON: Yes.

12 Q Gentlemen, is it your understanding  
13 that the failure of the SS-25 well casing --  
14 let me restate. Is it your understanding  
15 that the failure of the SS-25 well casing has  
16 been linked to external corrosion of the  
17 casing?

18 WITNESS HOWER: Yes.

19 WITNESS STINSON: Yes, I agree.

20 Q Okay. And maybe this will help  
21 clear up the prior line. If we go to your  
22 reply testimony here, page 15, and if we go  
23 to line 18, the bullet there, it says there:

24 With regard to the four parted  
25 casings alleged by SED --

26 And it has four parted casings in  
27 parentheses there.

28 -- the circumstances of each of

1                   these events, which do not involve  
2                   corrosion and did not occur in the  
3                   course of normal operations, are  
4                   entirely distinct from what  
5                   occurred at SS-25. As such, they  
6                   did not warrant further  
7                   investigation.

8                   Doesn't that suggest, that line,  
9                   that you have a certain level of  
10                  understanding of what did occur at Well SS-25  
11                  during the incident?

12                  WITNESS HOWER: No. What we meant by  
13                  that discussion by specifically mentioning  
14                  corrosion is that we were looking at Blade's  
15                  list of what they termed to be relevant  
16                  casing failures -- the key word being  
17                  relevant -- relevant to casing damage, casing  
18                  leaks caused by corrosion on the casing.

19                  Therefore, the parted casings, for  
20                  example, the SS-4-0 well, which is listed in  
21                  the line we're looking at, that was impacted  
22                  by the Northridge earthquake. How does that  
23                  have anything to do with the SS-25?

24                  Q    It's your testimony so I'll defer  
25                  to you. Let me try and simplify it with a  
26                  question then. I believe implicit in that  
27                  contention -- and correct me if I'm wrong --  
28                  is that SS-25 is distinct, then, from these

1 other four parted casings because it  
2 experienced corrosion; is that correct?

3 A Well, I don't think that is  
4 correct. I'm not -- I guess what I'm saying  
5 is that I would look at it differently. The  
6 four parted casings that Blade mentioned,  
7 while they did occur, they're independent  
8 events that really bear no -- they have  
9 nothing to do with what ultimately happened  
10 at SS-25, which is absolutely --

11 Q Are --

12 A -- the point of why we're all here.

13 Q Mr. Hower, do you know if SS-25  
14 experienced corrosion?

15 A I believe I answered that. Yes.

16 Q I just want to be sure from the  
17 answer to that question. Your answer is yes;  
18 is that right?

19 A According to what I read in the  
20 Blade report, the SS-25 experienced  
21 corrosion.

22 Q Okay. And that corrosion existed  
23 on Well SS-25 before October 23, 2015.

24 Is that your understanding?

25 A Yes.

26 Q Okay. And assuming killing  
27 Well SS-25 was, in fact, possible, if  
28 SoCalGas had run a casing inspection log of

1 SS-25 casing before October 23, 2015, would  
2 you expect the inspection to have shown wall  
3 loss?

4 A I don't think we can say for  
5 certain that that would be the case. It  
6 probably would have, but I think it's worth  
7 noting that these casing inspection logging  
8 tools are not magic, meaning they require  
9 interpretation. It's not something you put  
10 in the well and you get a blinking light that  
11 says "corrosion, corrosion" or "wall loss."  
12 It's a lot of squiggly lines. It's --  
13 it's -- it's a difficult -- technol -- it's a  
14 complex technology, and the interpretation of  
15 casing inspection logs is a bit of an art and  
16 it is an interpretation, so I'm not dodging  
17 your question.

18 It's likely or possible that a  
19 casing inspection log run before October 23,  
20 2015, would have shown wall thickness loss,  
21 but we can't say for certain. That is why we  
22 don't use any of the casing inspection tools  
23 or the casing integrity tools. That's the  
24 better way to put it.

25 Temperature logs, noise logs,  
26 radioactive tracers, casing inspection logs,  
27 we don't use any of them in a vacuum.  
28 They're all used together. The total

1 interpretation is how we wind up with our  
2 answer on the condition that the well is in.

3 Q Okay. Mr. Hower, I appreciate the  
4 explanation. I'd remind you that you're  
5 going to have extensive opportunity to give  
6 explanations through redirect. That question  
7 was intended as a yes-or-no answer. I  
8 appreciate that there's an opportunity to  
9 explain, but we do want to have an  
10 opportunity to get through all of our  
11 cross-examination questions as well.

12 So if you'd indulge us, where there  
13 are yes-or-no questions, we're really looking  
14 specifically for a yes-or-no answer. We'll  
15 defer to your counsel to give you an  
16 opportunity to explain on redirect; okay?

17 If we could turn to SED  
18 Exhibit 305. This is the January 21, 2016,  
19 Multi-Finger Imaging Caliper Log. If we  
20 scroll to the bottom of this document, we see  
21 the Bates Number is  
22 I1906016\_SCG\_SED\_DR\_67\_0000004.

23 Do you recognize this document,  
24 Mr. Hower?

25 A Only after receiving it last week.  
26 That was the first I've ever seen it.

27 Q Okay. So you're not familiar with  
28 the information on this document then?

1           A     Well, I looked at it when we  
2     received it, but that's -- it's a lot of  
3     information. It's a detailed well loss.  
4     But, yes, I've looked at it.

5           MR. GRUEN: Your Honor, can we go off  
6     the record momentarily?

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

8                     (Off the record.)

9           ALJ HECHT: Back on the record.

10                    While we were off the record, we had  
11     a discussion about the relevance of this  
12     document and the date of the document. I  
13     think at this time we're going to move on.

14                    Mr. Gruen.

15           MR. GRUEN: Thank you, your Honor.

16           Q     Okay. If we could introduce  
17     Exhibit SED-302.

18                    Mr. Hower, are you familiar with  
19     Camco subsurface safety valves?

20           A     Not in any detail, no.

21           Q     To the extent that you're familiar  
22     with them at a higher level, would you agree  
23     that SED-302 -- and if you want to have a  
24     look at it -- that it generally represents  
25     basic information about a Camco subsurface  
26     safety valve?

27           A     I would agree with that, yes.

28           Q     Okay. And so to the extent you're

1 familiar -- I believe this document is  
2 current. But do you know if subsurface  
3 safety valves were installed in Well SS-25  
4 before 1980?

5 A I believe they were, yes.

6 Q Would it make more sense then to  
7 look at documents for those earlier versions  
8 of the Camco subsurface safety valves?

9 A I'll leave that up to you. I'm --  
10 depending on what you want to ask me --

11 Q Let's see if --  
12 (Crosstalk.)

13 BY MR. GRUEN:

14 Q Go ahead. I'm sorry to interrupt.

15 A I don't know where you're going, so  
16 I can't really tell you if it makes more  
17 sense or not.

18 Q Why don't we try it at a high level  
19 and see if this is good enough. If we need  
20 to, we'll pull up the other ones.

21 Do you understand how a subsurface  
22 safety valve is installed into gas well  
23 tubing?

24 A Generally, yes.

25 Q And at a general level, that's  
26 probably good enough for our purposes. At a  
27 general level, could you explain how that  
28 installation is done.

1           A    Yeah.  They can -- subsurface  
2   safety valves can either be tubing-conveyed  
3   or wireline-conveyed.  If they're  
4   tubing-conveyed, they're attached on the end  
5   of the tubing, screwed onto the end of the  
6   tubing, as was the case in the SS-25.  If  
7   they're wirelined-conveyed, they're more  
8   internal and inside the tubing.

9           Q    Okay.  Thank you.  And what is your  
10   understanding of the function of a subsurface  
11   safety valve like the one that was installed  
12   in Well SS-25?

13          A    Well, they're set up to essentially  
14   be a fail-safe if the pressure -- if there's  
15   an indication through pressure that there's  
16   been a, for example, a problem with the  
17   wellhead, the safety is going to be  
18   compromised.  There's a ball valve or a flap  
19   that shuts and stops flow.

20          Q    Okay.  So to stop flow in the  
21   tubing then?  Is that, at a high level, an  
22   accurate description of the function of a  
23   subsurface safety valve?

24          A    Correct.

25          Q    And is the subsurface safety valve  
26   typically used to control the flow of gas in  
27   the tubing in the course of nonemergency  
28   operation?

1           A    It controls the flow to the extent  
2   that it's a restriction in the tubing, but if  
3   it's in its open mode, then it doesn't --  
4   it's not necessarily controlling the flow.  
5   It's generally an on-off switch.

6           Q    Does it stay in open mode during  
7   nonemergency operation?

8           A    Well, in theory, but that was the  
9   problem, and that is the problem with  
10   deep-set subsurface safety valves. The  
11   extreme flow conditions -- this -- I'm not  
12   just talking about Aliso Canyon. This is  
13   true in many places where they're applied.  
14   The flow conditions can be extreme in the  
15   deep well, and the operation of the safety  
16   valves can be somewhat unreliable and they  
17   shut when you don't want them to shut.

18          Q    Okay. Are you aware that the last  
19   well kill for Well SS-25 was in 1979?

20          A    Yes.

21          Q    Okay. In the course of reviewing  
22   SoCalGas' SS-25 well files, did you come  
23   across any documents that explained why the  
24   subsurface safety valve installed in 1979 was  
25   removed?

26          A    I don't recall any documents that  
27   specifically talked about why it was removed.  
28   The well work that was done to remove it was

1 documented, but the discussion of why the  
2 subsurface safety valves were removed, I  
3 don't remember seeing that or not. It might  
4 have been there. I just don't recall.

5 Q Okay. Let's say that the  
6 subsurface safety valve has to be removed  
7 from the tubing. What's the normal procedure  
8 for doing that?

9 A You have two choices. One is to do  
10 what was done on SS-25, which is to remove  
11 the main part of the subsurface safety valve,  
12 the components, via wireline and leaving  
13 housing. The other alternative is to pull  
14 the tubing and remove the entire subsurface  
15 safety valve, including the housing.

16 Q So either pull it with the  
17 housing -- and leave the housing there or  
18 pull both the valve and the housing; is that  
19 right?

20 A No, not exactly. The primary  
21 difference is one requires a workover; one  
22 does not. If you just want to pull the  
23 components out and leave the housing, you  
24 don't have to kill the well, you don't have  
25 to do a workover. If you want to pull the  
26 housing out, you have to do a workover and  
27 kill the well.

28 Q Okay. Did you see the documents

1 that said or showed that the housing was left  
2 in Well SS-25?

3 A Well, I saw the documents that --  
4 if my memory is correct, I saw the documents  
5 that indicated the components of the  
6 subsurface safety valve were removed via  
7 wireline. That means the housing is still  
8 there.

9 Q I just want to be sure I'm tracking  
10 that. You're making a distinction between  
11 components of the subsurface safety valve and  
12 the housing; is that right?

13 A Yes, related to the type of well  
14 work one needs to do to remove the equipment.

15 Q So in your experience when housing  
16 is left there, there's not necessarily a  
17 document that says that it's been left?

18 Am I tracking you right?

19 A Well, there'd be a wellbore diagram  
20 which would show it.

21 Q Have you seen such a diagram in the  
22 case of Well SS-25?

23 A I don't remember specifically.  
24 It's been a while since I looked at the well  
25 files.

26 Q Okay. Do you know what the -- bear  
27 with me a second. Okay. Let's say that you  
28 had a well that had an obstruction in the

1 tubing, would you continue operating that  
2 well with the obstruction?

3 A You'd have to be more specific.

4 Q A housing, for example, in tubing.  
5 Let's say that the housing was left in  
6 tubing. Would you continue operating the  
7 well with the housing left inside the tubing?

8 A Yes. I don't view that example as  
9 an obstruction.

10 Q Okay. Are you familiar with the  
11 term "fishing" as it applies to well  
12 construction and maintenance?

13 A Yes.

14 Q What does that term mean?

15 A Well, a fish means something that's  
16 been left behind in the hole, in the  
17 wellbore, that you'd like to remove. That's  
18 a fish. So fishing is the process of trying  
19 to retrieve it.

20 Q And so fishing didn't allow the  
21 retrieval of the casing in this case;  
22 correct?

23 A When are you talking about  
24 specifically?

25 Q Well SS-25 with regards to the  
26 removal of the subsurface safety valve  
27 components.

28 A Okay. But you mentioned casing.

1           Q    Pardon me.  I apologize.  Thank you  
2   for the correction.  So if you're talking  
3   about fishing, the fishing didn't allow the  
4   removal of the SS-25 -- the fishing didn't  
5   allow the removal of the SS-25 housing from  
6   the SS-25 tubing when the subsurface safety  
7   valve was removed; is that correct?

8           A    No.  I mean I don't think it's  
9   appropriate to even use the term "fishing."  
10   Fishing is done when you've left something in  
11   the hole that you wanted to remove.  The  
12   housing was left in the SS-25 well on  
13   purpose.  If SoCalGas had wanted to remove  
14   the housing, they could have done a workover  
15   and removed the tubing.  You don't have to  
16   fish for it.  It's connected to your tubing.  
17   It's not missing.  You know right where it is  
18   and you know exactly how to get it out of the  
19   hole if you want to.

20          Q    Let me ask you, is it normal to  
21   have holes in tubing that communicate with  
22   casing in a well?

23          A    Absolutely.

24          Q    Is it normal in underground storage  
25   wells to have holes in well tubing that  
26   cannot be closed?

27          A    I would say it's common.  It's hard  
28   to say what's normal because it -- you can

1 configure your well either way. You can  
2 configure your well with holes that cannot be  
3 closed or you can configure them with a  
4 sliding sleeve device that allows you to  
5 close them. Both situations are routinely  
6 used and normally used.

7 Q All right. Would holes in the  
8 tubing that could not be closed change the  
9 way the well would normally be operated on  
10 injection?

11 A I don't understand. Change it from  
12 how?

13 Q Do you have an idea of operation,  
14 the way a well typically operates when gas is  
15 being injected through it?

16 A Yes, of course.

17 Q Based on your understanding, would  
18 holes in the tubing that could not be  
19 closed -- let me ask this: Where you have  
20 holes -- let's compare the two -- holes that  
21 can't -- in a piece of tubing in a well that  
22 can be closed versus holes in a piece of  
23 tubing in a well where the holes cannot be  
24 closed.

25 Do you understand what I'm asking  
26 there, the different configurations?

27 A Yes.

28 Q So is there a different way of

1 operating the two configurations?

2 A Yes.

3 Q Okay. And is there a different way  
4 of operating the two configurations for  
5 withdrawal as well?

6 A Yes, I'm -- the reason I'm -- I'm  
7 struggling with your question, I think,  
8 because there's -- even if you just take one  
9 of those cases -- we were talking about two  
10 cases -- one case where there's holes that  
11 cannot be closed, that well by itself can be  
12 operated in different ways. You can inject  
13 just through the tubing, you can inject just  
14 through the annulus, or you can inject  
15 through both. The same situation applies  
16 with the other well with the sliding sleeve  
17 device, so that's where my confusion is.  
18 I...

19 Q Okay. I appreciate that. Let me  
20 just ask you. If you have configuration with  
21 wells that are always -- with holes that are  
22 always open in the tubing, would that cause a  
23 constant reservoir pressure to be exerted on  
24 the well casing in that instance?

25 A Well, it would have pressure on the  
26 casing, yes. So whether it's equal to  
27 reservoir pressure is what I was thinking  
28 about because if you're injecting -- your

1 pressure down the casing is -- is -- or  
2 producing -- your pressure down the casing is  
3 going to be variable.

4 But I think, yes, for the most  
5 part, you would have pressure exerted on the  
6 casing.

7 Q Okay. Let's turn to another line  
8 here.

9 ALJ HECHT: Mr. Gruen, if you are  
10 turning to another line, I think this might  
11 be a good time to take our morning break.

12 MR. GRUEN: Absolutely, your Honor.

13 ALJ HECHT: All right. Then I think we  
14 are going to take a break until 11:15, which  
15 is about 12 minutes, so I will see everybody  
16 at 11:15. Thank you very much.

17 We'll be off the record.

18 (Recess taken.) ]

19 ALJ HECHT: We'll be back on the  
20 record, and we're going to continue with  
21 cross-examination.

22 Mr. Gruen.

23 MR. GRUEN: Thank you, your Honor.

24 I might note, the cadence of this  
25 cross has been a little bit different than we  
26 anticipated, and with that, just as a  
27 courtesy, flagging for parties, at this point  
28 we think the cross is going to be a bit

1 shorter for Mr. Hower and Mr. Stinson than we  
2 thought. So much so, it's possible we'll  
3 finish up by about lunch. Perhaps we'll go a  
4 bit over, but we're flagging that for  
5 everyone.

6 ALJ HECHT: Thank you. That's helpful  
7 to know.

8 MS. BONE: Yes, your Honor. Traci Bone  
9 for Cal Advocates. With that in mind, we  
10 need to hear back sooner rather than later  
11 from SoCalGas regarding whether they're going  
12 to agree to our request for stipulation or  
13 not.

14 ALJ HECHT: Since we are in the midst  
15 of the hearing this morning, I would  
16 recommend that you check with them again at  
17 lunch when there is some time to think that  
18 over. Does Mr. Stoddard have a response?

19 MR. STODDARD: Yes, your Honor. Thank  
20 you. We weren't anticipating, based on our  
21 conversation this morning, that the MHA  
22 witnesses would go this short. So we haven't  
23 reached a determination on Ms. Bone's  
24 request; however, she has identified the  
25 documents, and so we will look at it and  
26 respond over lunch.

27 MS. BONE: One more thing to add,  
28 Mr. Stoddard, it has come to my attention

1 that there were some supplemental responses  
2 to Exhibit 408, and so if you would want to  
3 stipulate to the last version going in with  
4 the supplemental responses, that's up to you.  
5 We're willing to do it either way.

6 MR. STODDARD: Okay.

7 MS. BONE: And to the extent there were  
8 documents attached, we need to attach those  
9 documents.

10 ALJ HECHT: I am going to ask that you  
11 address this during lunch. If nobody minds,  
12 I would prefer to get back to the  
13 cross-examination. Sorry to cut you off.

14 MS. BONE: That's fine, your Honor.

15 ALJ HECHT: We'll continue with  
16 Mr. Gruen.

17 MR. GRUEN: Thank you, your Honor.

18 Q Mr. Hower, and Mr. Stinson, I want  
19 to ask you a little bit about the history of  
20 the SS-25 well file a little bit. So when  
21 you reviewed the SS-25 well file to look at  
22 the historic documents in there, did you  
23 learn anything about Well SS-25 that would  
24 give you concern that it might be difficult  
25 to kill Well SS-25 specifically for  
26 maintenance purposes?

27 WITNESS STINSON: No.

28 Q Okay. Did you discuss the SS-25

1 records with anyone at SoCalGas?

2 WITNESS HOWER: Yes. Extensively with  
3 Mr. Dan Neville, and from time to time there  
4 were others in the meetings, but primarily  
5 with Mr. Neville.

6 Q Okay. And did Mr. Neville or the  
7 others in the meetings provide additional  
8 verbal information about SS-25 that was not  
9 in the well file?

10 A Not that I can recall. Most of the  
11 additional information had to do with general  
12 topics that we covered in the field rather  
13 than a specific well.

14 Q Okay. Let me just ask you a bit  
15 more generally about the well files. It  
16 might be a good segue. When you reviewed all  
17 the hard copy well files, were they kept in  
18 file cabinets in an Aliso Canyon office?

19 A The ones we reviewed, yes.

20 Q Okay. And were those well files  
21 that you reviewed in -- I think you mentioned  
22 in 2018 was when you did it. Did I track  
23 that right from Friday?

24 A Yes. That's correct. And by the  
25 way I confirmed that and the answer I gave  
26 you was correct. It was June 2018.

27 Q Okay. And were those well files  
28 from June of 2018 that you reviewed orderly?

1 A Yes. Very much so.

2 Q Did SoCalGas provide additional  
3 well records from any other location for you  
4 to review?

5 A You need to clarify your question.  
6 When you say, "other location," do you mean  
7 other wells or records of the SS-25 from  
8 somewhere that wasn't in the file cabinet?

9 Q The latter. Records from some  
10 other location than the file cabinet.

11 A Not hard copy, no. I mean we  
12 had -- both Mr. Stinson and I had access to  
13 digital documents, but in terms of the hard  
14 copy, we were always in the same office with  
15 the same file cabinet.

16 Q Okay. In the course of your review  
17 of well files, did you read interoffice  
18 correspondence or memos in those well files  
19 to understand what issues were of concern to  
20 SoCalGas?

21 A Yes.

22 Q Was it common to find that sort of  
23 correspondence in the well files?

24 A Yes.

25 Q And when you reviewed the hard-copy  
26 SS-25 well file, did you see any interoffice  
27 correspondence that explained what happened  
28 to the subsurface safety valves from 1980

1 that we were discussing before?

2 A When you say "what happened to  
3 them," do you mean -- can you be more  
4 specific? What do you mean by "what  
5 happened?"

6 Q Sure. The explanation, for  
7 example, of the pulling of the subsurface  
8 safety valve, if you'll indulge the term, did  
9 you see any interoffice correspondence, for  
10 example, that explained why the subsurface  
11 safety valve was pulled or needed to be  
12 pulled?

13 A Not that I recall.

14 Q And is that true -- to be more  
15 specific about time, that's true both during  
16 1980 and after, you didn't see any such  
17 interoffice memos during that time period;  
18 correct?

19 A I honestly don't recall, Mr. Gruen.  
20 I remember we discussed the reason why the  
21 SSSV program was stopped and why they were  
22 removed. It was more of a field-wide  
23 discussion rather than an individual well,  
24 and I just don't remember where I would  
25 have -- we looked at a lot of well files, had  
26 a lot of conversations. I just don't  
27 remember exactly where that was documented.

28 Q Okay. What about the -- staying on

1 the topic of interoffice correspondence for a  
2 moment in the SS-25 well file, did you see  
3 any such interoffice correspondence that  
4 explained that the housing remained after the  
5 subsurface safety valve was removed?

6 A Well, again, I believed that -- I'm  
7 fairly certain we saw wellbore diagrams  
8 showing the housing in the well files.

9 Now, whether those were attached to  
10 a specific memo or correspondence, I don't  
11 recall.

12 Perhaps, Mr. Stinson, do you have  
13 any recollection that is different from mine,  
14 you could help Mr. Gruen with that question?

15 WITNESS STINSON: No. I don't recall  
16 either. I remember seeing a wellbore  
17 diagram, but that's -- that's...

18 Q What about other residual Camco  
19 parts, other than the housing? Any  
20 interoffice correspondence in the SS-25 well  
21 file that you observed that spoke to any  
22 other residual Camco parts?

23 WITNESS HOWER: Not that I recall.

24 Q The diagram that we just mentioned  
25 with regards to the housing, what date was on  
26 that diagram; do you recall?

27 A No, I don't. I don't recall the  
28 exact date.

1 Q Okay. Did you see any interoffice  
2 correspondence in the SS-25 well file that  
3 discussed potential issues with killing the  
4 well?

5 A Not that I recall.

6 Q Okay. Let's turn to another line  
7 here if we can. When reviewing SoCalGas --

8 ALJ HECHT: This is Judge Hecht. I  
9 lost the video for Mr. Gruen briefly. It  
10 appears that has been resolved, but I'm going  
11 to watch it. I'm sorry to interrupt.  
12 Please, go ahead.

13 MR. GRUEN: Not at all, your Honor. I  
14 appreciate knowing. I know I've had  
15 technical issues before and will certainly do  
16 my best to keep the video on as I can or  
17 resolve it, if for any reason my video stops  
18 working.

19 Q Okay. Turning to another line,  
20 when reviewing SoCalGas's records, did you  
21 see any leaks that released gas to  
22 surrounding soils, specifically with regards  
23 to Wells FF or Fernando Fee 34A or Well  
24 Frew 3?

25 A Yes.

26 Q Okay. Let's go to your reply  
27 testimony if we can, and if we go to page 11  
28 in particular, lines 1 through 7, and,

1 gentlemen, if you will let me know when  
2 you're there.

3 WITNESS STINSON: I'm there.

4 WITNESS HOWER: So am I.

5 Q So lines 1 through 7 says:

6 Where circumstance warranted,  
7 SoCalGas performed more extensive  
8 investigations. Examples of this  
9 include work done to address leaks  
10 at Wells FF-34A and Frew 3 where  
11 SoCalGas observed migration of gas  
12 in the subsurface away from  
13 wellbores.

14 SoCalGas investigations  
15 included gas sampling to confirm  
16 the source of the leaking gas and  
17 analysis of offset wells to  
18 determine the extent of gas  
19 migration away from the well with  
20 the casing leak, as well as  
21 construction of numerical  
22 simulation models to determine the  
23 volume and the area extent of the  
24 leaked gas.

25 Do you see that?

26 WITNESS HOWER: Yes, I do.

27 Q Let's turn to Exhibit 306 if we  
28 can, and this is entitled: "SoCalGas

1 Response to SED Data Request 65, Question 1."  
2 And if we scroll down to the next page, and  
3 I'll read the Bates number and ask the  
4 question. So this is Bates No. SED-306.001,  
5 and I'll just leave it there for a moment  
6 because this question where we are on screen  
7 share and at the bottom of this data request  
8 quotes the piece of testimony from the piece  
9 of testimony that we were just reading.

10 So I'll just refer to that, ask you  
11 if I've stated that correctly, and then ask  
12 you if you recognize this data request with  
13 that in mind.

14 WITNESS HOWER: Okay.

15 Q If we go to the top of this  
16 document, Mr. Zarchy, if you would.

17 Do you recognize this as SoCalGas  
18 Response to SED Data Request 65?

19 WITNESS HOWER: Yes.

20 Q Let me just ask you, when was the  
21 first time you saw this data response  
22 approximately?

23 WITNESS HOWER: I don't recall the  
24 exact time, but I was involved with this  
25 discussion and this data response; so it  
26 would have been when it was submitted I  
27 believe.

28 Q Okay. So where you talk in this

1 passage, and let's go to the bottom of this  
2 page again if we could. The bottom of this  
3 page where you say in the testimony:

4 Examples of this -- I think  
5 we are on the second page of data response,  
6 and we're also referring to lines 1 through 7  
7 of the testimony we just read, where you say  
8 there:

9 Examples of this include work done  
10 to address leaks at Wells FF-34A  
11 and Frew 3 where SoCalGas observed  
12 migration of gas in the subsurface  
13 away from the wellbores.

14 So since you talk about Well Frew 3  
15 in this passage, let me ask specifically  
16 about that. How many leaks were you talking  
17 about in Well Frew 3 in this passage.

18 A Just the one that resulted in the  
19 underground flow of gas away from the  
20 wellbore.

21 Q Do you know how many leaks existed  
22 on Well Frew 3 in its history?

23 A As I sit here, no. I can find that  
24 information out with my references, but I  
25 don't have it off the top of my head.

26 Q Understood. Nor would I expect you  
27 to. Let me just say, if we could go to back  
28 to the testimony, just so we can track our

1 trail here.

2 So where you say, SoCalGas  
3 investigators -- excuse me:

4 SoCalGas investigations included  
5 gas sampling to confirm the source  
6 of leaking gas and analysis of  
7 offset wells to determine the  
8 extent of migration away from the  
9 well with the casing leak.

10 And you see there, you refer to  
11 Footnote 41; correct?

12 A Correct.

13 Q So let's follow that. If we go to  
14 the bottom of the page, Footnote 41  
15 references Exhibit I-14, as you see there,  
16 and does that look right to you as well?

17 A Yes, it does.

18 Q Okay. And if we to go Exhibit I-14  
19 from your supporting exhibits.

20 And, Mr. Zarchy, if you could show  
21 the exhibit title page as well, if you could  
22 scroll to that page.

23 And, gentlemen, if you'd let me  
24 know when you're there as well?

25 WITNESS HOWER: I got it.

26 WITNESS STINSON: Yes, I'm there.

27 Q And the Bates number for the title  
28 page, I believe, is SoCalGas 5.0725, and if

1 we go to the Bates -- the page with Bates No.  
2 AC\_CPUC\_0022968, if we could scroll down just  
3 to show that page number, and if we scroll  
4 back up on that same page, the first  
5 paragraph about halfway down where it starts,  
6 "A 3." So I'm going to read there. It's  
7 about halfway down the paragraph right at the  
8 beginning of the line. It says:

9 A 3 cooling anomaly was noted at  
10 1160 feet and a smaller anomaly  
11 noted at 1,100 feet.

12 I'm going to assume that the No. 3  
13 was probably a typo there. Does that look  
14 right to you?

15 WITNESS HOWER: I don't know. Yeah, I  
16 don't know whether it's a typo or not or an  
17 omission of something --

18 (Crosstalk.)

19 BY MR. GRUEN:

20 Q Sorry for interrupting. Go ahead.

21 A No. That's okay. Sorry,  
22 Mr. Gruen. Yeah, I don't know whether its's  
23 a typo or an omission. I don't know what the  
24 "3" means.

25 Q Okay. Understood.

26 Going to the next paragraph where  
27 it shows the beginning as "note." It says in  
28 that paragraph at the beginning:

1                   The only hypothesis on the  
2                   condition of the well would be the  
3                   casing, as a hole, split or is  
4                   ported around 1,100 feet.

5                   Do you see that?

6                   A    Yes, I do.

7                   Q    And if we look if we could scroll  
8                   out slightly, Mr. Zarchy.

9                   And does Exhibit I-14 continue past  
10                  1984 from your review on it?

11                  If we could scroll up and down on  
12                  there, we see the note "6/14/84" and it looks  
13                  as if the pages below it show earlier dates;  
14                  would you agree?

15                  A    Yes.

16                  Q    Okay.  So the data request asks  
17                  about this part of your testimony and leaks  
18                  from -- if we go back to that data request,  
19                  let's go back to Data Request 61, if we  
20                  could, Exhibit 306.  No, the data request.  
21                  There you go.  Yeah, thank you.

22                  So this one I believe talks about  
23                  the -- can we scroll to the next page,  
24                  Mr. Zarchy.  That's fine.

25                  And you see Question A asks about  
26                  Exhibit I-14 and that it notes -- Question A  
27                  notes there that Exhibit I-14 provides  
28                  evidence with casing holes identified in the

1 well file at 1,000 and 1,060 feet in the  
2 Frew 3 casing were confirmed and repaired.

3 So you see that we were asking  
4 about the 1,000 and 1,060 feet depth of holes  
5 in the Frew 3 casing there; that is right?

6 Do you see where I'm looking,  
7 Mr. Hower?

8 A I see where you're looking, yes.

9 Q Okay. I'm just trying to get at --  
10 so the answer to Question 3A, after the  
11 objection on the third page, says:  
12 SoCalGas -- I'm sorry.

13 Subject to and without waiving the  
14 foregoing objection, SoCalGas  
15 responds as follows: The casing  
16 hole was ultimately identified at  
17 3,240 feet. The leak at 3,240  
18 feet was repaired by squeezing  
19 cement and installing an inner  
20 string.

21 Do you see that?

22 A I do see that, yes.

23 Q Okay. So I think the first thing I  
24 just want to clarify about this is, was the  
25 leak at 3,240 feet that's identified on Well  
26 Frew 3 in this data response also shown on  
27 Exhibit I-14?

28 If you want to take a look at that

1 we can wait till you get a chance to answer  
2 that question.

3 ALJ HECHT: We'll be off the record for  
4 a minute. We'll go back whenever the witness  
5 is ready.

6 (Off the record.)

7 ALJ HECHT: We'll be back on the  
8 record. Please, continue.

9 WITNESS HOWER: To answer the question,  
10 I don't see any reference to the leak at  
11 3,240. Let me check with my colleague,  
12 Mr. Stinson.

13 Am I missing something? Do you see  
14 it.

15 WITNESS STINSON: Not on this document,  
16 no.

17 BY MR. GRUEN:

18 Q Okay. Thank you.

19 When you do an investigation, do  
20 gas sampling to confirm the source of leaking  
21 gas, isn't it necessary to have the  
22 supporting documentation to show the depths  
23 of all the sources of that leaking gas?

24 WITNESS HOWER: Yes. I would agree  
25 with that.

26 Q Okay. And you also testified that  
27 you looked at the well, the Frew 3 well file;  
28 correct?

1           A    Yes.

2           Q    Do you recall the identification  
3 holes at 1,000 and 1,060 foot depths based on  
4 temperature and noise surveys for Well  
5 Frew 3?

6           A    No.  They were at 1,100 and 1,160  
7 feet.

8           Q    I appreciate the correction.

9           A    And they -- the depths that were  
10 specified in the SED data request are  
11 incorrect relative to Exhibit I-14, and as a  
12 response to that data request suggests, there  
13 were no leaks there.

14          Q    Okay.  So let's reask the question  
15 with 1,100 and 1,160 feet in mind then.  I  
16 appreciate the clarification.  So do you  
17 recall temperature surveys and noise logs  
18 identifying the holes at 1,100 and 1,160 feet  
19 in Frew 3?

20          A    I don't remember if I -- if I  
21 looked at the temperature and noise logs that  
22 were referred to in this document.  It's  
23 possible it's being referred to in response,  
24 part B, where the Bates is referenced.  I  
25 don't know what that is, but it's possible  
26 that information is provided there, but as I  
27 sit here, I just don't remember if I looked  
28 at the noise and temp logs that, apparently,

1 at the time showed some anomaly, but,  
2 ultimately, proved to be not leaks.

3 Q Okay. So I think just for  
4 clarification the depths are shown in Exhibit  
5 I-14 of the leaks that we've talked about at  
6 1,100 for 1,160 feet; is that right?

7 A The depths that are talked about in  
8 I-14 that are associated with -- yeah,  
9 temperature and noise anomalies are, yes,  
10 1,100 and 1,160 feet.

11 MR. GRUEN: Okay. Okay.

12 Your Honor.

13 ALJ HECHT: Yes Mr. Gruen.

14 MR. GRUEN: I was wondering if we  
15 could -- bear with me a second. Okay. I'm  
16 ready. Pardon me for the delay.

17 Q Mr. Hower, just with regards to the  
18 hole or the leak identified, ultimately, at  
19 3,240 feet in depth on Frew 3, as shown in  
20 this data response, why do you think that two  
21 anomalies were identified as you've  
22 explained, but upon inspection, there was  
23 another leak that was found approximately  
24 2,000 feet deeper than the anomalies that  
25 were identified that you mentioned in Exhibit  
26 I-14? ]

27 A Don't repeat all of that, but what  
28 was your specific question?

1           Q     Why were the anomalies that were  
2 identified at 1,100 and 1,160 feet on Exhibit  
3 I-14 compared -- why wasn't there an  
4 identification in Exhibit I-14 or in the  
5 noise or temp surveys of this casing hole  
6 that was ultimately identified at 3,240 feet  
7 on Well Frew 3?

8           A     Let me take a shot.  If I don't get  
9 this answer right, you can ask me again.  I  
10 think I'm responsive here, but I believe what  
11 happened was at 1,100 feet and 1,160 feet,  
12 there were anomalies observed on the two  
13 surveys, temperature and noise.

14                     There was obviously a leak in the  
15 well because that's why this work was being  
16 done, to identify where that leak was.  Why  
17 the anomaly showed up at 1,100 and 1,160 feet  
18 and were not leaks, I don't know the answer  
19 to that.  I know that was the outcome, but I  
20 don't know why -- I don't know what caused  
21 the anomalies at that depth.

22                     That depth might have been close to  
23 a surface casing shoe.  It might have been  
24 close to -- I remember Dr. Krishnamurthy  
25 testified about a permeable water zone at  
26 around a thousand feet.  It could have been  
27 associated with that.  I don't know.

28                     The information as we testified to

1 in I-14 doesn't provide any further details  
2 on the leak at 3,240 feet so I can't answer  
3 that. It might be what's referenced in that  
4 Response 1b Bates stamp, but I don't know.

5 Q Okay. I think I didn't ask the  
6 question very artfully. I'll try one more  
7 time. I appreciate you attempting to answer  
8 despite that, but I'll do my best to restate  
9 because it wasn't a very well worded  
10 question. So the two anomalies at 1,100 and  
11 1,160 feet, we've got that on Frew 3, and  
12 then we've got a 2,000-foot hole that's  
13 deeper.

14 Why do you think the anomalies and  
15 the temperature and noise surveys didn't  
16 catch that casing hole ultimately identified  
17 at 3,240 feet?

18 A I don't think we know that's the  
19 case. We see a positive indication that  
20 there were anomalies at 1,100 and 1,160, but  
21 we don't have any mention of whether there's  
22 an absence of anomaly or another existing  
23 anomaly at 3,340 feet. Something ultimately  
24 clued SoCalGas into the fact that there was a  
25 leak at 3,240. It's just not documented in  
26 this particular text.

27 Q Wouldn't you expect it to be?

28 A Well the Question 1a is specific

1 to -- again, the depths are wrong -- but  
2 Question 1a is specifically asking about  
3 1,000 feet and 1,060 feet. And we've agreed  
4 that that means 1,100 feet and 1,160 feet.  
5 So I'm -- as you know, I'm not a lawyer, but  
6 to me this seems to be responsive. It's  
7 talking about those specific leaks or --  
8 sorry -- not leaks, my mistake -- those  
9 specific anomalies that at the time were  
10 hypothesized to be leaks.

11 Q Let's say for the sake of  
12 discussion that Exhibit I-14 did not -- and  
13 the temperature surveys and noise logs that  
14 went with Exhibit I-14 -- did not pick up a  
15 casing hole that was ultimately identified at  
16 3,240 feet. Do you understand that  
17 hypothetical?

18 A Yes.

19 Q Okay. Let me back up. Was there  
20 an error in those surveys, the noise and temp  
21 surveys, such that they didn't properly  
22 identify the casing hole at 3,240 feet in  
23 Well Frew 3?

24 A I don't know.

25 Q Let's say that there was for the  
26 sake of discussion. If there was that kind  
27 of error, is that kind of error normal?

28 A So just to clarify, you're asking

1 me is it normal to have a false negative on a  
2 temperature and noise log and miss a leak?

3 Q I'll try and restate it  
4 differently. Yes. Let's just go with that.  
5 Yes.

6 A Well, it's a hypothetical question  
7 so my hypothetical answer would be it's not  
8 normal. The temperature and noise logs are  
9 usually pretty reliable at identifying gas  
10 leaks. That's why the technology is used.  
11 So I don't think it's fair to characterize it  
12 as normal under the hypothetical situation  
13 you have drawn.

14 Q Understood. Let's move on to a  
15 brief line.

16 I know we're getting close to the  
17 lunch hour and I'm mindful of that, your  
18 Honor, to finish up with that in mind.

19 Are you familiar with what a relief  
20 well is?

21 A Yes.

22 Q Did you read about killing SS-25 in  
23 2016 using a relief well?

24 A I guess I read what was documented  
25 in the Blade report.

26 Q Okay. Approximately how many well  
27 kills related to well leaks have you observed  
28 or overseen?

1           A    Observed or overseen?  I don't  
2 believe any.

3           Q    Let me just ask you from your  
4 understanding and general experience.  Is it  
5 normal practice to begin planning a relief  
6 well immediately after the first failed  
7 attempt to top-kill a well?

8           A    That's not anything I testified on  
9 or not in my area of expertise.

10          Q    Okay.  Good enough.  Bear with me a  
11 second.

12                   Your Honor, I'm just scanning my  
13 notes briefly, but I think we may be close  
14 here.

15          ALJ HECHT:  We'll be off the record for  
16 a minute.

17                   (Off the record.)

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

20                   While we were off the record,  
21 Mr. Gruen indicated that SED does not have  
22 further questions for this panel at this  
23 time.  That means we will be moving on to  
24 either the Public Advocates Office  
25 cross-examination or not, depending on what  
26 determination those parties have come to  
27 about possibly stipulating to entry of  
28 exhibits.

1           Is that something we can answer now  
2           or is it better to take that up after lunch?

3           MR. STODDARD: Yes, your Honor. I  
4           think we can address that issue now. In  
5           light of the importance, in our view, of just  
6           making sure we have the ability to conduct  
7           redirect, we're not going to be stipulating  
8           to entry of those exhibits, and CalPA can  
9           offer them during cross-examination.

10          ALJ HECHT: All right.

11          Ms. Bone, I think that that answers  
12          your question. I am going to assume that you  
13          have enough cross that it does not make sense  
14          to start that now and go for 5 to 10 minutes  
15          and then take our lunch break; is that  
16          correct?

17          MS. BONE: That is correct, your Honor.  
18          But I do believe that we'll stay within the  
19          one-hour estimate.

20          ALJ HECHT: Great. Thank you.

21          I will also note then that after  
22          lunch or before the end of the day we'll have  
23          a couple of other housekeeping issues  
24          including, I hope, an update on the  
25          Boots & Coots witnesses and anything else  
26          that you all raise to address. Are there any  
27          housekeeping items now before we break?

28          Yes, Mr. Stoddard.

1           MR. STODDARD: Yes, your Honor.  
2           Partially I think it's important to raise  
3           this prior to lunch just because I expect  
4           that your Honors will want time to confer on  
5           this item. But at this time SoCalGas would  
6           like to make an oral motion to reopen the  
7           testimony of Cal Advocates' witnesses  
8           Holzschuh and Taul. And if I may do so at  
9           this time, I would seek -- we can do so or if  
10          you'd prefer, we can raise it after lunch.

11          ALJ HECHT: I think you can state it  
12          very briefly now and we can hear very briefly  
13          from Ms. Bone if she is prepared to respond.  
14          I think we will have to have a more full  
15          discussion after lunch, but I want an  
16          indication of what we're dealing with.

17          MR. STODDARD: Yes, your Honor. So as  
18          discussed prior to what I'll refer to as the  
19          hiatus between the initial weeks of hearings  
20          and the current weeks of hearings, SoCalGas  
21          was conducting discovery related to testimony  
22          of Mr. Holzschuh on March 26, 2021, in which  
23          he testified as to two one-hour phone  
24          conversations with Blade that had not  
25          previously been disclosed to the other  
26          parties.

27                    Prior to the break, your Honors  
28                    permitted SoCalGas to conduct further

1 discovery on this issue and SoCalGas noted at  
2 the time that, depending upon what was  
3 discovered, SoCalGas might request to call  
4 back Cal Advocates witnesses for further  
5 examination regarding these meetings.

6 Based on discovery to date, it  
7 appears to SoCalGas that CalPA intended or,  
8 in effect, circumvented the discovery  
9 procedures established in the scoping ruling  
10 and that these meetings enabled them to  
11 preview potential discovery questions to  
12 Blade before CalPA asked them writing.

13 Again, in SoCalGas' view this  
14 contravenes the assigned Commissioner's  
15 September 26, 2019, scoping ruling. The  
16 scoping ruling required that all discovery  
17 requests be served simultaneously on all  
18 parties. In addition, it specifically  
19 required that Blade conduct a public webinar  
20 in November to field the sorts of questions  
21 regarding Blade's investigation and its  
22 report, which we understand from our  
23 discovery that CalPA discussed with Blade  
24 during these two one-hour phone  
25 conversations.

26 As we heard from Mr. Holzschuh  
27 during his testimony at hearings, the purpose  
28 of the calls -- and this is a quote:

1                   Was to get back and -- well, I  
2                   won't say back-and-forth  
3                   information because they  
4                   already -- they had already  
5                   finished their report by then, so  
6                   their need for information --  
7                   He's referring to Blade here.  
8                   -- was pretty limited. But if  
9                   they said anything that we wanted  
10                  to get more information about,  
11                  rather than do a formal data  
12                  request where we'd have to wait  
13                  for clarification possibly a long  
14                  time, then it could go instantly  
15                  ask the follow-up questions.  
16                  So, again, the idea here was CalPA  
17                  didn't want to go through the discovery  
18                  process. They wanted to have a phone call  
19                  with Blade. And this was not a phone call  
20                  that had previously been disclosed to  
21                  SoCalGas or other parties to SoCalGas'  
22                  knowledge.  
23                  Although SoCalGas communicated with  
24                  Blade itself, as necessary to support Blade's  
25                  investigation during the RCA, as was directed  
26                  by the Commission, SoCalGas did not have any  
27                  substantive communications regarding  
28                  discovery, testimony, or the Blade report

1 during the pendency of this proceeding. And  
2 specifically by Blade here, I'm talking about  
3 Mr. Krishnamurthy, Blade's witness, and their  
4 other subject matter experts who authored the  
5 report.

6 But SoCalGas did ask questions of  
7 Blade during the November 2019 webinar that I  
8 referenced earlier, which was shortly after  
9 CalPA's discussions with Blade and where  
10 Blade was made available to answer questions  
11 about their work. Notably during the public  
12 webinar in November 2019, CalPA chose to ask  
13 their questions in secret rather than during  
14 the public webinar. They did it during these  
15 phone conversations with Blade.

16 The purpose of the first meeting,  
17 based on our discovery during hiatus, we  
18 received communications from Cal Advocates  
19 with Blade setting up the calls. The purpose  
20 of the first meeting was described by CalPA  
21 in an e-mail to Blade as CalPA wanted to ask  
22 Mr. Krishnamurthy generally about what a good  
23 gas well operation looks like.

24 It was very broad in its scope.  
25 They covered topics -- Mr. Holzschuh  
26 explained the testimony, that they talked  
27 about P.T., and pressure testing was his  
28 recollection, the scope of it was actually

1 far broader. And they talked kind of  
2 generally about everything that we believe  
3 was in their view related to potential  
4 violations that they or SED may be alleging.

5 In addition, during the break from  
6 hearings, SoCalGas pursued discovery related  
7 to their notes and communications related to  
8 these meetings. As you'll recall, initially  
9 CalPA had responded that there were no notes  
10 and the notes had either been thrown out or  
11 were at the CalPA offices back at the  
12 Commission.

13 As directed by your Honors, CalPA  
14 went back to the Commission to retrieve their  
15 notes and produce notes by witnesses Bach,  
16 Holzschuh, Taul, and Lee. With additional  
17 prompting by SoCalGas' data requests, there  
18 was further discovery during the hiatus.  
19 CalPA produced additional excerpts of notes  
20 taken by its witnesses related to its phone  
21 calls with Blade Energy Partners.

22 Although CalPA has supplemented its  
23 production several times, SoCalGas knows that  
24 CalPA has not produced all notes related to  
25 its witnesses' meetings with Blade.

26 That being said, based on the  
27 information SoCalGas gleaned from the notes  
28 that CalPA has produced, because you can see

1 the writing through the other side, SoCalGas  
2 believes there's good cause to bring back  
3 Mr. Taul and Mr. Holzschuh for a limited --  
4 for limited additional cross-examination in  
5 this proceeding.

6 And, your Honor, I don't expect  
7 this would actually take more than probably  
8 an hour if the witnesses are being  
9 cooperative and responsive with the  
10 questioning. Again, these notes suggest to  
11 SoCalGas that the witnesses may have been  
12 verbally previewing potential discovery  
13 questions to Blade prior to putting them in  
14 writing.

15 SoCalGas can see from the reverse  
16 sides of the pages of these notes that they  
17 relate to the same meetings. SoCalGas sought  
18 a meet and confer with CalPA about this to  
19 bring it to their attention and to ask that  
20 the additional notes be produced.

21 SoCalGas was told in a data  
22 response that the notes were not responsive  
23 to the request for notes related to meetings  
24 with Blade and had nothing to do with this  
25 proceeding. SoCalGas can clearly see through  
26 the other side of the page references to  
27 Blade and references to SED, and it's very  
28 clear that it relates to this proceeding.

1 Following a meet and confer between the  
2 parties, SoCalGas -- CalPA again responded  
3 that the additional notes were not  
4 responsive.

5 Counsel to CalPA has represented  
6 that the discussion with Blade is irrelevant  
7 because it didn't inform CalPA's testimony,  
8 but that's contradicted by Mr. Holzschuh's  
9 own testimony at hearings. When  
10 Mr. Lotterman asked him whether the  
11 information that he had received from Blade  
12 during those conversations informed his  
13 testimony, Mr. Holzschuh answered simply  
14 "yes."

15 We would expect that the other  
16 subject matters that were discussed with  
17 Blade also likely informed CalPA's testimony,  
18 and SoCalGas again would request both the  
19 limited ability to finish questioning on this  
20 issue based on the information discovered, as  
21 well as production of the remainder of the  
22 notes that are responsive to SoCalGas'  
23 discovery requests for notes related to the  
24 Blade meeting.

25 ALJ HECHT: All right. So to be clear,  
26 it sounds like you are asking for the  
27 remainder of whatever notes were taken in  
28 these meetings and to recall witnesses Taul

1 and Holzschuh for something like an hour of  
2 cross-examination.

3 Is that sort of the bottom line?

4 MR. STODDARD: Yes, your Honor. Again,  
5 we anticipate it should be able to get done  
6 in an hour with the caveat that it depends on  
7 the pace of the questioning and answering.

8 ALJ HECHT: All right. Yes.

9 I see Mr. Gruen and I also will be  
10 calling on Ms. Bone. We're not going to  
11 discuss in incredibly great detail now  
12 largely because I want to give everybody an  
13 opportunity to think over lunch about what is  
14 being requested here.

15 Just a couple more clarifying  
16 questions for Mr. Stoddard. One is are you  
17 anticipating these two witnesses would come  
18 back as a panel?

19 MR. STODDARD: No, your Honor. We were  
20 anticipating they would be offered in the  
21 same manner in which they were the first  
22 time.

23 ALJ HECHT: Okay. Thank you. That's  
24 helpful.

25 I'm looking at the scoping memo.  
26 The scoping memo says:

27 Discovery may be conducted by the  
28 parties consistent with Article 10

1 of the Commission's Rules. Any  
2 party issuing or responding to a  
3 discovery request shall provide by  
4 e-mail the request or response  
5 simultaneously to all parties.

6 I think there's some ambiguity  
7 there, so I'm not prepared to actually  
8 interpret that at this moment.

9 With this basic understanding of  
10 the situation, do either Mr. Gruen or  
11 Ms. Bone want to respond briefly before  
12 lunch? I'm seeing a nod and a raised hand  
13 and I will start with Ms. Bone.

14 MS. BONE: Thank you, your Honor, a  
15 couple of observations. The motion that  
16 SoCalGas is making is very extensive and  
17 contains a huge number of allegations, many  
18 of which are mischaracterizations of things.  
19 And honestly, I don't feel like I'm in a  
20 position to respond to these claims without  
21 seeing the transcript.

22 And certainly I was planning on  
23 preparing my -- finishing my  
24 cross-examination questions during lunch, and  
25 I would prefer not to have to focus on this  
26 issue. I don't think that there's anything  
27 time sensitive about this because, in fact,  
28 you're not going to be able to -- if you do

1 decide to call back our witnesses, it's going  
2 to be several days before that happens. So,  
3 you know, that's the first thought.

4 As your Honor just read the rules  
5 regarding discovery, I don't see anything in  
6 there that requires us to -- for Cal  
7 Advocates to invite everybody to meetings  
8 that were clarification meetings with Blade,  
9 and SoCalGas has been provided all of the  
10 documents related to those discussions with  
11 Blade.

12 They insist that the back side of  
13 Mr. Holzschuh and Mr. Taul's notes contain  
14 additional discussions. They don't. They  
15 reference the word "Blade," but they do not  
16 refer to those discussions with Blade.  
17 They're separate issues. If you want to do  
18 an in-camera review of those notes, you are  
19 welcome to them, but we saw no reason to  
20 produce them given that they were  
21 nonresponsive.

22 The other thing I will mention is  
23 that we did do a discovery request on Blade  
24 to find out how many meetings they had had  
25 with SoCalGas during this proceeding, and  
26 Blade essentially responded that they had had  
27 so many meetings with SoCalGas that they  
28 could not begin to even list all of them. It

1 would be too much of a hardship. I would be  
2 happy to also provide that data response to  
3 you.

4 Our feeling is that, you know,  
5 SoCalGas clearly had extensive access to  
6 Blade for many, many months. We did not. To  
7 the extent that Cal Advocates had questions  
8 and clarifications, they asked them, they  
9 were put into data requests that were served  
10 on all of the parties, and all of the parties  
11 received Blade's data responses.

12 As I've said previously, there is no  
13 there there. This is not a big deal. Both  
14 Mr. Taul and, I believe, Mr. Holzschuh also  
15 testified on the stand that these responses  
16 from Blade or the meetings with Blade had no  
17 impact on their testimony, and I provided  
18 citations to that the last time these issues  
19 were brought up when your Honors ordered that  
20 we continue to search for documents related  
21 to these meetings.

22 So, you know, we feel like this has  
23 all been addressed, and, frankly, that if  
24 SoCalGas is going to proceed in this manner,  
25 that we should have the ability to do  
26 discovery on SoCalGas regarding all of their  
27 communications with Blade that we have not  
28 been privy to up until now.

1 ALJ HECHT: Thank you, Ms. Bone. I  
2 would observe that, in fact, Blade was doing  
3 the root cause analysis of SoCalGas and it  
4 would not surprise me if they had countless  
5 meetings with SoCalGas. In fact, it would  
6 surprise me if that were not the case. I'm  
7 not sure how relevant they are. For the rest  
8 of what you've said, I will be taking it  
9 under advisement. I will go back briefly to  
10 Mr. Stoddard, then Mr. Gruen.

11 Yes, Mr. Stoddard.

12 MR. STODDARD: Thank you, your Honor.  
13 Again, that's correct. SoCalGas did have  
14 regular contacts with Blade generally during  
15 the preparation of the RCA report as directed  
16 by the Commission to support their  
17 investigation. A lot of this is  
18 administrative logistical related to payment  
19 of invoices, making sure that they have the  
20 information they need, et cetera.

21 As I stated before, this is  
22 different. This is a communication between  
23 CalPA witnesses, including CalPA's counsel,  
24 at least in one of the meetings without  
25 counsel of Blade present, related to the  
26 substantive issues at issue in this  
27 proceeding ahead of a public webinar that was  
28 awarded by the Commission for the purpose of

1 making Blade available to answer exactly  
2 these sorts of questions.

3 SoCalGas did not have these sorts of  
4 meetings during the pendency of this  
5 proceeding after the OII was initiated. And  
6 again, although, you know, your Honor noted  
7 what the scoping ruling says as to discovery,  
8 and I would just encourage consideration of  
9 that language in combination with the  
10 directive that there be a webinar, a public  
11 webinar held by Blade, as well as the fact  
12 that Blade is noted to be an independent  
13 witness in this case and they're not an  
14 expert working at the direction of -- working  
15 for SED in the context of the OII proceeding,  
16 nor are they a witness for CalPA in the  
17 context of the OII proceeding.

18 It's also incorrect what Ms. Bone  
19 said about the witnesses -- about the  
20 witnesses not relying on the information  
21 in this -- in these conversations. The  
22 transcript from -- that I referenced earlier  
23 specifically showed that Mr. Holzschuh  
24 testified that he did, in fact -- that those  
25 conversations did, in fact, inform his  
26 testimony, we'd like to ask similar questions  
27 of Mr. Taul as well about whether and to what  
28 degree it informed his testimony.

1           We also think it's possible that,  
2           you know, to the degree they didn't address  
3           issues in their testimony, it's because of  
4           things that they heard from Blade about how  
5           issues that they were looking at were not  
6           areas of concern, so this is something else  
7           that we would like to pursue questioning on.  
8           It's very different, again, from the sorts of  
9           administrative discussions that SoCalGas was  
10          having with Blade during the pendency of the  
11          RCA investigation.

12                 In terms of the in-camera review  
13          that Ms. Bone offered, SoCalGas would be okay  
14          with that. We do believe that if you were to  
15          look at the pdfs on the screen of these  
16          notes, you would also come to the conclusion  
17          that these notes are directly responsive to  
18          our request for notes related to the meeting  
19          with Blade.

20                 ALJ HECHT: All right. I said that I  
21          would be going next to Mr. Gruen, but I will  
22          go to Ms. Bone first to respond briefly and  
23          then Mr. Gruen, and then we actually are  
24          going to have lunch.

25                 Ms. Bone.

26                 MS. BONE: Your Honor, I guess I'm  
27          struggling with the idea that SoCalGas can  
28          have, you know, innumerable meetings and

1 conversations with Blade that we were not  
2 invited to, nor was SED invited to, and now  
3 we have two one-hour clarification  
4 conversations which are followed up with data  
5 requests, they've got all of our witnesses  
6 notes on this. What more is there?

7 I guess I'm really struggling to  
8 understand what the there there is. I feel  
9 like there is just something really eluding  
10 me, you know. I don't get it. And it seems  
11 to me that the massive number of meetings  
12 with Blade that SoCalGas had are far more  
13 concerning and that we're supposed to take  
14 SoCalGas' claims that there was nothing  
15 substantive discussed? That's really not  
16 credible. ]

17 ALJ HECHT: One moment. I do not know  
18 the number or timing of any of these issues;  
19 so I cannot speak to that at this point. I  
20 suspect we'll need more information. I am  
21 going to go to Mr. Gruen and then back to  
22 Mr. Stoddard, and then we're going to have  
23 lunch.

24 Mr. Gruen, you are on mute.

25 MR. GRUEN: Pardon me, your Honor. Can  
26 I be heard?

27 ALJ HECHT: (Nods head.)

28 MR. GRUEN: A couple of notes: One is

1 SED supports Cal Advocates. We have concerns  
2 about calling back witnesses at this time.

3 I would note, I appreciate your  
4 Honor's careful noting of the scoping memo  
5 and the ambiguity that your Honor had read in  
6 the wording, in particular that parties  
7 should serve data requests on other parties  
8 and include them, and, of course, Blade is  
9 not a party to this proceeding.

10 So to this end that SoCalGas is  
11 suggesting or in any way arguing that Cal  
12 Advocates has gone afoul of the language of  
13 the scoping memo, we would argue that that's  
14 misplaced.

15 And the other point I would make is  
16 that, your Honor, I believe the argument --  
17 and this is a clarification for SoCalGas --  
18 is that their argument rests on the  
19 suggestion that these notes are somehow  
20 related directly to the testimony of Cal  
21 Advocates' witnesses, and I believe that's  
22 the case, but I want to seek clarification  
23 for the record.

24 ALJ HECHT: Well, fortunately, we are  
25 about to turn to Mr. Stoddard so he can  
26 address that along with whatever else. Go  
27 ahead.

28 MR. STODDARD: Thank you, your Honor.

1 I'm not sure I fully understand the question.  
2 Would Mr. Gruen be able to restate the  
3 question.

4 MR. GRUEN: I'd be happy to, your  
5 Honor, if that's okay.

6 ALJ HECHT: Yes.

7 MR. GRUEN: I believe SoCalGas's  
8 argument is that to the extent it needs to  
9 call back Cal Advocates witnesses, that it's  
10 arguing that it needs to do so, it's doing so  
11 on the grounds that it is claiming that the  
12 notes it's discovering, the discovery it's  
13 doing is directly related to the testimony of  
14 Cal Advocates' witnesses. I wanted to ask  
15 that clarification.

16 ALJ HECHT: Mr. Stoddard.

17 MR. STODDARD: Yes, your Honor.

18 The notes that we have seen include  
19 notes that are directly related to Cal  
20 Advocates, yes. They are also, otherwise,  
21 relevant to issues within the scope of this  
22 proceeding, including issues that Cal  
23 Advocates for some reason, not clear why,  
24 specifically didn't address in their  
25 testimony.

26 So it's two different ways in which  
27 the notes are related to this proceeding,  
28 but, yes, they are related to Cal Advocates'

1 testimony in this proceeding, specifically  
2 including both the prepared testimony and the  
3 testimony offered at hearing.

4 And, again, what we have is the  
5 on-the-stand testimony of Mr. Holzschuh  
6 stating that the conversations with Blade  
7 informed his testimony as well.

8 And so that's the other -- you know,  
9 we can provide it. Over the break I can get  
10 you the exact citation to that -- I don't  
11 have it handy right now -- from the March  
12 hearing date, but he did testify to that.

13 Separately, in terms of Ms. Bone's  
14 general question of what the there there is,  
15 again, the concern here is that there was a  
16 discovery procedure that was set out in the  
17 scoping ruling, and, again, if you combine  
18 that requirement in the scoping ruling with  
19 the fact that Blade was supposed to be an  
20 independent witness, and there was a specific  
21 public webinar where parties were offered an  
22 opportunity to ask exactly the source of  
23 clarifying questions that Ms. Bone said that  
24 CalPA did in their secret conversations with  
25 Blade, that's the basis for our concern; that  
26 there was an established procedure here that  
27 was circumvented deliberately for the purpose  
28 of avoiding the discovery procedures, and we

1 would like unlimited opportunity to be able  
2 to ask questions about those conversations  
3 including what Blade said during those  
4 conversations.

5 Also, in terms of Ms. Bone's  
6 concerns about SoCalGas's communications with  
7 Blade, I would refer you back to the  
8 testimony of Mr. Krishnamurthy, who testified  
9 also that during the hearing -- he testified  
10 at hearing that SoCalGas never asked Blade  
11 what their conclusions are, where they were  
12 headed. Never once did they ask Blade about  
13 that, and never once, until we released the  
14 final report -- and when we released the  
15 final May report, after that, there were no  
16 conversations between SoCalGas and Blade on  
17 any substantive issue.

18 And, certainly, no conversations  
19 between SoCalGas and Blade shopping potential  
20 discovery questions, before they were asked,  
21 so that SoCalGas could avoid soliciting an  
22 answer on the record that would be unhelpful  
23 to their case.

24 SoCalGas participated in the  
25 webinar, and we asked public written  
26 discovery of Blade. That was the only way in  
27 which we communicated with Blade related to  
28 testimony and the issues within the scope of

1 this proceeding.

2 And Blade's data response that  
3 Ms. Bone has referenced that Cal Advocates  
4 recently asked of Blade, where Blade accounts  
5 for communications with SoCalGas. SoCalGas  
6 would be happy with that data response going  
7 into the record here as well.

8 We think it supports our case, which  
9 is that we had communications with Blade, but  
10 they were related to administrative matters,  
11 as well as other matters to support Blade's  
12 investigation, and we would be happy with  
13 that going into the record.

14 ALJ HECHT: All right. I see Ms. Bone.

15 MS. BONE: Your Honor?

16 ALJ HECHT: Before I call on Ms. Bone,  
17 I will ask -- I would like the references in  
18 the transcript to the statement you refer to  
19 by Mr. Taul and the statements by Witness  
20 Krishnamurthy; so if you could get those at  
21 some point today, that would be terrific.  
22 This is not going to be resolved today.

23 I am going to hear quickly from  
24 Ms. Bone. Please remember that nobody needs  
25 to have the final word now. Nothing is the  
26 final word now. This will be considered and  
27 discussed again.

28 And I'm also going to observe that I

1 think a lot of the concerns here go back to  
2 the underlying lack of trust among the  
3 parties, which I understand, but we're hoping  
4 wouldn't play out in quite this way.

5 Ms. Bone.

6 MS. BONE: Your Honor, I take this that  
7 the questions regarding references to the  
8 transcript should be provided by SoCalGas?

9 ALJ HECHT: Yes. They raised it. They  
10 can provide it.

11 MS. BONE: Okay. And just my last  
12 observation is that it's just ironic that  
13 SoCalGas is now seeking to ask our witnesses  
14 questions about things not in their  
15 testimony, when SoCalGas has routinely  
16 objected to questions not related to  
17 testimony.

18 Cal Advocates' testimony is  
19 extremely limited as I'm sure you're aware.  
20 So, you know, the world of what they didn't  
21 testify to us is quite large. So, again, I  
22 don't really see the purpose of this.

23 ALJ HECHT: I understand the points  
24 that you've made. I am not going to call on  
25 Mr. Stoddard now. I think that we will pick  
26 this up after lunch.

27 I don't think that there's a real  
28 purpose served by continuing now and going

1 into a low-blood-sugar situation. The same  
2 goes for whatever Ms. Bone was about to ask.

3 Is there any other housekeeping  
4 issue that we need to know before we take a  
5 lunch break?

6 MS. BONE: Yes, your Honor. Because  
7 we're taking a lunch break, I plan on  
8 focusing on my cross-examination and not  
9 taking time for this; so I'm hopeful that we  
10 cannot address this this afternoon because I  
11 will not be prepared, but that we deal with  
12 it tomorrow.

13 ALJ HECHT: I understand.

14 MS. BONE: Or when we can have a  
15 transcript of these proceedings.

16 ALJ HECHT: I understand the points  
17 that have been made. We are going to take  
18 our lunch break. We will be back at 1:45; so  
19 that's a long lunch break, about an hour and  
20 20 minutes, and with that we'll be -- oh,  
21 great.

22 Mr. Stoddard, yes.

23 MR. STODDARD: Your Honor, I have no  
24 further argument. Just in the interest of  
25 time, I can give you the page reference right  
26 now: March 26, 2021 transcript, page 1316,  
27 lines 3 through 8. That's one of the --  
28 that's related to Mr. Holzschuh's testimony

1 about relying on information.

2 ALJ HECHT: Thank you.

3 MS. BONE: Could you please repeat  
4 that?

5 ALJ HECHT: In fact, no. He will not  
6 repeat that until after the lunch break, at  
7 which time he will repeat it and we can all  
8 note it down. I apologize. I'm going to go  
9 have lunch. We'll be off the record. ]

10 (Whereupon, at the hour of 12:24  
11 p.m., a recess was taken until 1:45  
12 p.m.)

12 \* \* \* \* \*

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

AFTERNOON SESSION - 1:45 P.M.

\* \* \* \* \*

ALJ POIRIER: We'll be back on the record. We are returning from our lunch break. While off the break, we indicated that we are going to move forward with the cross with Mr. Hower and Mr. Stinson by Cal Advocates, and that -- but before we do that, Mr. Stoddard is going to provide those record citations. After that, we won't have any further discussion of the motion today.

And I'll also offer some direction on the timing of motions: The parties try to do so after the conclusion of the witnesses unless it's related to that cross-examination, or during -- especially at the beginning or end of the day.

With that, Mr. Stoddard, please provide those references.

MR. STODDARD: Thank you, your Honor. The first, which relates to Blade testimony related to communications with SoCalGas is Volume V, March 22nd, 2021, and that's page 667, lines 2 through 13.

The next citation is related to the testimony of Mr. Holzschuh regarding the meetings with Blade in 2019 and that's in Volume 9, and that's pages 1311 through 1318.

1 MS. BONE: Thank you.

2 ALJ POIRIER: With that, let's go ahead  
3 and move forward with the cross-examination  
4 of Mr. Hower and Mr. Stinson by Cal  
5 Advocates.

6 Ms. Bone, please proceed.

7 CHARLIE STINSON and TIM HOWER,  
8 resumed the stand and testified further as  
9 follows:

10 CROSS-EXAMINATION

11 BY MS. BONE:

12 Q Good afternoon both Mr. Hower and  
13 Mr. Stinson. I'm going to start with  
14 Mr. Stinson.

15 I understand, Mr. Stinson, from  
16 your witness qualifications that you headed  
17 up teams of gas storage professionals to  
18 perform a risk assessment for two gas storage  
19 facilities; is that correct?

20 WITNESS STINSON: That's correct.

21 Q When did that risk assessment  
22 occur?

23 A Started in 2017.

24 Q Did you perform any risk assessment  
25 prior to that date?

26 A Not a formal risk assessment, no.

27 Q Before this case, is it fair to say  
28 that the majority of your gas storage work

1 was focused on well construction,  
2 installation, and productivity issues?

3 A I mean, that's certainly a part of  
4 it, but also the evaluation reservoirs for  
5 development, ongoing reservoir management  
6 issues, so, yeah. What you stated is  
7 certainly a piece of it, but not the  
8 entirety.

9 Q Adding in well storage development,  
10 could you estimate on a percentage basis how  
11 much of that was occurring prior to this case  
12 before you worked on this case?

13 A Yeah. I mean, it varied over time.  
14 Sometimes I would be engaged 100 percent in  
15 looking at underground storage development  
16 for months at a time. Other times -- it just  
17 depends on the development activity.

18 Other times, it would be -- there  
19 would be no development activity going on,  
20 and in the case of Gill Ranch, we were  
21 involved in the development there for the --  
22 it was pretty much full time for about three  
23 years on that project.

24 Q Mr. Hower, you mention in your  
25 witness qualification that you co-authored an  
26 industry textbook covering gas storage  
27 reservoir management. Did you write the  
28 portion of the book covering gas storage

1 reservoir management?

2 WITNESS HOWER: Yes.

3 Q When was that book published?

4 A Mid-90s.

5 Q Did the discussion on reservoir  
6 management address how to perform a risk  
7 assessment?

8 A No.

9 Q Do you have any other risk  
10 assessment experience?

11 A Well, certainly, I mean over my  
12 career both in oil and gas and gas storage,  
13 we're looking at -- and we're evaluating and  
14 assessing risk all the time. Whether it's  
15 done on a very formal basis or whether it's  
16 done more informally just observing and  
17 evaluating the data that are collected.

18 Q And similar to my question for  
19 Mr. Stinson, before this case, is it fair to  
20 say that the majority of your gas storage  
21 work has focused on well construction,  
22 development, installation and productivity  
23 issues?

24 A No. Again, my answer is probably  
25 similar to Mr. Stinson's. My -- in answering  
26 questions from Mr. Gruen, I explained that my  
27 experience in gas storage was typically  
28 working with companies and individuals like

1 Mr. Neville year after year as an outside  
2 expert assessing their field operations  
3 plant, so that involved the things you  
4 mentioned, but it also involved looking at  
5 workovers, looking at well integrity, looking  
6 at taking wells out of service for whatever  
7 reason. So it was really much more than just  
8 the things you described.

9 Q Thank you.

10 I'll start with Mr. Stinson. And  
11 then, Mr. Hower, if you have something to add  
12 or something different, I'd like to hear from  
13 you.

14 Mr. Stinson, do you believe that  
15 risk assessments are useful?

16 WITNESS STINSON: Certainly.

17 Q How long have you held this view?

18 A Well, as Mr. Hower indicated, I  
19 think it's a matter of whether you're talking  
20 formal or informal risk assessments, but  
21 certainly throughout my entire career  
22 assessing risk for individual wells or  
23 individual reservoirs has been a part of the  
24 normal activity of an engineer. It has  
25 certainly gotten more formal over time, but,  
26 yeah, risk assessment is very important.

27 Q And, Mr. Hower, what do you have to  
28 add to that?

1           WITNESS HOWER: Nothing really to add.  
2 I would agree with Mr. Stinson. I think risk  
3 assessment is important. I would say yes to  
4 that.

5           Q Do you know of well fields where  
6 risk assessments have been performed?

7           WITNESS STINSON: Are you talking about  
8 formal risk assessments, informal risk  
9 assessments? Can you be more definitive,  
10 please.

11          Q Formal risk assessments.

12          A Yeah, well, every storage field,  
13 you know, since the Interim Final Rule had to  
14 perform some type of formal, qualitative risk  
15 assessment. And so that's sort of the --  
16 kind of a start for what I would consider  
17 more documented formal risk assessment.

18          Q And how would you distinguish  
19 between a formal risk assessment and an  
20 informal one?

21          A Formal risk assessment, there's a  
22 lot of documentation involved with it, that  
23 involves, you know, looking at the various  
24 attributes, looking at the potential  
25 consequence of a failure. Looking at the  
26 likelihood of that failure, analyzing  
27 particular data on a well by well  
28 surface-facility basis. So much more

1 detailed, much more documented, and I would  
2 say -- I would say that, you know, informal  
3 risk assessments include the same things just  
4 not to the same degree.

5 Q And by the same degree, do you mean  
6 that they're less comprehensive?

7 A I think they're formal, less  
8 documented. There's less writing done. That  
9 isn't to say that the analysis behind the  
10 assessment isn't there. It just may not be  
11 written down on the same sort of format. You  
12 may not do the actual calculations of a --  
13 you know, trying to quantify a risk, but, you  
14 know, a good engineer, given a set of wells,  
15 they know which wells are riskier than  
16 others. So it's -- I would say it's -- the  
17 same process is there regardless of whether  
18 it's fully documented or not.

19 Q Can you tell me what a qualitative  
20 risk assessment is.

21 A Certainly. I've been involved  
22 in -- the risk assessments I've been involved  
23 in have been more of a qualitative nature.  
24 The challenge in the gas storage industry is,  
25 unlike other industries, there's really isn't  
26 sufficient data to do a true quantitative  
27 risk assessment. Meaning, there isn't enough  
28 data on the risk of certain failures.

1           So you can't really sit down and  
2 with any certainty and calculate a factor  
3 that would truly be a quantitative analysis.

4           So from a qualitative standpoint, I  
5 can look at a group of facilities and say,  
6 well, this one I have more concern about than  
7 that one.

8           So qualitatively, I can prioritize  
9 a list of wells or surface facilities or  
10 pipelines or whatever, and say, you know,  
11 these fall in a higher-risk category than  
12 these. So to me that's what a qualitative  
13 risk assessment is.

14           Q    So you're comparing quantitative  
15 versus qualitative. Would you say that the  
16 formal risk assessments that are now being  
17 done are more quantitative?

18           A    No. I don't think the data exists  
19 today in the underground storage industry to  
20 do a -- what would be considered a true  
21 qualitative risk assessment. I think they  
22 are -- I'm sorry -- a true quantitative risk  
23 assessment. They are -- to my knowledge, the  
24 ones that out there being done are of a  
25 qualitative nature.

26           There is a push in the industry to  
27 make things more quantitative, but it's going  
28 to take better data than what's available

1 today to be able to do that.

2 Q I may already have the answer to  
3 this question, but I'm going to ask it. Do  
4 you know if SoCalGas ever performed a  
5 qualitative risk assessment at the Standard  
6 Sesnon field at any time after it acquired  
7 the field in the 1970s?

8 A If you are talking about a fully  
9 documented qualitative risk assessment, I am  
10 not aware of that, but if you are talking  
11 about knowing where your risks are and sort  
12 of establishing higher- and lower-priority  
13 items based on that assessment, certainly,  
14 they were doing that -- they were doing that  
15 continuously.

16 Q That's what you refer to as the  
17 informal risk assessment; correct?

18 A Correct. Correct.

19 Q So as I understand that, SoCalGas's  
20 risk analysis was based on its prior  
21 experience with the wells, but didn't  
22 consider future events that might occur if it  
23 had never experienced them before; is that  
24 correct?

25 A I don't -- I don't know what  
26 factors they took into account when they were  
27 looking at risks for the wells.

28 Q So, Mr. Katzenberg, can you please

1 pull up Cal Advocates Exhibit 408.

2 Mr. Stinson, and Mr. Hower, we'll  
3 start with Mr. Stinson.

4 Have you seen this exhibit before  
5 it was provided to you as a cross-examination  
6 exhibit?

7 WITNESS STINSON: No.

8 Q And, Mr. Katzenberg, can you scroll  
9 to the next page so that we can see what it's  
10 about. Okay. So this is a SoCalGas Data  
11 Response, Cal Advocates Data Request No. 38.

12 And, Mr. Stinson, did you review  
13 this exhibit in preparation for your  
14 cross-examination?

15 A I did.

16 Q Do you know how old SS-25 was at  
17 the time of rupture?

18 A It was drilled in -- yeah, it was  
19 approximately 60-something years old. I'd  
20 have to get the exact number.

21 Q Is it foreseeable that an older  
22 well might experience wear that had not  
23 previously been observed in a gas storage  
24 field before?

25 A I'm not sure I understand that  
26 question.

27 Q As wells get older, they could have  
28 other problems with them that might not have

1     been seen before; is that correct?

2             A     Well, certainly, any well can  
3     experience issues that have not been seen  
4     before. I'm not sure if there's anything  
5     particular about SS-25 in that regard. ]

6             Q     In your experience of touring 33  
7     gas storage fields in 13 states, have you  
8     ever seen corrosion of a well casing?

9             A     I have seen corrosion on well  
10    casing that's been pulled out of a well, yes.

11            Q     And what was the corrosion caused  
12    by?

13            A     Corrosion is generally caused by  
14    water in the formation that's up against the  
15    casing.

16            Q     Mr. Stinson, do you know what a  
17    risk matrix is?

18            A     I'm sorry, you cut out.

19            Q     Sorry. Do you know what a risk  
20    matrix is?

21            A     I can think of a couple three  
22    different types of risk matrices. Is there  
23    something in particular you're looking for?

24            Q     No. I think that we were looking  
25    at --

26                    Mr. Katzenberg, if you can go to  
27    Question 2 on this data request.

28                    We had asked SoCalGas whether they

1 had ever created a risk matrix for the  
2 Standard Sesnon field gas wells at any time  
3 after acquiring the field in the '70s. They  
4 had told us that they had not. I was curious  
5 what you thought a risk matrix would be.

6 A Well, like I said, I can think of a  
7 couple of different types of risk matrices,  
8 so I mean it's looking at the various risks  
9 that could be applied to different  
10 facilities, for sure.

11 Q And in going through the SS-25 well  
12 files, did you see any evidence of a risk  
13 matrix --

14 A No.

15 Q -- for SS-25?

16 A No.

17 Q What about for the Standard Sesnon  
18 well field?

19 A No.

20 Q Mr. Hower, the same question.

21 WITNESS HOWER: Just the last question  
22 or the risk matrix --

23 (Crosstalk.)

24 BY MS. BONE:

25 Q Did you see evidence of a risk  
26 matrix in the SS-25 well file?

27 A No.

28 Q Did you see evidence of a risk

1 matrix anywhere in the Standard Sesnon well  
2 field file?

3 A No, I did not.

4 Q So do you know if SoCalGas created  
5 a risk matrix for either SS-25 or the  
6 Standard Sesnon well field at any time after  
7 it acquired that field?

8 A This is Mr. Hower. If you're still  
9 asking me, I do not know.

10 Q Mr. Stinson?

11 WITNESS STINSON: No, I don't know  
12 either.

13 Q And with regard to Question 3 in  
14 that data request -- Mr. Katzenberg, if you  
15 can scroll down -- we asked SoCalGas if they  
16 could provide documents where they discuss  
17 the risk of subsurface ruptures or whether  
18 they considered the risk of low-probability,  
19 high-consequence events.

20 I was wondering if prior to the  
21 incident you know whether SoCalGas ever  
22 considered the risk of a low-probability,  
23 high-consequence event at Aliso Canyon.

24 A Who are you asking?

25 Q We'll start with Mr. Stinson.

26 A I do not know.

27 Q Did you see any evidence,  
28 Mr. Stinson, in the well files of such

1 consideration?

2 A No.

3 Q And in looking at the well files,  
4 Mr. Stinson, did you see evidence that  
5 SoCalGas ever considered the risk of  
6 subsurface ruptures of its gas wells?

7 A No.

8 Q And, Mr. Hower, did you see any  
9 evidence that SoCalGas had considered the  
10 risk of subsurface ruptures in its gas wells  
11 when you were reviewing the well file?

12 WITNESS HOWER: Well, I think that  
13 their actions show that they did consider the  
14 risks. The installation or the trials of the  
15 deep subsurface safety valves, that was  
16 specifically done to mitigate against a  
17 possible rupture. They had had two wells  
18 that had subsurface leaks that there was gas  
19 migration away from the wellbore. And as is  
20 described in our testimony, in our opinion,  
21 SoCalGas followed up those leaks with some  
22 more extensive investigation beyond what was  
23 typically done for a routine casing leak.

24 Q When did that investigation occur?

25 A The two wells I'm talking about are  
26 the FF-34A, and the Frew 3. I don't have the  
27 dates of those leaks memorized so I don't  
28 know that, but it is discussed in our

1 testimony.

2 Q And, Mr. Hower, do you know if  
3 prior to the incident SoCalGas ever  
4 considered the risk of a low-probability,  
5 high-consequence event at Aliso Canyon?

6 A Well, again, I think they did. I  
7 think by implementing a program such as the  
8 deep subsurface safety valves, which is  
9 something most storage operators do not do, I  
10 think they were anticipating the possibility  
11 that something like that could happen and  
12 were trying to put in measures to prevent it.

13 Q Mr. Hower, was there anything in  
14 the well files that reflected this?

15 A The deep subsurface safety valves?

16 Q Yes.

17 A Yes.

18 Q Reflective that they had done  
19 these, but did it explain why? Did it  
20 explain that they were concerned about  
21 high-consequence events?

22 A Well, that's really the only reason  
23 you put a deep subsurface safety valve in a  
24 well. You don't really need to explain it.  
25 That's why you're doing it. That's what  
26 they're designed to prevent.

27 Q If we could move on,  
28 Mr. Katzenberg, to Exhibit CalPA-410.

1 ALJ POIRIER: This is ALJ Poirier.  
2 Let's go off the record very quickly.

3 (Off the record.)

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

6 Please continue, Ms. Bone.

7 BY MS. BONE:

8 Q Mr. Katzenberg, if you could scroll  
9 this to page 15. And while Mr. Katzenberg is  
10 doing that, we'll start with Mr. Stinson.

11 Have you seen this exhibit before  
12 it was provided to you as a cross-examination  
13 exhibit?

14 WITNESS STINSON: Yes, I have.

15 Q For the record, this is Blade's  
16 response to SED Data Request-78. Did you  
17 review this --

18 A Yes, I read it.

19 Q -- exhibit in preparation for your  
20 cross-examination?

21 A Yes, I did.

22 Q Mr. Hower, had you seen this  
23 exhibit before it was provided to you as a  
24 cross-examination exhibit?

25 WITNESS HOWER: Yes, I did.

26 Q And did you review it in  
27 preparation for your cross-examination?

28 A Yes.

1           Q    Mr. Stinson, do you agree that this  
2           exhibit sets forth Blade's opinions regarding  
3           portions of your reply testimony dated  
4           March 20, 2020, and identified as SoCalGas  
5           Exhibit 4-2 here?

6           WITNESS STINSON:  I don't see the date.

7           Q    If you go to page 4 of the exhibit,  
8           which is entitled 1 Background.

9                    Are you there, Mr. Stinson?

10          A    Yes, I am.

11          Q    And you see the third paragraph  
12          states:

13                    The questions are related to the  
14                    document titled Chapter 1,  
15                    Prepared Reply Testimony of Tim  
16                    Hower and Charlie Stinson of MHA  
17                    Petroleum Consultants on Behalf of  
18                    Southern California Gas Company?

19          A    Yes, I see that.

20          Q    Do you see that?  So can we agree  
21          that this exhibit sets forth Blade's opinions  
22          regarding your reply testimony?

23          A    Yes.

24          Q    And, Mr. Hower, do you agree as  
25          well?

26          WITNESS HOWER:  Yes.

27          Q    So let's go back to page 15 of this  
28          document.  Blade's response to Question 8 is

1 Blade's expert opinion on the sufficiency of  
2 SoCalGas' risk assessment that will perform  
3 before 2007. Would you agree to that? And  
4 specifically if you look at page 15, the  
5 Section 2.8.1, Blade's responses.

6 WITNESS STINSON: Yes, I see it's  
7 related to risk assessments pre-dating 2007.  
8 Is that your question?

9 Q Correct.

10 A Yes.

11 Q And among other things, Blade finds  
12 the pre-2007 risk assessment to be lacking.

13 Would you agree?

14 A They identify items they felt  
15 should have been included.

16 Q Now let's go to page 9 of this  
17 document, Question 4. That question asks  
18 whether SoCalGas should have had a reasonable  
19 understanding of groundwater depths relative  
20 to the surface casing shoe and production  
21 casing at SS-25 before the incident.

22 Do you see that?

23 A Yes.

24 Q And Blade answered that SoCalGas  
25 should have had an understanding of the  
26 groundwater depths; is that correct?

27 A Yes.

28 Q And Blade explained that the

1 utility's failure to know about the  
2 groundwater regime resulted in the fact that  
3 SoCalGas did not realize that groundwater  
4 exposure posted a threat to wellbore  
5 integrity; is that correct?

6 A I'll need to read that paragraph.

7 Q If you go down to subsection b  
8 under 2.4.1, you see the language "SoCalGas  
9 did not know the groundwater regime"?

10 Do you see that?

11 A Yes, I do.

12 Q So you agree that this was a Blade  
13 conclusion?

14 A Yes, that's what it says.

15 Q Now if we could go to Question 5 on  
16 page 9, just further down there. It quotes  
17 your testimony and states at the bottom of  
18 page -- that you concluded "knowledge of  
19 hydrogeology and groundwater is only relevant  
20 for the design and implementation of the  
21 surface casing."

22 I believe that's the last sentence  
23 if you flip to the next page on page 10 where  
24 it's quoting your testimony. Do you see  
25 that? "Knowledge of the hydrogeology and  
26 groundwater is only relevant for the design  
27 and implementation of the surface casing."

28 Was that an accurate representation

1 of your testimony?

2 A I'm not following you. I'm sorry.

3 Q Sorry. Let's go -- are you on  
4 page 10 of the document?

5 A I am. I am at the top of page 10.

6 Q Okay. And if you look to the  
7 fourth line down, they're quoting your  
8 testimony here.

9 Do you agree?

10 A It says, "footnote omitted." I'm  
11 not -- I can't be for certain that's from our  
12 testimony.

13 Q That's fair. Let's go to --

14 Mr. Katzenberg, if you can pull up  
15 SoCalGas Exhibit 4-2 at page 22, lines 10 and  
16 11.

17 Mr. Stinson, if you can pull up  
18 your testimony as well.

19 A Okay.

20 Q On page 22, lines 10 and 11, can  
21 you read there starting with "Knowledge."

22 A "Knowledge of the hydrogeology and  
23 groundwater is only relevant for the design  
24 and implementation of the surface casing."

25 Q Correct. Do you know, Mr. Stinson,  
26 did Blade agree with this claim?

27 Mr. Katzenberg, if you could go  
28 back to Cal Advocates Exhibit 410 at page 10.

1           And the answer to c, if you scroll  
2           down just a bit under 2.5.1, it asks "Is  
3           knowledge of hydrogeology and groundwater  
4           only relevant for the design and  
5           implementation of the surface casing? "

6           Mr. Stinson, do you see that?

7           A    I do.

8           Q    And what was Blade's position?  
9           Could you read that.

10          A    Yes. It says, "No, it is also  
11          relevant for the management of wellbore  
12          integrity."

13          Q    So now, Mr. Katzenberg, let's go  
14          down to Question 6 on page 10.

15                There at the last few sentences of  
16          Question No. 6, Mr. Stinson, they're also  
17          quoting your testimony. The statement is  
18          "The purpose and objective of a surface  
19          casing is not to provide a barrier to gas or  
20          oil leaving the wellbore."

21                Do you see that?

22          A    Yes.

23          Q    And let's look at Blade's response  
24          on the next page at Question 6, subsection d.  
25          It asks "Would knowledge of corrosion on the  
26          surface casing provide the operator with any  
27          useful information related to the safety of  
28          the well?"

1 Do you see the answer there?

2 A Yes, I do.

3 Q And what is the answer that Blade  
4 gives?

5 A "Yes, assuming corrosion  
6 information on the surface casing can be  
7 obtained."

8 Q Thank you very much for that,  
9 Mr. Stinson and Mr. Hower. My  
10 cross-examination is concluded at this time.

11 ALJ POIRIER: Thank you, Ms. Bone.

12 We'll go off the record.

13 (Off the record.)

14 ALJ POIRIER: We'll be back on the  
15 record. We'll be taking an afternoon break  
16 until 2:38. Off the record.

17 (Off the record.)

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

20 We're returning form a short break.  
21 We discussed availability of witnesses. We  
22 indicated to SoCalGas that Mr. Schwecke  
23 should be available to go the morning of the  
24 18th, but we're going to try to get  
25 Boots & Coots to go on that date.

26 SoCalGas was instructed to provide  
27 an update on the availability of  
28 Boots & Coots by the close of business on

1 Thursday of this week. And at point, once we  
2 have more information, ALJ Hecht and I will  
3 act accordingly. At this point I want to  
4 move ahead with the redirect of witnesses  
5 Stinson and Hower.

6 Mr. Lotterman, please go ahead.

7 MR. LOTTERMAN: Thank you, your Honor.

8 REDIRECT EXAMINATION

9 BY MR. LOTTERMAN:

10 Q Mr. Stinson and Mr. Hower, I'm  
11 going to walk through my redirect basically  
12 in the order that Mr. Gruen and Ms. Bone went  
13 through so it may be a little choppy, but I  
14 think that's the most efficient way to do  
15 this. I'm going to ask certain of you to  
16 follow up on your answers for clarifications  
17 and other times to give your respective views  
18 if they weren't solicited by either Mr. Gruen  
19 or Ms. Bone.

20 Obviously if you wish to seek  
21 testimony from either one of you, please let  
22 me know and we'll certainly accommodate that,  
23 but I think we can move through this rather  
24 quickly.

25 Mr. Hower, let's start with you.  
26 Mr. Gruen started or we spent some time  
27 yesterday with you discussing Well P-25. And  
28 to orient everyone -- and we don't need to go

1 through this in detail -- but to orient  
2 everyone, he was asking you questions about  
3 your reply testimony, SoCalGas-04-R at  
4 page 13. The very first bullet of the list  
5 of Blade's relevant casing failures talked  
6 about a number of wells, 11 wells, and one of  
7 them was P-25-R.

8 Do you remember that line of  
9 questions, Mr. Hower?

10 WITNESS HOWER: Yes, I do.

11 Q Okay. And if I followed you  
12 correctly -- and I just want to make sure  
13 we're clear on the record here -- your  
14 supporting documentation for that particular  
15 well is set forth in Footnote 54; is that  
16 correct?

17 A Yes, that is correct.

18 Q And if I understood the  
19 testimony -- and, again, we don't need to go  
20 through this ad nauseam -- but that in turn  
21 directs attention to Exhibit 1-20 in your  
22 SoCalGas Exhibit 5; is that correct?

23 A Yeah, I believe it's I-20 but, yes,  
24 correct.

25 Q I-20, thank you. Again, we don't  
26 need to walk through this on the screen or  
27 whatever, but just for the record, could you  
28 walk through what in Exhibit I-20 supports

1 the information that you provide on page  
2 4.0062 of your reply testimony.

3 A Yes. As I was explaining to  
4 Mr. Gruen, the first page in Exhibit I-20 is  
5 a notice of intention to rework well P-25-R  
6 and it's a 1977 notice. The questions that  
7 Mr. Gruen was directing to me were asking why  
8 did I characterize this well leak in this --  
9 or the well leaks in this well as being  
10 identified and repaired during conversion of  
11 the field based on this 1977 notice.

12 My answer was we had a bit of  
13 back-and-forth between myself, Mr. Stinson,  
14 and Mr. Gruen. But the answer to that is  
15 this first page is just some additional  
16 information of a notice of intent in 1977.  
17 All the pages behind that, page 2, 3, 4,  
18 et cetera, are the actual workover histories  
19 from 1973, which supports the language in our  
20 testimony because it deals with the  
21 identification and repair of the leaks during  
22 the conversion of this well from an oil well  
23 to a gas storage well in 1973.

24 Q Thank you. Moving on to another  
25 exhibit Mr. Gruen showed you, Mr. Hower,  
26 Exhibit SED-302. Would you mind just pulling  
27 that up quickly.

28 A I have it.

1           Q    Can you tell from Exhibit SED-302  
2 what type of safety valve Schlumberger is  
3 marketing here?

4           A    Yes. This is a shallow set safety  
5 valve designed to be used from zero to 2,500  
6 feet. That's --

7                   (Crosstalk.)

8 BY MR. LOTTERMAN:

9           Q    Excuse me. Where in this exhibit  
10 do you find that information?

11          A    The lower portion of the page, the  
12 first page, where it's being highlighted on  
13 our screen right now.

14          Q    Could you tell from Exhibit SED-302  
15 what the year of this publication was?

16          A    Yes. On the second page, again, in  
17 the very lower left, this document was  
18 copyrighted in 2009.

19          Q    Now, what is the difference between  
20 a shallow-set subsurface safety valve and a  
21 deep-set valve very briefly?

22          A    The main difference is they're  
23 designed usage. The deep-set safety valve,  
24 like the one that was in the SS-25, is set  
25 very deep in the well down by the actual gas  
26 storage reservoir, so down around 8,000 feet.  
27 The exhibit we're looking at that Mr. Gruen  
28 directed me to is a shallow subsurface safety

1 valve designed to be used up near the  
2 surface.

3 Q Okay. Let's turn to SED Exhibit  
4 303, please. Before we look at the document,  
5 the exhibit in particular, I was wondering if  
6 you would just explain for a moment what  
7 exactly you reviewed in developing your  
8 testimony on industry regulations, industry  
9 standards, and industry prevailing practices.  
10 Would you mind explaining to the judges the  
11 difference between those three.

12 A Sure. The gas storage industry for  
13 most of its life never really had anything in  
14 the way of documented standards. For a long  
15 period of time, through the '90s, the early  
16 2000s, really up until just about the time of  
17 the SS-25 incident, really all there was to  
18 go on or to guide operators was industry  
19 practice, which is really a comparison of  
20 what the various operating companies and gas  
21 storage were doing, and state regulations, so  
22 California's regulations versus  
23 Pennsylvania's regulations versus Kansas'  
24 regulations.

25 And that's what the operators had  
26 to go on. They had to look at their state  
27 regulations and adhere to those and then look  
28 at industry practices. It's only been very

1 recently that we're seeing the move towards  
2 documented national standards in gas storage.

3 So Mr. Stinson and I formed our  
4 opinions and did our reviews based on our  
5 experience and working with many of these  
6 operators in a large -- over a hundred  
7 different fields and in looking at  
8 regulations, gas storage regulations, in all  
9 31 states that have any kind of gas storage  
10 operation.

11 Q Okay. And now focusing on Exhibit  
12 SED-303, are you familiar with this document?

13 A Yes.

14 Q Is it a standard for applying  
15 cathodic protection on underground storage  
16 wells?

17 A It's a standard for really going  
18 about an investigation to determine if you  
19 should, if you need cathodic protection, if  
20 you should put it in or not. It's a standard  
21 more for analyzing your field or your  
22 scenario to determine if it's appropriate to  
23 use cathodic protection. ]

24 Q And where in this document can you  
25 point to, if anywhere, language which  
26 supports what you just said?

27 A The best place to look is Paragraph  
28 1.2.

1 Q And would you just read the first  
2 sentence into the record, please.

3 A Yeah. If you want to get it on the  
4 screen, it's down a little further. We're  
5 looking for paragraph 1.2.

6 Q Next page, please.

7 A Yeah. You got to get through some  
8 nomenclature. There we go.

9 So Paragraph 1.2 starts with:

10 This standard does not designate  
11 practices for specific situations.

12 Q Does it explain in the next  
13 sentence why it takes that view?

14 A Yeah. In fact, very similar to  
15 what is expressed in our testimony, it  
16 discusses the complexity and the difficulties  
17 and the challenges in applying cathodic  
18 protection when your wells are in close  
19 proximity to other wells, when you have  
20 certain environmental conditions.

21 Q And did SoCalGas, in fact,  
22 implement or put in cathodic protection on  
23 some wells at Aliso Canyon?

24 A Yes, they did.

25 Q And do you know why they did some  
26 wells?

27 A Yes. They implemented cathodic  
28 protection on a number of wells, and it was

1 those wells that were located in portions of  
2 the field where they were relatively remote  
3 and away from other wells, both in the  
4 storage zone and shallower wells.

5           There's quite a lot of information  
6 in this document, this NACE document, that  
7 talks about interference currents, and the  
8 problems that those interference currents can  
9 cause. They can actually make corrosion  
10 worse. Rather than stop corrosion, you can  
11 put in cathodic protection and actually  
12 accelerate corrosion if you have interference  
13 currents.

14           So where SoCalGas did implement  
15 cathodic protection in Aliso Canyon, it was  
16 done with a lot of thought and to where these  
17 wells are, where they're located, and their  
18 proximity to potential interference currents.

19           Q Did SoCalGas equip FF-34A with  
20 cathodic protection?

21           A Yes.

22           Q Let's turn to the next exhibit that  
23 Mr. Gruen asked you about, SED-304. Let's go  
24 to the Bates-stamped page that ends 1865.

25           Mr. Moshfegh, if you would start at  
26 the very first sentence, I believe Mr. Gruen  
27 called that out. Does it read:

28           It is recommended that FF-34A be

1 equipped with cathodic protection  
2 (CP)?

3 A Yes, it does.

4 Q And if you go down to the fourth  
5 very short paragraph, does it say:

6 If funds are available, the  
7 division should equip FF-34A with  
8 CP as soon as is operationally  
9 feasible?

10 A Yes, it does.

11 Q And if I understand your earlier  
12 answer, did, in fact, SoCalGas do so?

13 A Yes, they did.

14 Q Why were they able to do it at  
15 FF-34A?

16 A Again, it was -- I mean, they could  
17 put cathodic protection in anywhere, but they  
18 did it here because it was a well that was  
19 relatively remote and their evaluation of the  
20 situation indicated that that was a location  
21 that was feasible to put in cathodic  
22 protection without having to worry about the  
23 destructive interference currents.

24 Q Thank you, Mr. Hower. We'll keep  
25 you on the hot seat for a couple more  
26 minutes.

27 Mr. Gruen asked you a couple  
28 questions about reviewing the well files and

1 I believe you gave him the confirmed date  
2 today of June 2018. Do you remember that  
3 line of questioning?

4 A Yes, I do.

5 Q What does the June 2018 date  
6 signify?

7 A That was our first opportunity to  
8 meet with Mr. Neville in his office with all  
9 of the well files from the Aliso Canyon  
10 field, all the hard-copy well files.

11 Q And how many subsequent visits did  
12 you have after June 2018?

13 A Well, I believe I testified about  
14 this on Friday. It was three or four. We  
15 met with Mr. Neville for three or four  
16 different times, each time spending at least  
17 a full day working with him in his office  
18 going through all the well files.

19 Q So, actually, go back to an earlier  
20 answer you gave. Do you have a sense in  
21 reviewing the well files as to how SoCalGas  
22 decided whether to put cathodic protection on  
23 certain wells?

24 A I'm sorry. Could you repeat that?

25 Q I guess, what I was asking is, in  
26 understanding which wells SoCalGas, in fact,  
27 did equip with cathodic protection, was there  
28 a common factor or denominator?

1           A    Well, again, I think it really had  
2   to do with where the wells were located, and  
3   if they were in a portion of the field that  
4   was viable to equipment with cathodic  
5   protection.

6           Q    Do you recall what portion of Aliso  
7   Canyon field it was?

8           A    Yeah. I believe it's the  
9   southeastern portion of the field, which is  
10  relatively distant from the SS-25 well.

11          Q    How is the field that SS-25 is in  
12  different from that southeastern area?

13          A    Well, for one thing, it has very  
14  high well density. Just the SS-25 pad alone  
15  has three wells within a few hundred feet of  
16  each other. That's literally a nightmare for  
17  cathodic protection because, again, if you  
18  design a cathodic protection program for the  
19  SS-25 itself, and you don't have everything  
20  perfectly balanced and worked out, which is  
21  extremely difficult to do, you will get  
22  interference currents and accelerate  
23  corrosion on the other wells that are  
24  impacted.

25          Q    Does the western portion of Aliso  
26  Canyon facility also have other producers  
27  with other wells?

28          A    Yes, it does. It has shallower

1 wells that are not in gas storage operations,  
2 but shallower oil wells, and those will be  
3 impacted also.

4 Q In a positive way or a negative  
5 way?

6 A Very negative way because you  
7 wouldn't be designing your program for those  
8 wells and the nodes that you use for your  
9 cathodic protection currents are at the  
10 surface. So those currents have to get from  
11 the surface down to the portion of the well  
12 you're trying to protect.

13 And, again, if those currents  
14 happen to pass by and impact shallower wells  
15 that are not in the design, they're going to  
16 cause corrosion on those wells.

17 Q All right. Let's turn to SED  
18 Exhibit 306, which I believe, Mr. Hower,  
19 Mr. Gruen also asked you about.

20 And I would like to go to the very  
21 last page of this exhibit, Mr. Moshfegh,  
22 SED-306.002.

23 Now, Mr. Gruen asked you a number  
24 of questions, Mr. Hower, if you recall, about  
25 the leak or leaks at Frew 3; do you remember  
26 that?

27 A Yes, I do.

28 Q And I believe he showed you one

1 portion of your testimony and asked you if  
2 you were able to find a discussion of the  
3 leaks in that portion, and I believe your  
4 answer was no; is that right?

5 A In the portion of the discussion  
6 that, yeah, that Mr. Gruen was pointing me  
7 to; correct.

8 Q Okay. And in Response No. 1 on  
9 page 2 of this exhibit, Mr. Moshfegh, would  
10 you just highlight Answer B.

11 So the question is:

12 In support of the answer to  
13 Question 1A, please provide copies  
14 of the well file pages that show  
15 the dates, methods of inspection,  
16 and type of repair.

17 Do you see that?

18 A Yes.

19 Q During lunch were you able to  
20 review the document with Bates  
21 No. AC\_CPUC\_0022894?

22 A Yes, I was.

23 Q And does that, in fact, provide the  
24 dates and the methods of inspections and the  
25 type of repairs that Mr. Gruen was asking  
26 about vis-à-vis Well Frew-3?

27 A Yes. It's a very documented  
28 wellbore diagram showing the location of the

1 leak, listing the dates and the  
2 identification and the treatment.

3 Q And, in fact, did Mr. Gruen provide  
4 you that document in preparation for cross  
5 and label it "SED-307"?

6 A Yes. That's correct.

7 Q All right. Mr. Stinson, you're up.

8 WITNESS STINSON: Okay.

9 Q A couple questions for you, sir.

10 You mentioned -- Ms. Bone showed  
11 you an exhibit that she marked as CalPA-408.  
12 Let me just get it in front of me here. Here  
13 it is. And it talked about risk assessments  
14 as well as qualitative risk assessment. Do  
15 you remember that line of questions?

16 A Yes, I do.

17 Q In one of your answers, you spoke  
18 about an Interim Final Rule; what were you  
19 referring to?

20 A Yeah. Late in 2016, PHMSA, which  
21 is the Pipeline Hazardous Material Safety  
22 Administration issued a rule related to  
23 underground gas storage that became effective  
24 in January 2017, and in part that rule  
25 adopted portions of a recommended practice,  
26 that one by American Petroleum Institute  
27 Recommended Practice 1171, which was  
28 published in September of 2015.

1           And in that document it was sort of  
2 a first attempt by the American Petroleum  
3 Institute to put in place some standards to  
4 be followed or in this case recommended  
5 practices to be followed by the gas storage  
6 industry, but that included certain elements  
7 related to risk assessments.

8           Q    Okay. I'm sorry. I thought you  
9 were done.

10          A    Well, I just wanted to finish up.

11                  PHMSA made that rule final in July  
12 of 2020, and in that, they adopted certain  
13 segments of RP 1171, but not the entire  
14 document.

15          Q    Okay. And just to be clear, was  
16 that rule issued and adopted by PHMSA after  
17 the SS-25 leak?

18          A    Yes, it was.

19          Q    And is that rule or that standard  
20 sort of described as API 1171 in the  
21 industry?

22          A    Yes. API RP 1171, Recommended  
23 Practice 1171.

24          Q    And how did -- and is that  
25 recommended practice operable today; operated  
26 by SoCalGas?

27          A    Yes, it is.

28          Q    Now, how did the issuance, just

1 briefly, of API Recommended Practice 1171  
2 change the landscape or the practices for gas  
3 operators vis-à-vis qualitative risk  
4 assessment.

5 A Yeah. It provided a very good  
6 blueprint for going about risk assessments,  
7 what threats should be looked at, how  
8 operators should view those various threats,  
9 and it gave a really good blueprint for just  
10 the steps to follow in performing that kind  
11 of assessment.

12 Q Does the blueprint require a more  
13 formal or formalistic risk assessment?

14 A Yes, it does.

15 Q How so?

16 A There's required documentation that  
17 involves looking well by well, assessing each  
18 individual penetration of the gas storage  
19 reservoir, whether it's an operating well or  
20 a previous well that had been plugged and  
21 abandoned. So there's a fair bit of  
22 documentation required and recordkeeping  
23 associated with that.

24 Q And are gas operators, underground  
25 storage gas operators, like SoCalGas,  
26 attempting to implement the new Recommended  
27 Practices of API 1171 today?

28 A Yes, they are.

1           Q    Mr. Hower, back to you because I  
2 believe Mr. Stinson was asked these questions  
3 and I would like to get your perspective on  
4 them as well.

5                    Let's turn to CalPA Exhibit 410. I  
6 believe Ms. Bone asked Mr. Stinson about  
7 this, and so we'd like to get your  
8 perspective as well if you would.

9                    What I am going to do, I'm going to  
10 reverse the order, and I'm just going to kind  
11 of walk through the document in the order  
12 that the answers are laid out. Let's start  
13 with Question 4. Let me know what you are  
14 there, Mr. Hower.

15                   WITNESS HOWER: I'm there.

16           Q    If I understood your answers,  
17 Ms. Bone's question addresses whether or not  
18 SoCalGas had a reasonable understanding of  
19 groundwater depths in and around the SS-25  
20 well. Is that gist of the question?

21           A    Yes. That's correct.

22           Q    And in your review, did SoCalGas  
23 have a reasonable understanding of the  
24 groundwater depth vis-à-vis the casing shoe,  
25 the production casing, in and around the well  
26 SS-25?

27           A    Yes. Absolutely.

28           Q    How?

1           A     Well, the -- I mean, I guess, first  
2     thing as a bit of a preface, the term  
3     "groundwater" is being used pretty  
4     indiscriminately in the conversations here,  
5     including the Blade report and all the  
6     testimony.

7                     Blade really never defines what  
8     they mean by "groundwater." To me -- well,  
9     not just to me, but if you look up the United  
10    States Geological Survey, their definition of  
11    "groundwater" is "water in the ground,"  
12    whether it's at the surface or down 8,000  
13    feet at the storage zone.

14                    That being said, my interpretation  
15    of the way Blade is using "groundwater" is to  
16    describe fresh water zones near the surface,  
17    and SoCalGas was certainly aware of those  
18    because their surface casing was set  
19    consistent with DOGGR regulations at the time  
20    so that it was deep enough below the deepest  
21    fresh water zone.

22                    Below that, is still groundwater.  
23    It just becomes brackish and more and more  
24    saline until you have brine. And SoCalGas  
25    was well aware of that and SoCalGas was well  
26    aware of the potential risks associated with  
27    that.

28                    When you put steel in the ground,

1 you're going to get corrosion. It's not a  
2 question of if; it's a question of when. And  
3 the way you deal with that and the way you  
4 manage that is to have a well-thought-out  
5 testing and survey program to indicate if and  
6 when you have issues with corrosion that need  
7 to be mitigated.

8 And as we've seen, SoCalGas had a  
9 very robust program of running annual  
10 surveys, monitoring the field for corrosion,  
11 they so they were well aware of the impact of  
12 the groundwater, both above the surface  
13 casing shoe, where you have potable water,  
14 and below the casing shoe, where you have  
15 brines and more saline waters.

16 Q All right. Let's turn, if you  
17 would, Mr. Hower, to page 10 of Cal Advocates  
18 410, and I want to focus on Blade's response,  
19 which is set forth in 2.5.1. I believe this  
20 is response to Question 5.

21 So to move this along a little bit,  
22 the question is:

23 Does Blade agree that -- and I  
24 believe they're quoting your  
25 testimony -- based on the  
26 historical data in the Aliso  
27 Canyon field, there was no reason  
28 for SoCalGas to anticipate there

1                   might be a potential problem with  
2                   corrosion of the production casing  
3                   at a depth above the surface  
4                   casing shoe inside the annulus  
5                   between the production casing and  
6                   the surface casing as occurred in  
7                   the SS-25 well.

8                   What was Blade's response?

9                   A    "Yes."

10                  Q    And when asked why or why not Blade  
11                  agreed with you, what was their answer?

12                  A    Their answer that was historically  
13                  that corrosion above the casing shoe was only  
14                  observed in two instances with 116 wells and  
15                  a history of almost 40 years.  It was  
16                  extremely rare.

17                  Q    Let's move to Question 6.  And,  
18                  again, to get your perspective on it.  I know  
19                  Mr. Stinson had his time.

20                  Question 6, the question is:

21                         Does Blade agree with the  
22                         statement -- and this is out of  
23                         your testimony basically -- that  
24                         the purpose and objective of  
25                         surface casings is not to provide  
26                         a barrier to gas or oil leaving  
27                         the wellbore.

28                         What was their answer?                   ]

1           A    They agreed.  They said yes.

2           Q    Okay.  And then I believe Ms. Bone  
3 jumped down to Question d and focused on  
4 that.  I'd like you to elaborate on that if  
5 you would.  The question is "Would knowledge  
6 of the corrosion on the surface casing  
7 provide the operator with any useful  
8 information related to the safety of the  
9 well?"

10                   What was Blade's response?

11           A    I'm sorry, I missed it when you  
12 jumped -- oh, there it is, d; correct?

13           Q    Yes.

14           A    Okay.

15           Q    So page 11 of 17, the answer to  
16 Question d.

17           A    Sorry, I heard e.  Yes.  Their  
18 answer was "Yes, assuming that corrosion  
19 information on the surface casing can be  
20 obtained."

21           Q    Now, what does it mean to say  
22 "assuming corrosion information on the  
23 surface casing can be obtained"?

24           A    Oh, generally it's impossible to be  
25 able to monitor your surface casing for  
26 corrosion because inside your surface casing  
27 is your production casing, and inside your  
28 production casing, in some cases, is your

1 tubing. Now, the tubing isn't cemented so it  
2 can be removed, but the production casing is  
3 cemented in.

4 The tools that are used in the gas  
5 storage industry and the tools that were  
6 available at the time of the SS-25 incident  
7 can only take measurements. The casing  
8 inspection logs can only measure one string  
9 of tubing. So that production inspection  
10 log -- or casing inspection log, excuse me --  
11 would be able to make some measurements on  
12 the production casing but not the surface  
13 casing.

14 Blade had the benefit of being able  
15 to come in and literally rip the well apart  
16 by extracting the production casing, but  
17 that's not something that's practical to do  
18 in a well that's in an -- in an operating  
19 well that's in service in a field.

20 Q In one of your earlier answers,  
21 Mr. Hower, you said that SoCalGas is well  
22 aware of the potential risk of groundwater.

23 In what sense?

24 A In the sense that if you -- again,  
25 if you put steel in the ground, you're always  
26 going to have the possibility of corrosion.  
27 It's not something you have to inquire about.  
28 It happened. Steel and water equals rust,

1 and so they were well aware of that and they  
2 designed a casing integrity program, a risk  
3 management program to monitor that.

4 Q And is knowing the groundwater in  
5 the area important in setting the surface  
6 casing depth?

7 A If -- yes, in terms of  
8 understanding where the fresh water zones are  
9 in that groundwater and where they stop so  
10 that your surface casing -- one of the main  
11 purposes of surface casing is to protect  
12 fresh water zones during the drilling of the  
13 well. So you need to make sure you --  
14 operators need to make sure they set that  
15 surface casing deep enough so that it is  
16 below the deepest fresh water zone as  
17 stipulated by, in this case, DOGGR.

18 Q Finally, let's turn to Question 8.  
19 Again, we're on Cal Advocates Exhibit 410.  
20 This is on page 14. This is a rather long  
21 one so I'm not going to bother to re-cap it.  
22 Basically Ms. Bone asked Mr. Stinson a number  
23 of questions about risk assessments and the  
24 like.

25 My question to you is in reviewing  
26 all of the hard copy well files at Aliso  
27 Canyon, as well as certain electronic data,  
28 did you get an understanding as to whether or

1 not SoCalGas was historically assessing risk  
2 across that facility?

3 A Yes, I did. And I think  
4 Mr. Stinson talked about it in the context of  
5 what he and I would call an informal risk  
6 management or risk assessment plan. They had  
7 a long history with a lot of wells and annual  
8 measurements essentially on all these wells,  
9 monitoring any kind of anomalies, any kind of  
10 casing leaks, any kind of issues, potential  
11 issues, with corrosion.

12 By, you know, 1988, 1990, they had  
13 over 15 years of history in monitoring these  
14 wells. So they knew that -- they were able  
15 to look at that and determine is there any  
16 trend, is there any correlation to the  
17 corrosion that does occur, is there any  
18 correlation with depth, is there any  
19 correlation with the age of the wells, is  
20 there any correlation with the location of  
21 the well, hot spots if you will.

22 And the answer -- and this is not  
23 just my opinion, but also the opinion of  
24 Blade -- the answer is there wasn't. There  
25 was no trend, no correlation. And over the  
26 years, as we've seen, until the SS-25, there  
27 never was a release -- an uncontrolled  
28 release of gas to the surface. There never

1 was gas lost to the surface in any  
2 significant quantity. Their program worked.

3 Q Gentlemen, out of all the gas  
4 storage facilities you've either put boots on  
5 the ground or you've worked on remotely or  
6 otherwise, how would you rank SoCalGas in  
7 that group?

8 Mr. Hower, why don't you start.

9 A I would put them in -- if I had to,  
10 say, make three baskets, top, medium, low,  
11 I'd put them in the upper third.

12 Q Mr. Stinson?

13 WITNESS STINSON: Yeah, I agree with  
14 that, I mean to the extent that I actually  
15 copied some of the things they had in place  
16 in the early '80s that we incorporated in our  
17 Mist gas field development and my interaction  
18 with the SoCal people who were  
19 representatives on the AGA underground  
20 storage committee. I think SoCal is one of  
21 the pioneers and really did a lot of R&D on  
22 the whole subsurface safety valves. There's  
23 a lot of things I could point to that really  
24 kind of puts them in that upper tier.

25 MR. LOTTERMAN: Your Honor, I have no  
26 further questions.

27 ALJ POIRIER: Thank you, Mr. Lotterman.

28 Let's go off the record.

1 (Off the record.)

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

4 While we were off the record, I  
5 inquired of both SED and Cal Advocates and  
6 they indicated they did not have any recross  
7 for these witnesses. Therefore, Mr. Stinson  
8 and Mr. Hower, thank you. You are done. I  
9 appreciate your time and your participation  
10 in these hearings. Thank you.

11 WITNESS HOWER: Thank you, your Honor.

12 WITNESS STINSON: Thank you.

13 ALJ POIRIER: Let's go back off the  
14 record.

15 (Off the record.)

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

18 We're now going to deal with  
19 exhibits and moving them into the record.  
20 We'll start with SoCalGas.

21 MR. MOSHFEGH: Thank you, your Honor.  
22 The first exhibit is SoCalGas-04.2, the  
23 Prepared Reply Testimony of Tim Hower and  
24 Charlie Stinson of MHA Petroleum Consultants  
25 served March 20, 2020.

26 The second exhibit is SoCalGas-04-R,  
27 the redline version of the Prepared Testimony  
28 of Tim Hower and Charlie Stinson of MHA

1 Petroleum Consultants, also originally served  
2 March 20, 2020.

3 The third exhibit is SoCalGas-05,  
4 the Exhibit to the Prepared Reply Testimony  
5 of Tim Hower and Charlie Stinson of MHA  
6 Petroleum Consultants.

7 The next exhibit is SoCalGas-27,  
8 Prepared Sur-Reply Testimony of Tim Hower and  
9 Charlie Stinson of MHA Petroleum Consultants,  
10 originally served June 30, 2020.

11 And the last exhibit is SoCalGas-28,  
12 Exhibit to the Prepared Reply Testimony of  
13 Tim Hower and Charlie Stinson of MHA  
14 Petroleum Consultants, originally served  
15 June 30, 2020.

16 ALJ POIRIER: And SoCalGas asks that  
17 these exhibits be moved?

18 MR. MOSHFEGH: Yes, your Honor.  
19 SoCalGas requests that these Exhibits be  
20 moved into the record.

21 ALJ POIRIER: Thank you.

22 Do we have any objections to moving  
23 these exhibits into the record?

24 MS. PURCHIA: No objections from SED.

25 MS. BONE: No objections from  
26 Cal Advocates.

27 ALJ POIRIER: Thank you.

28 Exhibits SoCalGas-04.2,

1 SoCalGas-04-R, SoCalGas-05, SoCalGas-27, and  
2 SoCalGas-28 are moved into the record. Thank  
3 you.

4 (Exhibit No. SoCalGas-04.2 was  
5 received into evidence.)

6 (Exhibit No. SoCalGas-04-R was  
7 received into evidence.)

8 (Exhibit No. SoCalGas-05 was  
9 received into evidence.)

10 (Exhibit Nos. SoCalGas-27 and  
11 SoCalGas-28 were received into  
12 evidence.)

13 ALJ POIRIER: Let's move to SED,  
14 Ms. Purchia.

15 MS. PURCHIA: Thank you, your Honor.  
16 We have Exhibit SED-302, Schlumberger WRDP-02  
17 Series Safety Valve; SED-303, NACE Standard  
18 Practice Application of Cathodic Protection  
19 for External Surfaces of Steel Well Casings;  
20 SED-304, Interoffice Correspondence RE FF-34A  
21 Casing Corrosion, Aliso Canyon; and SED-306,  
22 SoCalGas Response to SED Data Request-65,  
23 Question 1.

24 SED requests to move these into the  
25 record.

26 ALJ POIRIER: Thank you, Ms. Purchia.

27 Does any party object to moving  
28 these into the record?

MR. MOSHFEGH: No objection, your

1 Honor.

2 ALJ POIRIER: Thank you.

3 Exhibits SED-302, 303, 304, and 306  
4 are moved into the record.

5 (Exhibit Nos. SED-302, SED-303 and  
6 SED-304 were received into  
evidence.)

7 (Exhibit No. SED-306 was received  
8 into evidence.)

9 ALJ POIRIER: Let's move to Cal  
10 Advocates, please.

11 MS. BONE: Cal Advocates would like to  
12 move SoCalGas Data Response to  
13 CalAdvocates-38 identified as Exhibit Cal  
14 Advocates Exhibit 408 into the record and  
15 Cal Advocates would like to submit Exhibit  
16 CalPA-410 into the record, Blade Response to  
17 SED Data Request-78.

18 ALJ POIRIER: Do we have any objections  
19 to moving these exhibits into the record?

20 MR. MOSHFEGH: No objections from  
21 SoCalGas, your Honor.

22 ALJ POIRIER: The Cal Advocates motion  
23 is granted. The Exhibits Cal Advocates-408  
24 and 410 are moved into the record. Thank  
25 you.

26 (Exhibit No. CalAdvocates-408 was  
27 received into evidence.)

28 (Exhibit No. CalAdvocates-410 was  
received into evidence.)

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

2 (Off the record.)

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

5 Mr. Gruen, could you repeat that  
6 more briefly, please, and --

7 MR. GRUEN: Yes, your Honor.

8 ALJ HECHT: -- you are off the video  
9 again.

10 MR. GRUEN: Apologies for the video,  
11 the technical difficulties. I am doing the  
12 best I can. I'm trying to restart the video.  
13 Is that any better? Okay. I'm seeing nods.  
14 Thank you.

15 Your Honor, with regards to the  
16 deposition of Mr. Holter, we would ask that  
17 the -- there was a question about the  
18 six-hour time limits for Mr. Holter. I think  
19 we were looking for resolution on that.  
20 Also, we would ask -- we're in the process of  
21 reviewing Mr. Holter's field notes and photos  
22 taken, privileged. Some of that information  
23 may be privileged. We'd ask that what's  
24 allowed to be discovered as part of the  
25 deposition be limited to the field notes and  
26 the photos that Mr. Holter took so that we  
27 can move forward expeditiously.

28 ALJ HECHT: Yes, Mr. Stoddard.

1           MR. STODDARD: Thank you, your Honor.  
2           Just to restate, the original request for  
3           production in the subpoena that was included  
4           for the deposition, it was for all documents  
5           within the possession of Mr. Holter related  
6           to the Aliso Canyon incident, all documents  
7           generated or evaluated by Mr. Holter related  
8           to the Aliso Canyon incident, and all  
9           communications related to the Aliso Canyon  
10          incident on which Mr. Holter is included.

11                 SED moved to quash the deposition.  
12          That was subject to the motion for  
13          reconsideration after your Honors initially  
14          denied it. In the ruling on reconsideration,  
15          your Honors granted that deposition as to --  
16          at least my reading -- again, as to  
17          Mr. Holter and his work, and whose  
18          availability -- and asked for his  
19          availability for a deposition as a percipient  
20          witness to SED's preformal investigation.

21                 Percipient witness here, I'm not  
22          sure whether SED has a different  
23          understanding of the term. We have reviewed  
24          SED's motion for it to quash. And, again,  
25          the ruling on this issue in our view was  
26          fairly clear and was not perhaps as narrow as  
27          SED appears to still be interpreting it.

28                 ALJ HECHT: Mr. Gruen.

1           MR. GRUEN: Your Honor, I did my best  
2 to summarize, but I'm surprised, frankly, I'm  
3 aghast that SoCalGas is now going back to its  
4 original deposition, or its original notice  
5 of request, when I had understood your Honors  
6 were clear that the ruling applied to him  
7 only as a percipient witness, not to  
8 documents and communications.

9           We're trying to be up front here to  
10 make clear that there are perhaps certain  
11 documents that relate to Mr. Holter as a  
12 percipient witness, but that is very narrow.  
13 Our understanding of percipient, to be clear,  
14 is what Mr. Holter observed out there.

15           To the extent that he observed  
16 things and wrote notes about what he  
17 observed, perhaps that's fair game. Perhaps.  
18 But we're trying to be clear so that we're  
19 not having an argument down the road at the  
20 deposition as to what's fair game and what's  
21 not. We anticipate that this could enable a  
22 streamlined process to get clarity that his  
23 field notes and photos are -- that are not  
24 privileged, of course, that he took that show  
25 what observations he made, are fair game.

26           Other than that, we could be going  
27 down a road that's going to take a lot of  
28 time and labor-intensive efforts to figure

1 out whether things are privileged. They're  
2 now going back to asking about  
3 communications, which is not his observations  
4 now. We're talking about communications that  
5 have to do with his role as an advisory  
6 staffer. We're now back beyond the scope of  
7 the ruling, your Honor. We would ask --  
8 that's why we're asking for clarity that the  
9 ruling, sticking with it -- we think it's  
10 consistent to stick with field notes and  
11 photos that -- to which privilege does not  
12 apply.

13 ALJ HECHT: Yes, Mr. Stoddard.

14 MR. STODDARD: Your Honor, I believe,  
15 as I noted the first time we argued this  
16 issue a few weeks back, percipient witness  
17 does not -- that term in and of itself does  
18 not mean what Mr. Holter observed while he  
19 was at Aliso Canyon. Percipient witness  
20 stands in contrast to expert witness or PMQ  
21 or PMK, and he can have perceptions about  
22 documents, and he can have observations about  
23 documents, things he perceived includes  
24 documents. It's a direct witness. It's just  
25 that, again, this is in contrast to an expert  
26 witness or a PMQ or a PMK witness.

27 In terms of SED's objection to my  
28 reading of the ruling, I'm not sure what to

1 say. Again, I'm reading back what the ruling  
2 says regarding his availability for a  
3 deposition as a percipient witness to SED's  
4 preformal investigation. And, again, you can  
5 be a percipient witness to something you work  
6 on. The ALJ's ruling understands that, and I  
7 think it's clear. I'm not sure what further  
8 argument is really appropriate or necessary  
9 on this point at this time.

10 ALJ HECHT: Mr. Gruen.

11 MR. GRUEN: Your Honor, if we're going  
12 to broaden this to any document that he  
13 worked on, including potentially  
14 communications with decision makers,  
15 communication -- while he was advisory -- if  
16 we're going to extend it to that, we're going  
17 to have a lengthy -- potentially a lengthy  
18 privilege log that's going to take a long  
19 time and it's going to be put before -- we're  
20 going to have to probably put it before your  
21 Honors to do a line-by-line assessment as to  
22 whether privilege applies. I mean this is  
23 the nature of what SoCalGas' request has  
24 suddenly evolved to.

25 So the burden has suddenly shifted  
26 to a much greater degree than what we had  
27 initially understood and contemplated by the  
28 ruling.

1 ALJ HECHT: Mr. Stoddard.

2 MR. STODDARD: Thank you, your Honor.  
3 We're not changing anything. I literally,  
4 again, I'm reading your Honors' ruling here.  
5 I would also note that the ruling  
6 specifically directed SED to brief the issue  
7 of privilege to the degree that I believe the  
8 privilege applied in this context. It did  
9 not do so. Instead, it re-argued issues it  
10 had previously briefed.

11 At this point in time, again, I  
12 understand SED may be providing a privilege  
13 log, but we will absolutely be carefully  
14 assessing and reviewing any claims of  
15 privilege in this case given that they did  
16 not brief the issue as directed, and any  
17 claims of privilege would need to be  
18 substantiated both as to fact and law. ]

19 MR. GRUEN: Your Honor, may I address  
20 that briefly?

21 ALJ HECHT: I think I'm going to stop  
22 you using the word "briefly." Yes. Please,  
23 go ahead.

24 MR. GRUEN: Thank you, your Honor. I  
25 understand.

26 This is not a matter of briefing an  
27 issue about privilege. Now that we have the  
28 ruling, we're coming forward to say, hey,

1 here potentially are some notes, and now that  
2 we have guidance, instructions about doing a  
3 percipient witness deposition, we're looking  
4 at them and seeing afresh if privilege  
5 applies.

6 We're trying to figure that out and  
7 flag that for you. It's not a matter of a  
8 briefing. It's a matter of looking at what's  
9 out there now that we know there's guidance  
10 and figuring out for the first time if  
11 privilege applies.

12 So, your Honor, we're doing our best  
13 here, but I think there may be a  
14 misunderstanding as to what the role is to  
15 move forward to have an expeditious and  
16 efficient deposition here. We need to take a  
17 look at those notes. I assume that we're  
18 going to provide them, but we have to see if  
19 there's privilege, if certain things in those  
20 notes are privileged, and identify them as  
21 such.

22 ALJ HECHT: All right. Thank you.  
23 There are a couple things that I think are  
24 pretty easy, and that is field notes and  
25 photographs, clearly, seem to be within the  
26 scope.

27 The scope did not exclude all  
28 documents. So I think that SED's proposal

1 that those be part of the scope of this is  
2 correct, and we will at least go that far  
3 today. We did not address on a  
4 document-by-document or question-by-question  
5 level any issues of privilege and I don't  
6 think we expected to. We were asking about  
7 privilege with respect to whether he could be  
8 a percipient witnesses. So there may be  
9 documents that are privileged. I do not  
10 know.

11 What I would like to do is resolve  
12 the questions that I can and defer the other  
13 questions to a future time. I will say the  
14 request was for either six hours or from  
15 SoCalGas seven hours for the deposition.  
16 We're going to stick with the six hours.

17 And I'm going to say, clearly, yes,  
18 those field notes and photographs and things  
19 that were, obviously, observations of  
20 Mr. Holter's work are within the scope and  
21 should be provided.

22 For things other than that, there  
23 may be a review process, and one of you  
24 mentioned that that would probably end up  
25 coming in front of us, as the ALJs, and  
26 you're probably right, and I think I'm not  
27 going to try to answer that question now.

28 If you want to refine the question

1 slightly now, we can try to work on it over  
2 the next few days, but as far as I'm prepared  
3 to go today is please turn over the field  
4 notes and the photos, things that are,  
5 obviously, not privileged and, obviously, are  
6 related to his experience there.

7 Yes, Mr. Gruen.

8 MR. GRUEN: Your Honor, we may need to  
9 do some refinement, but I think a couple  
10 things: One is having -- I need an  
11 opportunity to review the field notes to tell  
12 whether information on them is privileged --  
13 whether some of the information on them is  
14 privileged. So we'll review them  
15 expeditiously at the end of hearings to see,  
16 but that's going to take some time to figure  
17 out.

18 And the other thing is just to  
19 clarify. My understanding is we're limiting  
20 our role to the review of the photos and the  
21 field notes at this point.

22 Am I tracking that right? Or is  
23 there -- that's my understanding of how the  
24 term "documents" is applied in this case.

25 ALJ HECHT: Mr. Stoddard.

26 MR. STODDARD: Thank you, your Honor.

27 In the course of reviewing and  
28 collecting documents, given what we believe,

1 our understanding was that your Honors were  
2 considering the date issue, but, otherwise,  
3 were not intending to revise the language of  
4 the ruling as it was issued, the ruling on  
5 the motion for reconsideration.

6 The language in that ruling is  
7 fairly clear in our view. And, again, I  
8 think the scope is broader than SED is  
9 characterizing it for sure. And it relates  
10 to Mr. Holter's role as a percipient witness  
11 as to SED's preformal investigation not just  
12 the leak itself. However, to the degree that  
13 there's kind of an interim, initial step,  
14 which is what it sounds like your Honor is  
15 contemplating, that they at least begin  
16 production of notes and photographs, field  
17 notes -- sorry -- and photographs. In the  
18 course of that, they may also look at other  
19 documents.

20 And we would just like it to be  
21 clear that they shouldn't be limiting their  
22 review. They should be -- even if they are  
23 for now possibly providing an incremental,  
24 initial production because -- just so we  
25 don't have to restart this process for  
26 purposes of some kind of a privilege log if  
27 they are going to claim that certain  
28 communications notes or documents within

1 Mr. Holter's possession are privileged.

2 ALJ HECHT: I was trying to make things  
3 easier, and I believe that I was not clear.  
4 I am contemplating that there is this initial  
5 step that there are certain things that,  
6 clearly, would not be privileged, and I think  
7 most, if not all, of the field notes, fine.  
8 Review them. But the field notes and the  
9 photos you have offered, and I think are  
10 clearly within the scope.

11 We are going to take under  
12 advisement what, if anything else, we want to  
13 adopt as a limit. The ruling contains two  
14 limitations, the percipient witness to the  
15 preformal investigation. So that gives you a  
16 time period and the type of witness. Beyond  
17 that, we can go back, and if you can ask your  
18 questions a little more specifically about  
19 the types of documents you're talking about,  
20 we can consider that, but I prefer not to do  
21 too much of that today. So I'm not sure  
22 exactly where that leaves us, but is that at  
23 least as far as it goes?

24 (No response.)

25 ALJ HECHT: I think silence probably  
26 means that it is not.

27 MR. GRUEN: I think where the  
28 discrepancy was that I'm hearing is -- I'm

1 clear on your point about field notes and  
2 sort of with an understanding that we may  
3 identify certain privileges on the field,  
4 that we have an opportunity.

5 Where I think Mr. Stoddard has  
6 exceeded that is his assertion that we then  
7 need to go beyond and talk about  
8 communications.

9 That is going to be -- that's going  
10 to be problematic, and it's going to take  
11 extensive time. We're talking about  
12 communications during the time he was  
13 advisory staff, that where there is, you  
14 know, deliberative processes, the  
15 deliberative process in the application,  
16 there is an issue. That's a concern.

17 Now, with that in mind, we can take  
18 your Honor's guidance back, and be more  
19 precise with that, but I do want to -- I'm  
20 hearing a discrepancy there in what  
21 Mr. Stoddard is pushing for, and I do want to  
22 flag what he is asking for is going to be an  
23 immense burden.

24 That's one word that can talk about  
25 hundreds of communications that would --  
26 maybe more than 1,000, that would require us  
27 to hold, evaluate, assess, put that forward.  
28 That would take a long time.

1           That would be a whole separate  
2 process, and we think, frankly, what we're  
3 talking about here in terms of the actual  
4 deposition and the limited value that we  
5 identified, we think that's excessive.  
6 That's just, frankly, not necessary to get at  
7 what Mr. Holter actually observed when he was  
8 out there. We think that just immense burden  
9 to place on SED and not a justified one  
10 either.

11           ALJ HECHT: That is a question we will  
12 need to consult on and weigh.

13           Mr. Stoddard, your response.

14           MR. STODDARD: Thank you, your Honor.

15           Only because Mr. Gruen continues to  
16 repeat this apparent limitation that he  
17 believes that is there, which is what  
18 Mr. Holter observed when he was out there.

19           Again, that is not what the ruling  
20 says. The ruling says: Mr. Holter, as a  
21 percipient witness to SED's preformal  
22 investigation, which went up until the  
23 initiation of this OII.

24           And the other point I would just  
25 make here, is that the reason we need a  
26 privilege log that included communication,  
27 putting aside the scope of our actual  
28 subpoena, which -- and that's what it

1 included, is that it enables us to test and  
2 assess their privilege claim.

3 If Mr. Gruen is asserting that any  
4 communication that Mr. Holter would have been  
5 on related to Aliso Canyon within the  
6 Commission is, in fact, privileged, then he  
7 needs to substantiate that.

8 And so far we've had a lot of  
9 pleadings on this issue, and I don't believe  
10 that SED has substantiated that to the point  
11 where we are able to test it.

12 And I would also just note, and it's  
13 worth noting, we have pending motions to  
14 compel on this exact issue where we have  
15 asked SED to specifically substantiate  
16 specific facts that would help us assess the  
17 contours of their claimed privilege.

18 And they didn't do so, which is why  
19 on a pending motion to compel, if they're  
20 going to take a similar approach at this  
21 time, they need to articulate the factual and  
22 legal basis for claiming that all  
23 communications are privileged such that they  
24 don't need to prepare a privilege log.

25 ALJ HECHT: I can no longer see  
26 Mr. Gruen, which concerns me. Mr. Gruen, do  
27 you have a short response?

28 (No response.)

1 ALJ HECHT: All right. I'll take that  
2 as either a "no" or that we have lost,  
3 Mr. Gruen. There you are.

4 MR. GRUEN: Your Honor, I apologize. I  
5 was just trying to fix my video.

6 Your Honor, this is -- we have  
7 concerns about just this imposing on us.  
8 We're -- our concern -- and I might add, we  
9 have other questions about SoCalGas not  
10 having properly articulated their privilege  
11 claims with regards to certain pending  
12 motions as well, but the issue is the burden  
13 that SoCalGas would have -- they would  
14 still -- and they're repeating they would  
15 like to have their notice of deposition trump  
16 the ruling it appears.

17 And the ruling is -- our  
18 understanding is it doesn't apply to -- it  
19 applies to the observations that he made.  
20 We're going beyond there. I think we've got  
21 some concerns about the burden that's going  
22 to be placed on us.

23 Pardon me if that's repetitive. I  
24 think just because Mr. Stoddard's saying it,  
25 it's not recognizing the immense amount of  
26 work that we're talking about. And we're --  
27 we're -- we are talking about an extensive --  
28 well, I think my concern is that SoCalGas is

1 pushing for us on one hand to move forward  
2 expeditiously, which we think is the right  
3 thing to do.

4 And we offered a solution that we  
5 think comports with the ruling, and SoCalGas  
6 has, frankly, just a different reading of the  
7 ruling than we do.

8 And we think -- we made the  
9 suggestion that we'd look at the field notes  
10 and the photos so that we could move forward,  
11 get this done expeditiously in a way that's  
12 going to work, that's going to take some  
13 staff time that we think is doable and enable  
14 us to get things done expeditiously.

15 And, now, that doesn't seem to be  
16 working for SoCalGas and they're arguing that  
17 we're not following the ruling; when, in  
18 fact, we volunteered this. We didn't even  
19 have to do this much to come forward now to  
20 suggest this. We could have waited until the  
21 deposition to identify it as an issue and had  
22 it out it then.

23 We're trying to move forward  
24 expeditiously, and, frankly, I think, from  
25 SoCalGas's perspective, I ask that there be a  
26 little bit of work towards getting a proper  
27 deposition done that's going to achieve an  
28 expeditious result in what he actually

1 observed out there. That's what I would  
2 suggest, your Honor.

3 MS. BONE: Your Honor?

4 ALJ HECHT: Just a moment.

5 Did Mr. Stoddard have a response to  
6 that?

7 MR. STODDARD: Yes, your Honor. Thank  
8 you.

9 Again, I've been quoting from the  
10 ruling. I don't believe Mr. Gruen has. I  
11 would encourage him to refer to the ruling if  
12 he's going to be arguing about it, especially  
13 where he's arguing that I've been  
14 mischaracterizing it. I believe I've been  
15 quoting and characterizing it accurately.

16 And it supports our -- the scope of  
17 our deposition, and if the scope of our  
18 deposition in your Honor's view is  
19 appropriate, then there's no real basis here  
20 for limiting the scope of the document  
21 production.

22 To the degree that takes time, we  
23 understand. I believe SED was asking for an  
24 expeditious resolution of this deposition,  
25 but if additional time is needed in order to  
26 prepare a privilege log or produce the  
27 documents that are responsive, we can work  
28 with that.

1 ALJ HECHT: Ms. Bone.

2 MS. BONE: Nothing further, your Honor.

3 ALJ HECHT: All right. I'm going to  
4 repeat the guidance I gave earlier. Clearly,  
5 I think the field notes and the photos that  
6 are not privileged are part of this. We did  
7 not exclude those, and they relate to his  
8 being a percipient witness.

9 Honestly, I had not thought about  
10 communication in this level of detail, and  
11 Judge Poirier and I will take that under  
12 advisement and we'll get back to you on it.

13 In the meantime, the direction is  
14 six hours. Please, start working on  
15 providing those documents. And we will  
16 provide in the future further guidance.

17 I think this is a classic example of  
18 people looking at the same thing, and  
19 interpreting it different ways, and we're  
20 going to need to clarify that.

21 So that's really all I've got today.

22 Judge Poirier, do you have anything  
23 to add?

24 ALJ POIRIER: Nothing to add. I'm done  
25 for today as well.

26 ALJ HECHT: Any other, not those, but  
27 other housekeeping items?

28 (No response.)

1 ALJ HECHT: Okay. I'm seeing no other  
2 housekeeping items.

3 This is a reminder that we are no  
4 longer in our quiet period on motions. I'm  
5 not encouraging you to file lots of motions,  
6 but just so you know that it ended last week.

7 We have four days this week that we  
8 will not have hearings because we are  
9 cancelling tomorrow. We will pick up on  
10 Tuesday next week, the 18th, at 10:00 a.m.

11 I hope with the complainant's  
12 witnesses, but failing that, with  
13 Mr. Schwecke, and I hope that all parties can  
14 make arrangements for that, and it's doable  
15 by next Tuesday. I expect that we will get  
16 an update from SoCalGas later this week, I  
17 hope, by Thursday close of business on the  
18 status of the (inaudible). The hope is that  
19 will clarify the issue of who will be going  
20 on Tuesday, but if it doesn't, you have your  
21 instructions. Any other questions before we  
22 go?

23 (No response.)

24 ALJ HECHT: Okay. No.

25 Thank you, everybody. We will  
26 resume Tuesday, the 18th, at 10 a.m. We are  
27 adjourned. We'll be off the record. ]

28 ///

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

(Whereupon, at the hour of 4:00 p.m., this matter having been continued to Tuesday, May 18, 2021, at 10:00 a.m., via virtual proceeding, the Commission then adjourned.)

\* \* \* \* \*

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE  
STATE OF CALIFORNIA

CERTIFICATION OF TRANSCRIPT OF PROCEEDING  
I, ANDREA L. ROSS, CERTIFIED SHORTHAND REPORTER  
NO. 7896, IN AND FOR THE STATE OF CALIFORNIA, DO  
HEREBY CERTIFY THAT THE PAGES OF THIS TRANSCRIPT  
PREPARED BY ME COMPRISE A FULL, TRUE, AND CORRECT  
TRANSCRIPT OF THE TESTIMONY AND PROCEEDINGS HELD IN  
THIS MATTER ON MAY 10, 2021.

I FURTHER CERTIFY THAT I HAVE NO INTEREST IN THE  
EVENTS OF THE MATTER OR THE OUTCOME OF THE PROCEEDING.

EXECUTED THIS MAY 14, 2021.



---

ANDREA L. ROSS  
CSR NO. 7896

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE  
STATE OF CALIFORNIA

CERTIFICATION OF TRANSCRIPT OF PROCEEDING  
I, SHANNON ROSS, CERTIFIED SHORTHAND REPORTER  
NO. 8916, IN AND FOR THE STATE OF CALIFORNIA, DO  
HEREBY CERTIFY THAT THE PAGES OF THIS TRANSCRIPT  
PREPARED BY ME COMPRISE A FULL, TRUE, AND CORRECT  
TRANSCRIPT OF THE TESTIMONY AND PROCEEDINGS HELD IN  
THIS MATTER ON MAY 10, 2021.

I FURTHER CERTIFY THAT I HAVE NO INTEREST IN THE  
EVENTS OF THE MATTER OR THE OUTCOME OF THE PROCEEDING.  
EXECUTED THIS MAY 14, 2021.

  
\_\_\_\_\_  
SHANNON ROSS  
CSR NO. 8916

<b>1</b>	<b>17</b> 2471:22 2472:6 2587:15	2483:2 2485:23 2486:1, 20 2580:28	<b>306</b> 2506:27 2511:20 2578:18 2595:3
<b>1</b> 2467:9 2505:28 2506:5 2507:1 2508:6 2561:8,14 2579:8 2594:22	<b>18</b> 2483:23	<b>2016</b> 2487:18 2519:23 2580:20	<b>31</b> 2572:9
<b>1,000</b> 2512:1,4 2514:3 2518:3 2607:26	<b>1865</b> 2574:24	<b>2017</b> 2546:23 2580:24	<b>32</b> 2475:12
<b>1,060</b> 2512:1,4 2514:3 2518:3	<b>18th</b> 2566:24 2614:10, 26	<b>2018</b> 2501:22,26,28 2576:2,5,12	<b>33</b> 2555:6
<b>1,100</b> 2510:11 2511:4 2514:6,15,18 2515:6,10 2516:2,11,17 2517:10, 20 2518:4	<b>1970s</b> 2553:7	<b>2019</b> 2523:15 2525:7,12 2545:27	<b>34A</b> 2505:23
<b>1,160</b> 2514:6,15,18 2515:6,10 2516:2,11,17 2517:11,20 2518:4	<b>1973</b> 2569:19,23	<b>2020</b> 2472:2 2561:4 2581:12 2592:25 2593:2,10,15	<b>38</b> 2554:11
<b>1-20</b> 2568:21	<b>1977</b> 2569:6,11,16	<b>2021</b> 2522:22 2543:26 2545:23	<b>3A</b> 2512:10
<b>1.2</b> 2572:28 2573:5,9	<b>1979</b> 2491:19,24	<b>21</b> 2475:13 2487:18	<b>4</b>
<b>10</b> 2521:14 2529:28 2563:23 2564:4,5,15, 20,28 2565:14 2585:17 2614:26	<b>1980</b> 2489:4 2502:28 2503:16	<b>22</b> 2564:15,20	<b>4</b> 2561:7 2562:17 2569:17 2583:13
<b>100</b> 2547:14	<b>1984</b> 2511:10	<b>22nd</b> 2545:23	<b>4-2</b> 2561:5 2564:15
<b>10:00</b> 2614:10	<b>1988</b> 2590:12	<b>23</b> 2479:21 2480:16 2485:23 2486:1,19	<b>4-R</b> 2471:21
<b>11</b> 2505:27 2564:16,20 2568:6 2587:15	<b>1990</b> 2476:7 2590:12	<b>25</b> 2471:21 2472:4,5	<b>4.0062</b> 2569:2
<b>116</b> 2586:14	<b>1:45</b> 2543:18 2544:10 2545:1	<b>26</b> 2522:22 2523:15 2543:26	<b>40</b> 2586:15
<b>1160</b> 2510:10	<b>1a</b> 2517:28 2518:2 2579:13	<b>2:38</b> 2566:16	<b>408</b> 2500:2 2554:1 2595:14
<b>1171</b> 2580:27 2581:13, 20,22,23 2582:1,27	<b>1b</b> 2517:4	<b>3</b>	<b>41</b> 2509:11,14
<b>11:15</b> 2498:14,16	<b>2</b>	<b>3</b> 2505:24 2506:10 2508:11,14,17,22 2510:6,9,12,24 2512:2, 5,26 2513:27 2514:5,19 2515:19 2516:7 2517:11 2518:23 2543:27 2557:13 2558:26 2569:17 2578:25	<b>410</b> 2564:28 2583:5 2585:18 2589:19 2595:24
<b>12</b> 2498:15	<b>2</b> 2545:24 2555:27 2569:17 2579:9	<b>3,240</b> 2512:17,25 2513:11 2515:19 2516:6 2517:2,17,25 2518:16,22	<b>5</b>
<b>12:24</b> 2544:10	<b>2,000</b> 2515:24	<b>3,340</b> 2517:23	<b>5</b> 2521:14 2563:15 2568:22 2585:20
<b>13</b> 2482:5 2545:24 2555:7 2568:4	<b>2,000-foot</b> 2517:12	<b>30</b> 2593:10,15	<b>5.0725</b> 2509:28
<b>1311</b> 2545:28	<b>2,500</b> 2570:5	<b>303</b> 2571:4 2595:3	<b>54</b> 2568:15
<b>1316</b> 2543:26	<b>2.4.1</b> 2563:8	<b>304</b> 2595:3	<b>6</b>
<b>1318</b> 2545:28	<b>2.5.1</b> 2565:2 2585:19	<b>305</b> 2487:18	<b>6</b> 2565:14,16,24 2586:17,20
<b>14</b> 2589:20	<b>2.8.1</b> 2562:5		<b>6/14/84</b> 2511:12
<b>15</b> 2483:22 2560:9 2561:27 2562:4 2590:13	<b>20</b> 2472:2 2475:12,14 2543:20 2561:4 2592:25 2593:2		<b>60-something</b> 2554:19
	<b>2000</b> 2476:10		<b>61</b> 2511:19
	<b>2000s</b> 2571:16		<b>65</b> 2507:1,18
	<b>2007</b> 2473:4 2562:3,7		<b>667</b> 2545:24
	<b>2009</b> 2570:18		
	<b>2010</b> 2476:11		
	<b>2015</b> 2479:6,13,15,21 2480:16 2482:28		

<hr/> <b>7</b> <hr/>	<b>accurate</b> 2469:8 2490:22 2563:28	<b>advisement</b> 2533:9 2606:12 2613:12	<b>ALJ</b> 2466:25 2467:7,13, 19 2479:22 2480:15 2481:1,19 2482:7,9,12 2488:7,9 2498:9,13,19 2499:6,14 2500:10,15 2505:8 2513:3,7 2515:13 2520:15,18 2521:10,20 2522:11 2528:25 2529:8,23 2533:1 2535:20 2536:17,27 2537:24 2538:6,16 2541:14,16 2542:9,23 2543:13,16 2544:2,5 2545:3 2546:2 2560:1,4 2566:11,14,18 2567:2 2591:27 2592:2, 13,16 2593:16,21,27 2594:12,25 2595:2,9, 18,22 2596:1,3,8,28 2597:28 2599:13 2600:10 2601:1,21 2602:22 2604:25 2606:2,25 2608:11 2609:25 2610:1 2612:4 2613:1,3,24,26 2614:1, 24
<b>7</b> 2505:28 2506:5 2508:6	<b>accurately</b> 2612:15	<b>advisory</b> 2599:5 2600:15 2607:13	
<b>70s</b> 2556:3	<b>achieve</b> 2611:27	<b>Advocates</b> 2466:27 2499:9 2520:24 2523:4 2525:18 2531:7 2532:7 2537:1,12 2538:9,20,23 2541:3 2545:8 2546:5 2554:1,11 2564:28 2585:17 2589:19 2592:5 2593:26 2595:10,11,14,15,22	
<hr/> <b>8</b> <hr/>	<b>acquired</b> 2553:6 2557:7	<b>Advocates'</b> 2522:7 2537:21 2538:14,28 2542:18	
<b>8</b> 2543:27 2561:28 2589:18	<b>acquiring</b> 2556:3	<b>Advocates-408</b> 2595:23	
<b>8,000</b> 2570:26 2584:12	<b>acronym</b> 2476:18	<b>afoul</b> 2537:12	
<b>80s</b> 2476:7 2591:16	<b>act</b> 2567:3	<b>afresh</b> 2602:4	
<hr/> <b>9</b> <hr/>	<b>actions</b> 2558:13	<b>afternoon</b> 2466:23 2543:10 2545:1 2546:12 2566:15	
<b>9</b> 2545:28 2562:16 2563:16	<b>activity</b> 2547:17,19 2549:24	<b>AGA</b> 2591:19	
<b>90s</b> 2571:15	<b>actual</b> 2551:12 2569:18 2570:25 2608:3,27	<b>age</b> 2590:19	
<hr/> <b>A</b> <hr/>	<b>ad</b> 2568:20	<b>aghtast</b> 2598:3	
<b>a.m.</b> 2614:10,26	<b>add</b> 2499:27 2549:11, 28 2550:1 2610:8 2613:23,24	<b>agree</b> 2468:28 2483:19 2488:22,27 2499:12 2511:14 2513:24 2550:2 2561:1,20,24 2562:3,13 2563:12 2564:9,26 2585:23 2586:21 2591:13	<b>ALJ's</b> 2600:6
<b>abandoned</b> 2582:21	<b>adding</b> 2472:19 2547:9	<b>agreed</b> 2518:3 2586:11 2587:1	<b>ALJS</b> 2603:25
<b>ability</b> 2480:6 2481:16 2482:19 2521:6 2528:19 2532:25	<b>addition</b> 2523:18 2526:5	<b>ahead</b> 2489:14 2505:12 2510:20 2533:27 2537:27 2546:2 2567:4, 6 2601:23	<b>allegations</b> 2530:17
<b>absence</b> 2517:22	<b>additional</b> 2501:7,11 2502:2 2526:16,19 2527:4,20 2528:3 2531:14 2569:15 2612:25	<b>Aliso</b> 2473:13,28 2474:7 2475:17 2478:26 2491:12 2501:18 2557:23 2559:5 2573:23 2574:15 2576:9 2577:6, 25 2585:26 2589:26 2594:20 2597:6,8,9 2599:19 2609:5	<b>alleged</b> 2483:25
<b>absolutely</b> 2485:10 2495:23 2498:12 2583:27 2601:13	<b>address</b> 2467:16 2500:11 2506:9 2508:10 2521:4,26 2535:2 2537:26 2538:24 2543:10 2548:6 2601:19 2603:3		<b>alleging</b> 2526:4
<b>AC_CPUC_0021865</b> 2473:18	<b>addressed</b> 2532:23		<b>allowed</b> 2596:24
<b>AC_CPUC_0022894</b> 2579:21	<b>addresses</b> 2583:17		<b>alternative</b> 2492:13
<b>AC_CPUC_0022968</b> 2510:2	<b>adhere</b> 2571:27		<b>ambiguity</b> 2530:6 2537:5
<b>accelerate</b> 2574:12 2577:22	<b>adjourned</b> 2614:27		<b>American</b> 2580:26 2581:2
<b>access</b> 2502:12 2532:5	<b>Administration</b> 2580:22		<b>amount</b> 2610:25
<b>accommodate</b> 2567:22	<b>administrative</b> 2533:18 2535:9 2541:10		<b>analysis</b> 2468:16,20 2480:20 2506:17 2509:6 2533:3 2551:9 2552:3 2553:20
<b>account</b> 2553:26	<b>adopt</b> 2606:13		<b>analyzing</b> 2550:26 2572:21
<b>accounts</b> 2541:4	<b>adopted</b> 2580:25 2581:12,16		<b>annual</b> 2585:9 2590:7
			<b>annulus</b> 2497:14 2586:4
			<b>anomalies</b> 2515:9,21,

24 2516:1,12,21 2517:10,14,20 2518:9 2590:9	<b>areas</b> 2535:6	<b>attached</b> 2490:4 2500:8 2504:9	<b>ball</b> 2490:18
<b>anomaly</b> 2510:9,10 2515:1 2516:17 2517:22,23	<b>argue</b> 2537:13	<b>attempt</b> 2520:7 2581:2	<b>barrier</b> 2565:19 2586:26
<b>answering</b> 2529:7 2548:25	<b>argued</b> 2599:15	<b>attempting</b> 2517:7 2582:26	<b>based</b> 2478:24 2496:17 2499:20 2514:3 2523:6 2525:17 2526:26 2528:20 2553:13,20 2569:11 2572:4 2585:25
<b>answers</b> 2481:6 2521:11 2567:16 2580:17 2583:12,16 2588:20	<b>arguing</b> 2537:11 2538:10 2611:16 2612:12,13	<b>attention</b> 2499:28 2527:19 2568:21	<b>basic</b> 2488:25 2530:9
<b>anticipate</b> 2529:5 2585:28 2598:21	<b>argument</b> 2537:16,18 2538:8 2543:24 2598:19 2600:8	<b>attributes</b> 2550:24	<b>basically</b> 2567:11 2586:23 2589:22
<b>anticipated</b> 2498:26	<b>arrangements</b> 2614:14	<b>authored</b> 2525:4	<b>basis</b> 2539:25 2547:10 2548:15 2550:28 2609:22 2612:19
<b>anticipating</b> 2499:20 2529:17,20 2559:10	<b>art</b> 2486:15	<b>availability</b> 2566:21,27 2597:18,19 2600:2	<b>baskets</b> 2591:10
<b>API</b> 2581:20,22 2582:1, 27	<b>artfully</b> 2517:6	<b>average</b> 2478:25	<b>Bates</b> 2473:16,17 2487:21 2507:3,4 2509:27 2510:1 2514:24 2517:4 2579:20
<b>Apologies</b> 2596:10	<b>Article</b> 2529:28	<b>avoid</b> 2540:21	<b>Bates-stamped</b> 2574:24
<b>apologize</b> 2495:1 2544:8 2610:4	<b>articulate</b> 2609:21	<b>avoiding</b> 2539:28	<b>bear</b> 2485:8 2493:26 2515:15 2520:10
<b>apparent</b> 2608:16	<b>articulated</b> 2610:10	<b>awarded</b> 2533:28	<b>began</b> 2476:21 2479:20
<b>apparently</b> 2514:28	<b>asks</b> 2511:16,25 2562:17 2565:2,25 2593:16	<b>aware</b> 2471:9 2491:18 2542:19 2553:10 2584:17,25,26 2585:11 2588:22 2589:1	<b>begin</b> 2520:5 2531:28 2605:15
<b>appears</b> 2505:10 2523:7 2597:27 2610:16	<b>asserting</b> 2609:3	<hr/> <b>B</b> <hr/>	<b>beginning</b> 2510:8,27, 28 2545:17
<b>application</b> 2472:25 2594:17 2607:15	<b>assertion</b> 2607:6	<b>Bach</b> 2526:15	<b>Behalf</b> 2561:17
<b>applied</b> 2491:13 2556:9 2598:6 2601:8 2604:24	<b>assess</b> 2607:27 2609:2,16	<b>back</b> 2466:10 2467:16, 23,25 2468:12 2473:19 2475:11 2477:24 2482:9 2488:9 2498:19 2499:10 2500:12 2508:27 2510:4 2511:18,19 2513:4,7 2518:19 2520:18 2523:4 2524:1 2526:11, 14 2527:2 2529:18 2531:1,12 2533:9 2536:21 2537:2 2538:9 2540:7 2542:1 2543:18 2545:3 2560:4 2561:27 2564:28 2566:14,18 2576:19 2583:1 2592:2, 13,16 2596:3 2598:3 2599:2,6,16 2600:1 2606:17 2607:18 2613:12	<b>believed</b> 2504:6
<b>applies</b> 2481:18 2494:11 2497:15 2600:22 2602:5,11 2610:19	<b>assessing</b> 2548:14 2549:2,22 2582:17 2590:1 2601:14	<b>back-and-forth</b> 2524:2 2569:13	<b>believes</b> 2527:2 2608:17
<b>apply</b> 2469:3 2599:12 2610:18	<b>assessment</b> 2546:18, 21,24,26 2548:7,10 2549:26 2550:3,15,17, 19,21 2551:10,20,27 2552:13,21,23 2553:5, 9,13,17 2562:2,12 2580:14 2582:4,11,13 2590:6 2600:21	<b>Background</b> 2561:8	<b>benefit</b> 2588:14
<b>applying</b> 2572:14 2573:17	<b>assessments</b> 2549:15,20 2550:6,8,9, 11 2551:3,22 2552:16 2562:7 2580:13 2581:7 2582:6 2589:23	<b>balanced</b> 2577:20	<b>big</b> 2532:13
<b>approach</b> 2609:20	<b>assigned</b> 2523:14		<b>bit</b> 2481:24 2482:16 2486:15 2498:25,28 2499:4 2500:19,20 2501:14 2565:2 2569:12 2582:21 2584:2 2585:21 2611:26
<b>approximately</b> 2507:22 2515:23 2519:26 2554:19	<b>assume</b> 2510:12 2521:12 2602:17		<b>Blade</b> 2480:18 2481:8, 15,22,26,27 2482:2,3, 22,26 2485:6,20
<b>area</b> 2481:28 2506:23 2520:9 2577:12 2589:5	<b>assuming</b> 2485:26 2566:5 2587:18,22		
	<b>attach</b> 2500:8		

2519:25 2522:24 2523:12,19,23 2524:7, 19,24,28 2525:2,7,9,10, 15,19,21 2526:21,25 2527:13,24,27 2528:6, 11,17,24 2531:8,11,15, 16,23,26 2532:6,16,27 2533:2,14,25 2534:1, 11,12 2535:4,10,19 2536:1,12 2537:8 2539:6,19,25 2540:3,7, 10,12,16,19,26,27 2541:4,9 2545:21,27 2562:11,24,28 2563:12 2564:26 2566:3 2584:5, 7,15 2585:23 2586:10, 21 2588:14 2590:24 2595:16	2529:3 2563:17 <b>brackish</b> 2584:23 <b>break</b> 2466:21 2467:24 2498:11,14 2521:15,27 2522:27 2526:5 2539:9 2543:5,7,18,19 2544:6 2545:5 2566:15,20 <b>briefed</b> 2601:10 <b>briefing</b> 2601:26 2602:8 <b>briefly</b> 2480:14,28 2505:9 2520:13 2522:12 2530:11 2533:9 2535:22 2570:21 2582:1 2596:6 2601:20,22 <b>brine</b> 2584:24 <b>brines</b> 2585:15 <b>bring</b> 2527:2,19 <b>broad</b> 2525:24 <b>broaden</b> 2600:12 <b>broader</b> 2469:2 2526:1 2605:8 <b>brought</b> 2532:19 <b>bullet</b> 2482:1 2483:23 2568:4 <b>burden</b> 2600:25 2607:23 2608:8 2610:12,21 <b>business</b> 2566:28 2614:17	15,22,23 <b>Caladvocates-38</b> 2595:13 <b>Caladvocates-408</b> 2595:26 <b>Caladvocates-410</b> 2595:27 <b>calculate</b> 2552:2 <b>calculations</b> 2551:12 <b>California</b> 2561:18 <b>California's</b> 2571:22 <b>Caliper</b> 2487:19 <b>call</b> 2523:3 2524:18,19 2531:1 2538:9 2541:16 2542:24 2590:5 <b>called</b> 2574:27 <b>calling</b> 2529:10 2537:2 <b>calls</b> 2523:28 2525:19 2526:21 <b>Calpa</b> 2521:8 2523:7, 12,23 2524:16 2525:12, 20,21 2526:9,11,13,19, 22,24,28 2527:18 2528:2,5 2533:23 2534:16 2539:24 2583:5 <b>Calpa's</b> 2525:9 2528:7, 17 2533:23 <b>Calpa-408</b> 2580:11 <b>Calpa-410</b> 2559:28 2595:16 <b>Camco</b> 2488:19,25 2489:8 2504:18,22 <b>cancelling</b> 2614:9 <b>Canyon</b> 2473:13,28 2474:8 2475:17 2478:26 2491:12 2501:18 2557:23 2559:5 2573:23 2574:15 2576:9 2577:7, 26 2585:27 2589:27 2594:20 2597:6,8,9 2599:19 2609:5 <b>career</b> 2548:12 2549:21	<b>careful</b> 2537:4 <b>carefully</b> 2601:13 <b>case</b> 2467:20 2471:15 2486:5 2490:6 2493:22 2494:21 2497:10 2517:19 2533:6 2534:13 2537:22 2540:23 2541:8 2546:27 2547:11,12,20 2548:19 2581:4 2589:17 2601:15 2604:24 <b>cases</b> 2471:9,12 2497:9,10 2587:28 <b>casing</b> 2470:1,4,11 2473:13,28 2475:15,27 2476:9,21 2477:5 2478:1,8,13 2483:13, 15,17 2484:16,17,18 2485:28 2486:1,7,15, 19,22,23,26 2494:21,28 2495:22 2497:24,26 2498:1,2,6 2506:20 2509:9 2511:3,28 2512:2,5,15 2516:5,23 2517:16 2518:15,22 2555:8,10,15 2558:23 2562:20,21 2563:21,27 2564:24 2565:5,19,26 2566:6 2568:5 2583:24, 25 2584:18 2585:13,14 2586:2,4,5,6,13 2587:6, 19,23,25,26,27,28 2588:2,7,10,12,13,16 2589:2,6,10,11,15 2590:10 2594:20 <b>casings</b> 2472:26 2483:25,26 2484:19 2485:1,6 2586:25 2594:18 <b>casualties</b> 2479:1 <b>catch</b> 2517:16 <b>category</b> 2552:11 <b>catholic</b> 2472:8,25 2474:12,23,26 2475:2,9 2572:15,19,23 2573:17, 22,27 2574:11,15,20 2575:1,17,21 2576:22, 27 2577:4,17,18 2578:9 2594:17
---	---	--	---

**C**

<b>caused</b> 2470:5 2484:18 2516:20 2555:11,13	<b>claimed</b> 2609:17	<b>Commissioner's</b> 2523:14	<b>concerned</b> 2559:20
<b>causing</b> 2470:23	<b>claiming</b> 2538:11 2609:22	<b>committee</b> 2591:20	<b>concerns</b> 2466:26 2537:1 2540:6 2542:1 2609:26 2610:7,21
<b>caveat</b> 2529:6	<b>claims</b> 2530:20 2536:14 2601:14,17 2610:11	<b>common</b> 2495:27 2502:22 2576:28	<b>concluded</b> 2563:18 2566:10
<b>cement</b> 2470:17 2512:19	<b>clarification</b> 2514:16 2515:4 2524:13 2531:8 2536:3 2537:17,22 2538:15	<b>commonly</b> 2477:9	<b>conclusion</b> 2535:16 2545:14 2563:13
<b>cemented</b> 2588:1,3	<b>clarifications</b> 2532:8 2567:16	<b>communicate</b> 2495:21	<b>conclusions</b> 2540:11
<b>certainty</b> 2552:2	<b>clarify</b> 2470:7 2472:21 2473:7 2502:5 2512:24 2518:28 2604:19 2613:20 2614:19	<b>communicated</b> 2524:23 2540:27	<b>condition</b> 2469:28 2480:17,19 2487:2 2511:2
<b>cetera</b> 2533:20 2569:18	<b>clarifying</b> 2529:15 2539:23	<b>communication</b> 2533:22 2600:15 2608:26 2609:4 2613:10	<b>conditions</b> 2480:22 2491:11,14 2573:20
<b>challenge</b> 2551:24	<b>clarity</b> 2598:22 2599:8	<b>communications</b> 2524:27 2525:18 2526:7 2532:27 2540:6 2541:5,9 2545:22 2597:9 2598:8 2599:3,4 2600:14 2605:28 2607:8,12,25 2609:23	<b>conduct</b> 2521:6 2522:28 2523:19
<b>challenges</b> 2573:17	<b>classic</b> 2613:17	<b>companies</b> 2548:28 2571:20	<b>conducted</b> 2529:27
<b>chance</b> 2474:10 2513:1	<b>clear</b> 2482:16 2483:21 2527:28 2528:25 2538:23 2568:13 2581:15 2597:26 2598:6,10,13,18 2600:7 2605:7,21 2606:3 2607:1	<b>Company</b> 2474:5 2561:18	<b>conducting</b> 2475:18 2522:21
<b>change</b> 2496:8,11 2582:2	<b>close</b> 2496:5 2516:22, 24 2519:16 2520:13 2566:28 2573:18 2614:17	<b>compare</b> 2496:20	<b>confer</b> 2522:4 2527:18 2528:1
<b>changed</b> 2480:17	<b>closed</b> 2495:26 2496:3, 8,19,22,24 2497:11	<b>compared</b> 2516:3	<b>configuration</b> 2497:20
<b>changing</b> 2601:3	<b>clued</b> 2517:24	<b>comparing</b> 2552:14	<b>configurations</b> 2496:26 2497:1,4
<b>Chapter</b> 2561:14	<b>co-authored</b> 2547:25	<b>comparison</b> 2571:19	<b>configure</b> 2496:1,2,3
<b>characterize</b> 2519:11 2569:8	<b>coaching</b> 2481:5	<b>compel</b> 2609:14,19	<b>confirm</b> 2506:15 2509:5 2513:20
<b>characterizing</b> 2605:9 2612:15	<b>colleague</b> 2513:11	<b>complainant's</b> 2614:11	<b>confirmed</b> 2501:25 2512:2 2576:1
<b>Charlie</b> 2468:2 2546:7 2561:16 2592:24,28 2593:5,9,13	<b>collected</b> 2548:17	<b>complex</b> 2486:14	<b>confusion</b> 2497:17
<b>check</b> 2499:16 2513:11	<b>collecting</b> 2604:28	<b>complexity</b> 2573:16	<b>connected</b> 2495:16
<b>choices</b> 2492:9	<b>combination</b> 2534:9	<b>components</b> 2492:12, 23 2493:5,11 2494:27	<b>consequence</b> 2550:25
<b>choppy</b> 2567:13	<b>combine</b> 2539:17	<b>comports</b> 2611:5	<b>consideration</b> 2534:8 2558:1
<b>chose</b> 2525:12	<b>Commission</b> 2524:26 2526:12,14 2533:16,28 2609:6	<b>comprehensive</b> 2551:6	<b>considered</b> 2471:10 2541:26 2552:20 2557:18,22 2558:5,9 2559:4
<b>circumstance</b> 2506:6	<b>Commission's</b> 2530:1	<b>compromised</b> 2490:18	<b>consistent</b> 2529:28 2584:19 2599:10
<b>circumstances</b> 2483:28		<b>concern</b> 2481:3,4 2500:24 2502:19 2535:6 2539:15,25 2552:6 2607:16 2610:8, 28	<b>constant</b> 2497:23
<b>circumvented</b> 2523:8 2539:27			<b>construction</b> 2494:12 2506:21 2547:1 2548:21
<b>citation</b> 2481:20 2539:10 2545:25			
<b>citations</b> 2532:18 2545:10			
<b>cite</b> 2479:23			
<b>cites</b> 2482:1			
<b>claim</b> 2564:26 2605:27 2609:2			

<b>consult</b> 2608:12	<b>copyrighted</b> 2570:18	<b>cover</b> 2472:16	2551:26,28 2552:18,28 2554:10,11 2555:27 2557:14 2560:16 2585:26 2589:27 2594:21 2595:12,17
<b>Consultants</b> 2472:2 2561:17 2592:24 2593:1,6,9,14	<b>corner</b> 2473:4	<b>covered</b> 2501:12 2525:25	
<b>contacts</b> 2533:14	<b>correct</b> 2469:9,15 2470:1,2 2473:5,6 2474:6,9,19,21 2484:27 2485:2,4 2490:24 2493:4 2494:22 2495:7 2501:24,26 2503:18 2509:11,12 2513:28 2521:16,17 2533:13 2546:19,20 2553:17,18, 24 2555:1 2562:9,26 2563:5 2564:25 2568:16,17,22,24 2579:7 2580:6 2583:21 2587:12 2603:2	<b>covering</b> 2547:26,28	
<b>contemplated</b> 2600:27	<b>Corrected</b> 2471:28	<b>CP</b> 2575:2,8	<b>date</b> 2472:3 2473:3 2488:12 2504:25,28 2523:6 2539:12 2546:25 2561:6 2566:25 2576:1,5 2605:2
<b>contemplating</b> 2605:15 2606:4	<b>correction</b> 2495:2 2514:8	<b>created</b> 2556:1 2557:4	<b>dated</b> 2561:3
<b>contention</b> 2484:27	<b>correctly</b> 2475:24 2507:11 2568:12	<b>credible</b> 2536:16	<b>dates</b> 2511:13 2558:27 2579:15,24 2580:1
<b>context</b> 2534:15,17 2590:4 2601:8	<b>correlation</b> 2590:16, 18,19,20,25	<b>critique</b> 2481:27	<b>dating</b> 2477:24
<b>continue</b> 2475:13 2494:1,6 2498:20 2500:15 2511:9 2513:8 2532:20 2560:6	<b>correspondence</b> 2473:12 2474:5 2502:18,23,27 2503:9 2504:1,3,10,20 2505:2 2594:19	<b>cross</b> 2498:25,28 2521:13 2545:7 2580:4	<b>day</b> 2466:15,22 2521:22 2545:17 2576:17
<b>continues</b> 2608:15	<b>corrosion</b> 2470:14,23, 24 2473:13,28 2483:16 2484:2,14,18 2485:2, 14,21,22 2486:11 2555:8,9,11,13 2565:25 2566:5 2574:9,10,12 2577:23 2578:16 2585:1,6,10 2586:2,13 2587:6,18,22,26 2588:26 2590:11,17 2594:20	<b>cross-examination</b> 2467:17,21 2468:5 2481:12 2487:11 2498:21 2500:13 2520:25 2521:9 2527:4 2529:2 2530:24 2543:8 2545:16 2546:3,10 2554:5,14 2560:12,20, 24,27 2566:10	<b>days</b> 2531:2 2604:2 2614:7
<b>continuing</b> 2542:28	<b>counsel</b> 2487:15 2528:5 2533:23,25	<b>cross-examine</b> 2481:7,16	<b>deadline</b> 2467:9
<b>continuously</b> 2553:15	<b>countless</b> 2533:4	<b>cross-examining</b> 2467:4	<b>deal</b> 2532:13 2543:11 2585:3 2592:18
<b>contours</b> 2609:17	<b>couple</b> 2468:13 2521:23 2529:15 2530:15 2536:28 2555:21 2556:7 2575:25,27 2580:9 2602:23 2604:9	<b>Crosstalk</b> 2489:12 2510:18 2556:23 2570:7	<b>dealing</b> 2522:16
<b>contradicted</b> 2528:8	<b>courtesy</b> 2498:27	<b>curious</b> 2556:4	<b>deals</b> 2569:20
<b>contrast</b> 2599:20,25		<b>current</b> 2489:2 2522:20	<b>decide</b> 2467:2 2531:1
<b>contravenes</b> 2523:14		<b>currents</b> 2574:7,8,13, 18 2575:23 2577:22 2578:9,10,13	<b>decided</b> 2479:7 2576:22
<b>control</b> 2490:26		<b>cut</b> 2500:13 2555:18	<b>decision</b> 2600:14
<b>controlling</b> 2491:4			<b>deep</b> 2491:15 2558:15 2559:8,15,23 2570:25 2584:20 2589:15
<b>controls</b> 2491:1			<b>deep-set</b> 2491:10 2570:21,23
<b>conversation</b> 2499:21			<b>deeper</b> 2515:24 2517:13
<b>conversations</b> 2503:26 2522:24 2523:25 2525:15 2528:12 2534:21,25 2536:1,4 2539:6,24 2540:2,4,16,18 2584:4			<b>deepest</b> 2584:20 2589:16
<b>conversion</b> 2569:10, 22			<b>defer</b> 2484:24 2487:15 2603:12
<b>cooling</b> 2510:9			<b>define</b> 2468:13
<b>cooperative</b> 2527:9			<b>defines</b> 2584:7
<b>Coots</b> 2521:25 2566:25,28			<b>definition</b> 2584:10
<b>copied</b> 2591:15			<b>definitive</b> 2550:9
<b>copies</b> 2579:13			<b>degree</b> 2534:28 2535:2
<b>copy</b> 2501:17 2502:11, 14 2589:26			

2551:4,5 2600:26 2601:7 2605:12 2612:22	<b>details</b> 2483:3,6 2517:1	<b>discovery</b> 2522:21 2523:1,6,8,11,16,23 2524:17,28 2525:17 2526:6,18 2527:12 2528:23 2529:27 2530:3 2531:5,23 2532:26 2534:7 2538:12 2539:16,28 2540:20,26	2579:20 2580:4 2581:1, 14 2583:11 2600:12 2612:20
<b>delay</b> 2515:16	<b>deteriorated</b> 2470:17	<b>discrepancy</b> 2606:28 2607:20	<b>document-by- document</b> 2603:4
<b>deliberately</b> 2539:27	<b>determination</b> 2499:23 2520:26	<b>discuss</b> 2468:21 2500:28 2529:11 2557:16	<b>documentation</b> 2513:22 2550:22 2568:14 2582:16,22
<b>deliberative</b> 2607:14, 15	<b>determine</b> 2480:19 2506:18,22 2509:7 2572:18,22 2590:15	<b>discussed</b> 2476:13 2482:13 2503:20 2505:3 2522:18 2523:23 2528:16 2536:15 2541:27 2558:28 2566:21	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>demonstrates</b> 2474:26	<b>developed</b> 2478:3	<b>discusses</b> 2481:21 2573:16	<b>documents</b> 2489:7 2491:23,26 2492:28 2493:3,4 2499:25 2500:8,9,22 2502:13 2531:10 2532:20 2557:16 2597:4,6 2598:8,11 2599:22,23, 24 2602:28 2603:9 2604:24,28 2605:19,28 2606:19 2612:27 2613:15
<b>denied</b> 2597:14	<b>developing</b> 2571:7	<b>discussing</b> 2503:1 2567:27	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>denominator</b> 2576:28	<b>development</b> 2547:5, 9,15,17,19,21 2548:22 2591:17	<b>discussion</b> 2474:12 2484:13 2488:11 2492:1 2503:23 2507:25 2518:12,26 2522:15 2528:6 2545:11 2548:5 2579:2, 5	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>density</b> 2577:14	<b>device</b> 2496:4 2497:17	<b>discussions</b> 2525:9 2531:10,14,16 2535:9	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>depending</b> 2489:10 2520:25 2523:2	<b>diagram</b> 2493:19,21 2504:17,24,26 2579:28	<b>distant</b> 2577:10	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>depends</b> 2529:6 2547:17	<b>diagrams</b> 2504:7	<b>distinct</b> 2484:4,28	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>deposition</b> 2596:16,25 2597:4,11,15,19 2598:4,20 2600:3 2602:3,16 2603:15 2608:4 2610:15 2611:21,27 2612:17,18, 24	<b>difference</b> 2492:21 2570:19,22 2571:11	<b>distinction</b> 2493:10	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>depth</b> 2469:14,17,24 2512:4 2515:19 2516:21,22 2583:24 2586:3 2589:6 2590:18	<b>differently</b> 2485:5 2519:4	<b>distinguish</b> 2550:18	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>depths</b> 2513:22 2514:3,9 2515:4,7 2518:1 2562:19,26 2583:19	<b>difficult</b> 2483:7 2486:13 2500:24 2577:21	<b>division</b> 2575:7	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>describe</b> 2584:16	<b>difficulties</b> 2573:16 2596:11	<b>doable</b> 2611:13 2614:14	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>description</b> 2490:22	<b>digital</b> 2502:13	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>design</b> 2563:20,26 2564:23 2565:4 2577:18 2578:15	<b>direct</b> 2599:24	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>designate</b> 2573:10	<b>directed</b> 2524:25 2526:13 2533:15 2570:28 2601:6,16	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>designed</b> 2559:26 2570:5,23 2571:1 2589:2	<b>directing</b> 2569:7	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>designing</b> 2578:7	<b>direction</b> 2534:14 2545:12 2613:13	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>destructive</b> 2575:23	<b>directive</b> 2534:10	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>detail</b> 2488:20 2529:11 2568:1 2613:10	<b>directly</b> 2479:27 2482:3 2535:17 2537:20 2538:13,19	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
<b>detailed</b> 2488:3 2551:1	<b>disclosed</b> 2522:25 2524:20	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
	<b>discovered</b> 2523:3 2528:20 2596:24	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27
	<b>discovering</b> 2538:12	<b>document</b> 2472:17,18 2473:1,14,16,22 2487:20,23,28 2488:12 2489:1 2493:17 2507:16 2513:15 2514:22 2561:14,28 2562:17 2564:4 2570:17 2571:4 2572:12,24 2574:6	<b>documented</b> 2492:1 2503:27 2517:25 2519:24 2550:17 2551:1,8,18 2553:9 2571:14 2572:2 2579:27

<b>effect</b> 2523:8	<b>equip</b> 2574:19 2575:7 2576:27	<b>excessive</b> 2608:5	2553:21 2554:22 2555:3,6 2572:5 2604:6
<b>effective</b> 2580:23	<b>equipment</b> 2493:14 2577:4	<b>exchange</b> 2466:13	<b>experienced</b> 2485:2, 14,20 2553:23
<b>effects</b> 2471:10	<b>equipped</b> 2475:2 2575:1	<b>exclude</b> 2602:27 2613:7	<b>expert</b> 2534:14 2549:2 2562:1 2599:20,25
<b>efficient</b> 2567:14 2602:16	<b>equipping</b> 2475:8	<b>excuse</b> 2474:17 2475:5 2509:3 2570:9 2588:10	<b>expertise</b> 2520:9
<b>efforts</b> 2598:28	<b>error</b> 2518:20,27	<b>exerted</b> 2497:23 2498:5	<b>experts</b> 2525:4
<b>elaborate</b> 2587:4	<b>essentially</b> 2481:5 2490:13 2531:26 2590:8	<b>exhibit</b> 2471:21,26 2472:14,23 2473:11 2475:11 2487:18 2488:17 2500:2 2506:27 2509:15,18,21 2511:9,20,26,27 2512:27 2514:11 2515:4,25 2516:2,4 2518:12,14 2554:1,4,6, 13 2559:28 2560:11,13, 19,23,24 2561:2,5,7,21 2564:15,28 2568:21,22, 28 2569:4,25,26 2570:1,9,14,27 2571:3, 5 2572:11 2574:22 2578:18,21 2579:9 2580:11 2583:5 2589:19 2592:22,26 2593:3,4,7,11,12 2594:4,6,8,9,15 2595:5, 7,13,14,15,26,27	<b>explain</b> 2487:9,16 2489:27 2559:19,20,24 2571:6 2573:12
<b>electronic</b> 2589:27	<b>established</b> 2523:9 2539:26	<b>exhibited</b> 2471:21,26 2472:14,23 2473:11 2475:11 2487:18 2488:17 2500:2 2506:27 2509:15,18,21 2511:9,20,26,27 2512:27 2514:11 2515:4,25 2516:2,4 2518:12,14 2554:1,4,6, 13 2559:28 2560:11,13, 19,23,24 2561:2,5,7,21 2564:15,28 2568:21,22, 28 2569:4,25,26 2570:1,9,14,27 2571:3, 5 2572:11 2574:22 2578:18,21 2579:9 2580:11 2583:5 2589:19 2592:22,26 2593:3,4,7,11,12 2594:4,6,8,9,15 2595:5, 7,13,14,15,26,27	<b>explained</b> 2491:23 2502:27 2503:10 2504:4 2515:22 2525:26 2548:26 2562:28
<b>elements</b> 2581:6	<b>establishing</b> 2553:12	<b>exhibits</b> 2467:1,3 2509:19 2520:28 2521:8 2592:19 2593:17,19,23,28 2595:3,19,23	<b>explaining</b> 2569:3 2571:10
<b>eluding</b> 2536:9	<b>estimate</b> 2521:19 2547:10	<b>existed</b> 2485:22 2508:21	<b>explanation</b> 2470:8 2487:4 2503:6
<b>enable</b> 2598:21 2611:13	<b>evaluate</b> 2478:10 2607:27	<b>existing</b> 2517:22	<b>explanations</b> 2487:6
<b>enabled</b> 2523:10	<b>evaluated</b> 2597:7	<b>exists</b> 2552:18	<b>exposure</b> 2563:4
<b>enables</b> 2609:1	<b>evaluating</b> 2548:13,17	<b>expects</b> 2486:2 2508:26 2517:27 2522:3 2527:6 2528:15 2614:15	<b>expressed</b> 2573:15
<b>encourage</b> 2534:8 2612:11	<b>evaluation</b> 2547:4 2575:19	<b>expected</b> 2603:6	<b>extend</b> 2600:16
<b>encouraging</b> 2614:5	<b>event</b> 2557:23 2559:5	<b>expeditious</b> 2602:15 2611:28 2612:24	<b>extensive</b> 2480:1 2487:5 2506:7 2530:16 2532:5 2558:22 2607:11 2610:27
<b>end</b> 2490:4,5 2521:22 2537:10 2545:17 2603:24 2604:15	<b>events</b> 2484:1 2485:8 2553:22 2557:19 2559:21	<b>expeditiously</b> 2596:27 2604:15 2611:2,11,14, 24	<b>Extensively</b> 2501:2
<b>endeavor</b> 2481:23	<b>evidence</b> 2511:28 2556:12,25,28 2557:27 2558:4,9 2594:4,6,8,10 2595:6,7,26,28	<b>experience</b> 2493:15 2520:4 2548:10,27	<b>extent</b> 2480:18 2481:11 2488:21,28 2491:1 2500:7 2506:18,23 2509:8 2532:7 2538:8 2591:14 2598:15
<b>ended</b> 2614:6	<b>evolved</b> 2600:24		<b>external</b> 2470:14 2472:26 2483:16 2594:18
<b>ends</b> 2574:24	<b>exact</b> 2481:25 2504:28 2507:24 2539:10 2554:20 2609:14		<b>extracting</b> 2588:16
<b>Energy</b> 2526:21	<b>examination</b> 2523:5 2567:8		<b>extreme</b> 2491:11,14
<b>engaged</b> 2547:14	<b>examine</b> 2469:13		<b>extremely</b> 2542:19 2577:21 2586:16
<b>engineer</b> 2549:24 2551:14	<b>examining</b> 2469:23		
<b>entail</b> 2469:4	<b>Examples</b> 2506:8 2508:4,9		
<b>entails</b> 2475:19	<b>exceeded</b> 2607:6		
<b>entire</b> 2466:15 2492:14 2549:21 2581:13	<b>exceeds</b> 2479:17		
<b>entirety</b> 2547:8	<b>excerpts</b> 2526:19		
<b>entitled</b> 2472:24 2506:28 2561:8			
<b>entry</b> 2520:27 2521:8			
<b>environmental</b> 2470:27 2471:2 2573:20			
<b>equal</b> 2469:18 2497:26			
<b>equals</b> 2588:28			

---

**F**

---

2552:5,9 2556:10 2591:4	2532:22 2536:8	2557:28 2558:3 2559:14 2575:28 2576:9,10,18,21 2589:26	<b>foot</b> 2514:3
<b>facility</b> 2577:26 2590:2	<b>feeling</b> 2532:4	<b>filling</b> 2475:21	<b>footnote</b> 2509:11,14 2564:10 2568:15
<b>fact</b> 2485:27 2517:24 2530:27 2533:2,5 2534:11,24,25 2539:19 2544:5 2563:2 2573:14, 21 2575:12 2576:26 2579:23 2580:3 2601:18 2609:6 2611:18	<b>feet</b> 2510:10,11 2511:4 2512:1,4,17,18,25 2514:7,15,18 2515:6, 10,19,24 2516:2,6,11, 17,26 2517:2,11,17,23 2518:3,4,16,22 2570:6, 26 2577:15 2584:13	<b>final</b> 2540:14,15 2541:25,26 2550:13 2580:18 2581:11	<b>foregoing</b> 2512:14
<b>factor</b> 2471:8 2552:2 2576:28	<b>felt</b> 2562:14	<b>Finally</b> 2589:18	<b>foreseeable</b> 2554:21
<b>factors</b> 2470:27 2471:2 2553:26	<b>Fernando</b> 2474:17 2505:23	<b>find</b> 2502:22 2508:23 2531:24 2570:10 2579:2	<b>form</b> 2566:20
<b>facts</b> 2609:16	<b>FF</b> 2474:17 2505:23	<b>finds</b> 2562:11	<b>formal</b> 2524:11 2546:26 2548:15 2549:20,25 2550:8,11, 14,17,19,21 2551:7 2552:16 2582:13
<b>factual</b> 2609:21	<b>FF-34A</b> 2473:12,27 2474:7,18,24 2475:1,9 2506:10 2508:10 2558:26 2574:19,28 2575:7,15 2594:19	<b>fine</b> 2500:14 2511:24 2606:7	<b>formalistic</b> 2582:13
<b>fail-safe</b> 2490:14	<b>field</b> 2501:12 2523:20 2549:2 2550:12 2553:6, 7 2554:24 2556:2,3,18 2557:2,6,7 2569:11 2572:21 2574:2 2576:10 2577:3,7,9,11 2585:10,27 2588:19 2591:17 2596:21,25 2598:23 2599:10 2602:24 2603:18 2604:3,11,21 2605:16 2606:7,8 2607:1,3 2611:9 2613:5	<b>finish</b> 2466:2,6 2499:3 2519:18 2528:19 2581:10	<b>format</b> 2551:11
<b>failed</b> 2479:15 2483:2 2520:6	<b>field-wide</b> 2503:22	<b>finished</b> 2524:5	<b>formation</b> 2555:14
<b>failing</b> 2614:12	<b>fields</b> 2550:5 2555:7 2572:7	<b>finishing</b> 2530:23	<b>formed</b> 2572:3
<b>failure</b> 2468:16,20,22 2483:13,15 2550:25,26 2563:1	<b>figure</b> 2598:28 2602:6 2604:16	<b>fish</b> 2494:15,18 2495:16	<b>fortunately</b> 2537:24
<b>failures</b> 2470:5 2484:16 2551:28 2568:5	<b>figuring</b> 2602:10	<b>fishing</b> 2494:11,18,20 2495:3,4,9,10	<b>forward</b> 2468:15 2545:6 2546:3 2596:27 2601:28 2602:15 2607:27 2611:1,10,19, 23
<b>fair</b> 2466:25 2473:26 2519:11 2546:27 2548:19 2564:13 2582:21 2598:17,20,25	<b>file</b> 2500:20,21 2501:9, 18 2502:8,10,15,26 2504:2,21 2505:2 2512:1 2513:27 2556:26 2557:2 2558:11 2579:14 2614:5	<b>fix</b> 2610:5	<b>found</b> 2515:23
<b>fairly</b> 2504:7 2597:26 2605:7	<b>files</b> 2479:28 2480:1 2491:22 2493:25 2501:15,17,20,27 2502:17,18,23 2503:25 2504:8 2556:12	<b>flag</b> 2602:7 2607:22	<b>fourth</b> 2564:7 2575:4
<b>fall</b> 2552:11		<b>flagging</b> 2498:27 2499:4	<b>frame</b> 2476:7
<b>false</b> 2519:1		<b>flap</b> 2490:18	<b>frankly</b> 2532:23 2598:2 2608:2,6 2611:6,24
<b>familiar</b> 2472:28 2487:27 2488:18,21 2489:1 2494:10 2519:19 2572:12		<b>flip</b> 2563:23	<b>frequently</b> 2478:25
<b>familiarity</b> 2479:27 2480:3 2481:8,14,17		<b>flow</b> 2480:10 2490:19, 20,26 2491:1,4,11,14 2508:19	<b>fresh</b> 2584:16,21 2589:8,12,16
<b>fault</b> 2471:5		<b>fluid</b> 2475:21	<b>Frew</b> 2505:24 2506:10 2508:11,14,17,22 2512:2,5,26 2513:27 2514:5,19 2515:19 2516:7 2517:11 2518:23 2558:26 2578:25
<b>feasible</b> 2575:9,21		<b>focus</b> 2476:16 2530:25 2585:18	<b>Frew-3</b> 2579:26
<b>fee</b> 2474:17 2505:23		<b>focused</b> 2547:1 2548:21 2587:3	<b>Friday</b> 2468:14,16 2501:23 2576:14
<b>feel</b> 2466:5 2530:19		<b>focusing</b> 2543:8 2572:11	<b>front</b> 2580:12 2598:9 2603:25

2553:8	<b>good</b> 2468:7,9,10 2489:19,26 2498:11 2501:16 2520:10 2525:22 2527:2 2546:12 2551:14 2582:5,9	<b>guide</b> 2571:18	2538:6,16 2541:14,16 2542:9,23 2543:13,16 2544:2,5 2567:2 2596:3,8,28 2597:28 2599:13 2600:10 2601:1,21 2602:22 2604:25 2606:2,25 2608:11 2609:25 2610:1 2612:4 2613:1, 3,26 2614:1,24
<b>function</b> 2490:10,22		<hr/> <b>H</b> <hr/>	
<b>funds</b> 2575:6		<b>halfway</b> 2510:5,7	
<b>future</b> 2553:22 2603:13 2613:16		<b>hand</b> 2530:12 2611:1	
<hr/> <b>G</b> <hr/>	<b>granted</b> 2595:23 2597:15	<b>handy</b> 2539:11	
<b>game</b> 2598:17,20,25	<b>great</b> 2521:20 2529:11 2543:21	<b>happen</b> 2559:11 2578:14	<b>held</b> 2534:11 2549:17
<b>gas</b> 2475:19 2477:28 2478:4,26 2489:22 2490:26 2496:14 2505:21 2506:11,15,16, 18,24 2508:12,19 2509:5,6 2513:20,21,23 2519:9 2525:23 2546:17,18,28 2547:26, 28 2548:12,20,27 2551:24 2554:23 2555:7 2556:2 2558:6, 10,18 2561:18 2565:19 2569:23 2570:25 2571:12,20 2572:2,8,9 2578:1 2580:23 2581:5 2582:2,18,24,25 2586:26 2588:4 2590:28 2591:1,3,17	<b>greater</b> 2600:26	<b>happened</b> 2485:9 2502:27 2503:2,5 2516:11 2588:28	<b>helpful</b> 2499:6 2529:24
<b>gave</b> 2501:25 2576:1, 20 2582:9 2613:4	<b>ground</b> 2584:11,28 2588:25 2591:5	<b>happy</b> 2532:2 2538:4 2541:6,12	<b>hey</b> 2601:28
<b>general</b> 2489:25,27 2501:11 2520:4 2539:14	<b>grounds</b> 2538:11	<b>hard</b> 2495:27 2501:17 2502:11,13 2589:26	<b>hiatus</b> 2522:19 2525:17 2526:18
<b>generally</b> 2468:26 2476:2 2488:24 2489:24 2491:5 2501:15 2525:22 2526:2 2533:14 2555:13 2587:24	<b>groundwater</b> 2562:19, 26 2563:2,3,9,19,26 2564:23 2565:3 2583:19,24 2584:3,8, 11,15,22 2585:12 2588:22 2589:4,9	<b>hard-copy</b> 2502:25 2576:10	<b>high</b> 2489:18 2490:21 2577:14
<b>generated</b> 2597:7	<b>group</b> 2552:5 2591:7	<b>hardship</b> 2532:1	<b>high-consequence</b> 2557:19,23 2559:5,21
<b>gentlemen</b> 2483:12 2506:1 2509:23 2591:3	<b>Gruen</b> 2466:28 2467:12,20,28 2468:1,6 2479:23,26 2480:23,27 2481:2,20,23 2482:20 2488:5,14,15 2489:13 2498:9,12,22,23 2500:16,17 2503:19 2504:14 2505:9,13 2510:19,22 2513:17 2515:11,13,14 2520:21 2529:9 2530:10 2533:10 2535:21,23 2536:21,24,25,28 2538:2,4,7 2548:26 2567:12,18,26 2569:4, 7,14,25 2570:27 2574:23,26 2575:27 2578:19,23 2579:6,25 2580:3 2596:5,7,10 2597:28 2598:1 2600:10,11 2601:19,24 2604:7,8 2606:27 2608:15 2609:3,26 2610:3,4 2612:10	<b>Hazardous</b> 2580:21	<b>higher</b> 2488:22
<b>Geological</b> 2584:10		<b>head</b> 2508:25 2536:27 2546:16	<b>higher-</b> 2553:12
<b>Gill</b> 2547:20		<b>headed</b> 2540:12 2546:16	<b>higher-risk</b> 2552:11
<b>gist</b> 2583:20	<b>guess</b> 2485:4 2519:24 2535:26 2536:7 2576:25 2584:1	<b>hear</b> 2467:27 2499:10 2522:12 2541:23 2549:12	<b>highlight</b> 2579:10
<b>give</b> 2487:5,15 2500:24 2529:12 2543:25 2567:17	<b>guidance</b> 2602:2,9 2607:18 2613:4,16	<b>heard</b> 2466:13 2476:6 2523:26 2535:4 2536:26 2587:17	<b>highlighted</b> 2570:12
<b>gleaned</b> 2526:27		<b>hearing</b> 2499:15 2539:3,12 2540:9,10 2606:28 2607:20	<b>historic</b> 2500:22
		<b>hearings</b> 2476:13 2522:19,20 2523:27 2526:6 2528:9 2592:10 2604:15 2614:8	<b>historical</b> 2585:26
		<b>Hecht</b> 2466:25 2467:7, 13,19 2479:22 2480:15 2481:1,19 2482:7,9,12 2488:7,9 2498:9,13,19 2499:6,14 2500:10,15 2505:8 2513:3,7 2515:13 2520:15,18 2521:10,20 2522:11 2528:25 2529:8,23 2533:1 2535:20 2536:17,27 2537:24	<b>historically</b> 2586:12 2590:1
			<b>histories</b> 2569:18
			<b>history</b> 2500:19 2508:22 2586:15 2590:7,13
			<b>hold</b> 2467:8 2607:27
			<b>hole</b> 2494:16 2495:11, 19 2511:3 2512:16 2515:18 2516:5 2517:12,16 2518:15,22
			<b>holes</b> 2495:21,25 2496:2,7,18,20,22,23 2497:10,21 2511:28 2512:4 2514:3,18
			<b>Holter</b> 2596:16,18,26 2597:5,7,10,17 2598:11,14 2599:18 2608:7,18,20 2609:4

<b>Holter's</b> 2596:21 2603:20 2605:10 2606:1	<b>hoping</b> 2542:3	2519:6,7,12	<b>implicit</b> 2484:26
<b>Holzschuh</b> 2522:8,22 2523:26 2525:25 2526:16 2527:3 2528:13 2529:1 2531:13 2532:14 2534:23 2539:5 2545:26	<b>hot</b> 2575:25 2590:21	<hr/> <b>I</b> <hr/>	<b>importance</b> 2521:5
<b>Holzschuh's</b> 2528:8 2543:28	<b>hour</b> 2519:17 2527:8 2529:1,6 2543:19 2544:10	<b>I-14</b> 2509:15,18 2511:9, 26,27 2512:27 2514:11 2515:5,8,26 2516:3,4 2517:1 2518:12,14	<b>important</b> 2522:2 2549:26 2550:3 2589:5
<b>honestly</b> 2503:19 2530:19 2613:9	<b>hours</b> 2466:17 2603:14,15,16 2613:14	<b>I-20</b> 2568:23,25,28 2569:4	<b>imposing</b> 2610:7
<b>Honor</b> 2466:12 2467:1 2468:1 2472:15 2479:16,26 2480:14,27 2481:23 2482:20 2488:5,15 2498:12,23 2499:8,19 2500:14,17 2505:13 2515:12 2519:18 2520:12 2521:3,17 2522:1,17 2527:6 2529:4,19 2530:14 2531:4 2533:12 2534:6 2535:26 2536:25 2537:5,16,28 2538:5,17 2541:15 2542:6 2543:6, 23 2545:20 2567:7 2591:25 2592:11,21 2593:18 2594:14 2595:1,21 2596:7,15 2597:1 2598:1 2599:7, 14 2600:11 2601:2,19, 24 2602:12 2604:8,26 2605:14 2608:14 2610:4,6 2612:2,3,7 2613:2	<b>housekeeping</b> 2467:15 2521:23,27 2543:3 2613:27 2614:2	<b>I1906016_scg_sed_ dr_67_000004</b> 2487:22	<b>impossible</b> 2587:24
<b>Honor's</b> 2537:4 2607:18 2612:18	<b>housing</b> 2492:13,15, 17,18,23,26 2493:1,7, 12,15 2494:4,5,7 2495:5,12,14 2504:4,8, 19,25	<b>idea</b> 2496:13 2524:16 2535:27	<b>improvements</b> 2476:12,14
<b>Honors</b> 2466:24 2522:4,27 2526:13 2532:19 2597:13,15 2598:5 2600:21 2605:1	<b>Hower</b> 2467:22 2468:2, 7,9,18 2472:1,28 2479:18 2480:21 2481:16 2482:14,21,24 2483:18 2484:12 2485:13 2487:3,24 2488:18 2499:1 2500:18 2501:2 2504:23 2506:4,26 2507:14,19,23 2509:25 2510:15 2512:7 2513:9, 24 2515:17 2545:7 2546:4,7,12 2547:24 2548:2 2549:11,18,27 2550:1 2554:2 2556:20, 21 2557:8 2558:8,12 2559:2,13 2560:22,25 2561:16,24,26 2566:9 2567:5,10,25 2568:9,10 2569:25 2575:24 2578:18,24 2583:1,14, 15 2585:17 2588:21 2591:8 2592:8,11,23,28 2593:5,8,13	<b>identification</b> 2514:2 2516:4 2569:21 2580:2	<b>in-camera</b> 2531:18 2535:12
<b>Honors'</b> 2466:19 2601:4	<b>huge</b> 2530:17	<b>identified</b> 2499:24 2511:28 2512:16,25 2515:18,21,25 2516:2,6 2517:16 2518:15 2561:4 2569:10 2595:13 2608:5	<b>inaudible</b> 2614:18
<b>hope</b> 2521:24 2614:11, 13,17,18	<b>hundred</b> 2572:6 2577:15	<b>identify</b> 2516:16 2518:22 2562:14 2602:20 2607:3 2611:21	<b>incident</b> 2476:2 2477:23 2478:5,6 2480:12 2481:18 2483:4,7 2484:11 2557:21 2559:3 2562:21 2571:17 2588:6 2597:6,8,10
<b>hopeful</b> 2543:9	<b>hundreds</b> 2607:25	<b>identifying</b> 2514:18 2519:9	<b>include</b> 2474:12 2506:9 2508:9 2537:8 2538:18 2551:3
	<b>hydrogeology</b> 2563:19,25 2564:22 2565:3	<b>imaging</b> 2487:19	<b>included</b> 2506:15 2509:4 2562:15 2581:6 2597:3,10 2608:26 2609:1
	<b>hypothesis</b> 2511:1	<b>immediately</b> 2520:6	<b>includes</b> 2469:7 2599:23
	<b>hypothesized</b> 2518:10	<b>immense</b> 2607:23 2608:8 2610:25	<b>including</b> 2492:15 2521:24 2533:23 2538:22 2539:2 2540:3 2584:5 2600:13
	<b>hypothetical</b> 2518:17	<b>impact</b> 2471:14,17 2532:17 2578:14 2585:11	<b>incorporated</b> 2591:16
		<b>impacted</b> 2484:21 2577:24 2578:3	<b>incorrect</b> 2514:11 2534:18
		<b>implement</b> 2573:22 2574:14 2582:26	<b>incredibly</b> 2529:11
		<b>implementation</b> 2563:20,27 2564:24 2565:5	<b>incremental</b> 2605:23
		<b>implemented</b> 2477:13 2573:27	<b>independent</b> 2485:7 2534:12 2539:20
		<b>implementing</b> 2559:7	<b>indication</b> 2490:15 2517:19 2522:16
			<b>indiscriminately</b> 2584:4
			<b>individual</b> 2503:23 2549:22,23 2582:18
			<b>individuals</b> 2548:28



2475:19 2476:24,25 2477:3,5,14,17 2485:26 2505:3 2519:22	2513:10 2515:18,23 2516:14,16 2517:2,25 2519:2 2558:23 2569:8 2578:25 2580:1 2581:17 2605:12	<b>line-by-line</b> 2600:21	2598:27 2609:8
<b>kills</b> 2519:27		<b>lines</b> 2486:12 2505:28 2506:5 2508:6 2543:27 2545:24 2564:15,20	<b>lots</b> 2614:5
<b>kind</b> 2466:7 2471:1 2518:26,27 2526:1 2550:16 2572:9 2582:10 2583:10 2590:9,10 2591:24 2605:13,26	<b>leaked</b> 2506:24	<b>linked</b> 2483:16	<b>Lotterman</b> 2479:16 2480:13,16 2528:10 2567:6,7,9 2570:8 2591:25,27
<b>knew</b> 2590:14	<b>leaking</b> 2506:16 2509:6 2513:20,23	<b>list</b> 2484:15 2531:28 2552:9 2568:4	<b>low</b> 2591:10
<b>knowing</b> 2505:14 2553:11 2589:4	<b>leaks</b> 2482:4 2484:18 2505:21 2506:9 2508:10,16,21 2511:17 2514:13 2515:2,5 2516:18 2518:7,8,10 2519:10,27 2558:18,21, 27 2569:9,21 2578:25 2579:3 2590:10	<b>listed</b> 2484:20	<b>low-blood-sugar</b> 2543:1
<b>knowledge</b> 2480:1 2524:22 2552:23 2563:18,25 2564:21,22 2565:3,25 2587:5	<b>learn</b> 2500:23	<b>listing</b> 2580:1	<b>low-probability</b> 2557:18,22 2559:4
<b>Krishnamurthy</b> 2516:24 2525:3,22 2540:8 2541:20	<b>leave</b> 2489:9 2492:17, 23 2507:5	<b>literally</b> 2577:16 2588:15 2601:3	<b>lower</b> 2570:11,17
<hr/> <b>L</b> <hr/>	<b>leaves</b> 2606:22	<b>located</b> 2574:1,17 2577:2	<b>lower-priority</b> 2553:12
<b>label</b> 2580:5	<b>leaving</b> 2492:12 2565:20 2586:26	<b>location</b> 2469:13,17,23 2471:19 2502:3,6,10 2575:20 2579:28 2590:20	<b>lunch</b> 2466:7 2499:3, 17,26 2500:11 2519:17 2521:2,15,22 2522:3, 10,15 2529:13 2530:12, 24 2535:24 2536:23 2542:26 2543:5,7,18,19 2544:6,9 2545:4 2579:19
<b>labor-intensive</b> 2598:28	<b>Lee</b> 2526:16	<b>log</b> 2475:15,27 2479:7 2482:28 2485:28 2486:19 2487:19 2519:2 2588:10 2600:18 2601:13 2605:26 2608:26 2609:24 2612:26	<hr/> <b>M</b> <hr/>
<b>lack</b> 2542:2	<b>left</b> 2493:1,16,17 2494:5,7,16 2495:10,12 2570:17	<b>logging</b> 2486:7	<b>made</b> 2467:26 2483:7 2525:10 2542:24 2543:17 2581:11 2598:25 2610:19 2611:8
<b>lacking</b> 2562:12	<b>legal</b> 2609:22	<b>logistical</b> 2533:18	<b>magic</b> 2486:8
<b>laid</b> 2583:12	<b>lengthy</b> 2600:17	<b>logs</b> 2476:9,21 2477:6 2478:1,6 2486:15,25,26 2514:17,21,28 2518:13 2519:8 2588:8	<b>main</b> 2492:11 2570:22 2589:10
<b>landscape</b> 2582:2	<b>level</b> 2484:9 2488:22 2489:18,25,27 2490:21 2603:5 2613:10	<b>long</b> 2524:13 2543:19 2549:17 2571:14 2589:20 2590:7 2600:18 2607:28	<b>maintenance</b> 2477:10 2494:12 2500:26
<b>landslide</b> 2471:17	<b>life</b> 2571:13	<b>longer</b> 2609:25 2614:4	<b>majority</b> 2546:28 2548:20
<b>language</b> 2534:9 2537:12 2563:8 2569:19 2572:25 2605:3,6	<b>light</b> 2466:16 2467:7 2486:10 2521:5	<b>looked</b> 2471:16 2488:1, 4 2493:24 2503:25 2513:27 2514:21,27 2582:7	<b>make</b> 2477:13 2489:6 2521:13 2522:6 2537:15 2552:27 2568:12 2574:9 2588:11 2589:13,14 2591:10 2598:10 2606:2 2608:25 2614:14
<b>large</b> 2542:21 2572:6	<b>likelihood</b> 2550:26	<b>loss</b> 2474:16 2486:3, 11,20 2488:3	<b>makers</b> 2600:14
<b>largely</b> 2529:12	<b>limit</b> 2606:13	<b>lost</b> 2505:9 2591:1 2610:2	<b>makes</b> 2466:21 2489:16
<b>late</b> 2476:7 2580:20	<b>limitation</b> 2608:16	<b>lot</b> 2486:12 2488:2 2503:25,26 2533:17 2542:1 2550:22 2574:5, 16 2590:7 2591:21,23	
<b>latitude</b> 2482:17	<b>limitations</b> 2606:14		
<b>law</b> 2601:18	<b>limited</b> 2469:6 2524:8 2527:3,4 2528:19 2542:19 2596:25 2608:4		
<b>lawyer</b> 2518:5	<b>limiting</b> 2604:19 2605:21 2612:20		
<b>leak</b> 2469:11,14,22,24 2470:12,28 2471:8 2479:20 2506:20 2509:9 2512:17,25	<b>limits</b> 2596:18		

<b>making</b> 2493:10 2521:6 2530:16 2533:19 2534:1	<b>meetings</b> 2501:4,7 2523:5,10 2526:8,25 2527:17,23 2528:28 2531:7,8,24,27 2532:16,21 2533:5,24 2534:4 2535:28 2536:11 2545:27	<b>minutes</b> 2498:15 2521:14 2543:20 2575:26	<b>move</b> 2468:14 2488:13 2519:14 2545:6 2546:3 2559:27 2567:4,23 2572:1 2585:21 2586:17 2594:12,23 2595:9,12 2596:27 2602:15 2611:1,10,23
<b>manage</b> 2585:4	<b>memo</b> 2474:11,22 2504:10 2529:25,26 2537:4,13	<b>mischaracterizations</b> 2530:18	<b>moved</b> 2476:10 2593:17,20 2594:2 2595:4,24 2597:11
<b>management</b> 2547:5, 27 2548:1,6 2565:11 2589:3 2590:6	<b>memorized</b> 2558:27	<b>mischaracterizing</b> 2612:14	<b>moving</b> 2520:23 2569:24 2592:19 2593:22 2594:26 2595:19
<b>manipulating</b> 2472:20	<b>memory</b> 2468:11 2493:4	<b>misplaced</b> 2537:14	<b>mud</b> 2470:20
<b>manner</b> 2529:21 2532:24	<b>memos</b> 2502:18 2503:17	<b>missed</b> 2587:11	<b>Multi-finger</b> 2487:19
<b>March</b> 2472:2 2522:22 2539:11 2543:26 2545:23 2561:4 2592:25 2593:2	<b>mention</b> 2517:21 2531:22 2547:24	<b>missing</b> 2470:19 2495:17 2513:13	<b>multi-flex</b> 2478:18
<b>marked</b> 2580:11	<b>mentioned</b> 2485:6 2494:28 2501:21 2504:24 2515:25 2549:4 2580:10 2603:24	<b>Mist</b> 2591:17	<b>multiple</b> 2478:2
<b>marketing</b> 2570:3	<b>mentioning</b> 2484:13	<b>mistake</b> 2518:8	<b>mute</b> 2536:24
<b>massive</b> 2536:11	<b>Messrs</b> 2472:1	<b>misunderstanding</b> 2602:14	
<b>Material</b> 2580:21	<b>met</b> 2576:15	<b>mitigate</b> 2558:16	<hr/> <b>N</b> <hr/>
<b>matrices</b> 2555:22 2556:7	<b>metal</b> 2468:21 2471:5,6 2474:16	<b>mitigated</b> 2585:7	<b>NACE</b> 2472:24 2574:6 2594:16
<b>matrix</b> 2555:17,20 2556:1,5,13,22,26 2557:1,5	<b>metallurgists</b> 2468:21	<b>mode</b> 2491:3,6	<b>narrow</b> 2597:26 2598:12
<b>matter</b> 2466:28 2525:4 2549:19 2601:26 2602:7,8	<b>methods</b> 2579:15,24	<b>models</b> 2506:22	<b>national</b> 2572:2
<b>matters</b> 2528:16 2541:10,11	<b>MHA</b> 2472:1 2499:21 2561:16 2592:24,28 2593:5,9,13	<b>moment</b> 2504:2 2507:5 2530:8 2536:17 2571:6 2612:4	<b>nature</b> 2551:23 2552:25 2600:23
<b>meaning</b> 2486:8 2551:27	<b>Mid-90s</b> 2548:4	<b>momentarily</b> 2488:6	<b>nauseam</b> 2568:20
<b>means</b> 2493:7 2494:15 2510:24 2518:4 2520:23 2606:26	<b>midst</b> 2499:14	<b>monitor</b> 2587:25 2589:3	<b>necessarily</b> 2469:1 2475:17 2477:7 2491:4 2493:16
<b>meant</b> 2484:12	<b>migration</b> 2506:11,19 2508:12 2509:8 2558:19	<b>monitoring</b> 2585:10 2590:9,13	<b>needed</b> 2503:11 2612:25
<b>meantime</b> 2613:13	<b>mind</b> 2499:9 2507:13 2514:15 2519:18 2569:26 2571:10 2607:17	<b>months</b> 2532:6 2547:16	<b>negative</b> 2519:1 2578:4,6
<b>measure</b> 2588:8	<b>mindful</b> 2519:17	<b>morning</b> 2466:18 2467:23 2468:7,8,9,10 2498:11 2499:15,21 2566:23	<b>national</b> 2572:2
<b>measurements</b> 2588:7,11 2590:8	<b>minds</b> 2500:11	<b>Moshfegh</b> 2574:25 2578:21 2579:9 2592:21 2593:18 2594:28 2595:20	<b>nature</b> 2551:23 2552:25 2600:23
<b>measures</b> 2559:12	<b>mine</b> 2504:13	<b>motion</b> 2522:6 2530:15 2545:11 2595:22 2597:12,24 2605:5 2609:19	<b>nauseam</b> 2568:20
<b>medium</b> 2591:10	<b>minute</b> 2513:4 2520:16	<b>months</b> 2532:6 2547:16	<b>necessarily</b> 2469:1 2475:17 2477:7 2491:4 2493:16
<b>meet</b> 2527:18 2528:1 2576:8		<b>motions</b> 2545:13 2609:13 2610:12 2614:4,5	<b>needed</b> 2503:11 2612:25
<b>meeting</b> 2525:16,20 2528:24 2535:18			<b>negative</b> 2519:1 2578:4,6

<b>noise</b> 2486:25 2514:4, 17,21,28 2515:9 2516:5,13 2517:15 2518:13,20 2519:2,8	2573:28 2578:23 2589:22	<b>offer</b> 2521:9 2545:12	<b>opine</b> 2480:10
<b>nomenclature</b> 2573:8	<b>numerical</b> 2506:21	<b>offered</b> 2481:27 2529:20 2535:13 2539:3,21 2606:9 2611:4	<b>opined</b> 2479:19 2482:2
<b>nonemergency</b> 2490:27 2491:7	<hr/> <b>O</b> <hr/>	<b>office</b> 2501:18 2502:14 2520:24 2576:8,17	<b>opinion</b> 2480:7,9 2558:20 2562:1 2590:23
<b>nonresponsive</b> 2531:21	<b>object</b> 2594:26	<b>offices</b> 2526:11	<b>opinions</b> 2561:2,21 2572:4
<b>noon</b> 2466:3	<b>objected</b> 2542:16	<b>offset</b> 2506:17 2509:7	<b>opportunity</b> 2481:7 2487:5,8,10,16 2529:13 2539:22 2540:1 2576:7 2604:11 2607:4
<b>normal</b> 2484:3 2492:7 2495:20,24,28 2518:27 2519:1,8,12 2520:5 2549:24	<b>objection</b> 2479:16 2512:11,14 2594:28 2599:27	<b>OII</b> 2534:5,15,17 2608:23	<b>oral</b> 2522:6
<b>Northridge</b> 2471:13 2484:22	<b>objections</b> 2466:27 2593:22,24,25 2595:18, 20	<b>oil</b> 2548:12 2565:20 2569:22 2578:2 2586:26	<b>order</b> 2567:12 2583:10, 11 2612:25
<b>Nos</b> 2594:9 2595:5	<b>objective</b> 2565:18 2586:24	<b>older</b> 2554:21,27	<b>ordered</b> 2532:19
<b>Notably</b> 2525:11	<b>observation</b> 2542:12	<b>omission</b> 2510:17,23	<b>orderly</b> 2501:28
<b>note</b> 2498:24 2510:27 2511:12 2521:21 2537:3 2544:8 2601:5 2609:12	<b>observations</b> 2530:15 2598:25 2599:3,22 2603:19 2610:19	<b>omitted</b> 2564:10	<b>orient</b> 2567:28 2568:1
<b>noted</b> 2510:9,11 2523:1 2534:6,12 2599:15	<b>observe</b> 2533:2 2541:28	<b>on-off</b> 2491:5	<b>original</b> 2472:3 2597:2 2598:4
<b>notes</b> 2511:26,27 2520:13 2526:7,9,10, 15,19,24,27 2527:10, 16,20,22,23 2528:3,22, 23,27 2531:13,18 2535:16,17,18 2536:6, 28 2537:19 2538:12,18, 19,27 2596:21,25 2598:16,23 2599:10 2602:1,17,20,24 2603:18 2604:4,11,21 2605:16,17,28 2606:7,8 2607:1 2611:9 2613:5	<b>observed</b> 2504:21 2506:11 2508:11 2516:12 2519:27 2520:1 2554:23 2586:14 2598:14,15,17 2599:18 2608:7,18 2612:1	<b>on-the-stand</b> 2539:5	<b>originally</b> 2593:1,10,14
<b>notice</b> 2569:5,6,11,16 2598:4 2610:15	<b>observing</b> 2548:16	<b>one-hour</b> 2521:19 2522:23 2523:24 2536:3	<b>outcome</b> 2516:19
<b>noting</b> 2486:7 2537:4 2609:13	<b>obstruction</b> 2493:28 2494:2,9	<b>ongoing</b> 2547:5	<b>overseen</b> 2519:28 2520:1
<b>November</b> 2523:20 2525:7,12	<b>obtained</b> 2566:7 2587:20,23	<b>open</b> 2466:7 2491:3,6 2497:22	<hr/> <b>P</b> <hr/>
<b>number</b> 2473:17 2487:21 2507:3 2509:27 2510:3 2530:17 2536:11,18 2554:20 2568:6	<b>obvious</b> 2471:15	<b>operable</b> 2581:25	<b>P-25</b> 2567:27
	<b>occur</b> 2484:2,10 2485:7 2546:22 2553:22 2558:24 2590:17	<b>operated</b> 2496:9 2497:12 2581:25	<b>P-25-R</b> 2568:7 2569:5
	<b>occurred</b> 2483:4 2484:5 2586:6	<b>operates</b> 2496:14	<b>p.m.</b> 2544:10,11 2545:1
	<b>occurring</b> 2547:11	<b>operating</b> 2494:1,6 2497:1,4 2571:20 2582:19 2588:18	<b>P.T.</b> 2525:27
	<b>October</b> 2479:6,13,15, 21 2480:16 2482:28 2483:2 2485:23 2486:1, 19	<b>operation</b> 2490:28 2491:7,15 2496:13 2525:23 2572:10	<b>pace</b> 2529:7
		<b>operationally</b> 2575:8	<b>pad</b> 2577:14
		<b>operations</b> 2484:3 2549:2 2578:1	<b>pages</b> 2511:13 2527:16 2545:28 2569:17 2579:14
		<b>operator</b> 2565:26 2587:7	<b>panel</b> 2466:3 2520:22 2529:18
		<b>operators</b> 2559:9 2571:18,25 2572:6 2582:3,8,24,25 2589:14	<b>paragraph</b> 2474:15 2475:4,6 2510:5,7,26, 28 2561:11 2563:6 2572:27 2573:5,9 2575:5
			<b>Pardon</b> 2495:1 2515:16 2536:25 2610:23

<b>parentheses</b> 2483:27 19 2600:3,5 2602:3 2603:8 2605:10 2606:14 2608:21 2613:8	<b>part</b> 2469:24 2470:8 2473:20,23 2492:11 2498:5 2511:17 2514:24 2547:3 2549:23 2580:24 2596:24 2603:1 2613:6	<b>parted</b> 2483:24,26 2484:19 2485:1,6	<b>Partially</b> 2522:2	<b>participated</b> 2540:24	<b>participation</b> 2592:9	<b>parties</b> 2466:11 2498:27 2520:26 2522:26 2523:18 2524:21 2528:2 2529:28 2530:5 2532:10 2537:6,7 2539:21 2542:3 2545:13 2614:13	<b>Partners</b> 2526:21	<b>parts</b> 2504:19,22	<b>party</b> 2530:2 2537:9 2594:26	<b>pass</b> 2578:14	<b>passage</b> 2508:1,15,17	<b>past</b> 2511:9	<b>payment</b> 2533:18	<b>pdfs</b> 2535:15	<b>pendency</b> 2525:1 2534:4 2535:10	<b>pending</b> 2609:13,19 2610:11	<b>penetration</b> 2582:18	<b>Pennsylvania's</b> 2571:23	<b>people</b> 2591:18 2613:18	<b>perceived</b> 2599:23	<b>percent</b> 2547:14	<b>percentage</b> 2547:10	<b>perceptions</b> 2599:21	<b>percipient</b> 2597:19,21 2598:7,12,13 2599:16,	19 2600:3,5 2602:3 2603:8 2605:10 2606:14 2608:21 2613:8	<b>perfectly</b> 2577:20	<b>perform</b> 2546:18,24 2548:6 2550:14 2562:2	<b>performed</b> 2506:7 2550:6 2553:4	<b>performing</b> 2582:10	<b>period</b> 2503:17 2571:15 2606:16 2614:4	<b>permeable</b> 2516:25	<b>permitted</b> 2522:28	<b>perspective</b> 2583:3,8 2586:18 2611:25	<b>Petroleum</b> 2472:2 2561:17 2580:26 2581:2 2592:24 2593:1, 6,9,14	<b>PHMSA</b> 2580:20 2581:11,16	<b>phone</b> 2522:23 2523:24 2524:18,19 2525:15 2526:20	<b>photographs</b> 2602:25 2603:18 2605:16,17	<b>photos</b> 2596:21,26 2598:23 2599:11 2604:4,20 2606:9 2611:10 2613:5	<b>pick</b> 2518:14 2542:25 2614:9	<b>piece</b> 2496:21,22 2507:8 2547:7	<b>pioneers</b> 2591:21	<b>Pipeline</b> 2580:21	<b>pipelines</b> 2552:10	<b>place</b> 2472:16 2476:22 2477:17,26 2572:27 2581:3 2591:15 2608:9	<b>places</b> 2491:13	<b>plan</b> 2543:7 2590:6	<b>planning</b> 2466:15 2520:5 2530:22	<b>plant</b> 2549:3	<b>play</b> 2542:4	<b>pleadings</b> 2609:9	<b>plugged</b> 2582:20	<b>PMK</b> 2599:21,26	<b>PMQ</b> 2599:20,26	<b>point</b> 2466:6 2475:28 2481:19 2482:15 2485:12 2498:27 2536:19 2537:15 2541:21 2567:1,3 2572:25 2591:23 2600:9 2601:11 2604:21 2607:1 2608:24 2609:10	<b>pointing</b> 2579:6	<b>points</b> 2482:1 2542:23 2543:16	<b>Poirier</b> 2545:3 2546:2 2560:1,4 2566:11,14,18 2591:27 2592:2,13,16 2593:16,21,27 2594:12, 25 2595:2,9,18,22 2596:1 2613:11,22,24	<b>ported</b> 2511:4	<b>portion</b> 2547:28 2570:11 2577:3,6,9,25 2578:11 2579:1,3,5	<b>portions</b> 2561:3 2574:1 2580:25	<b>position</b> 2476:23,25 2477:2 2530:20 2565:8	<b>positive</b> 2517:19 2578:4	<b>possession</b> 2597:5 2606:1	<b>possibility</b> 2559:10 2588:26	<b>possibly</b> 2520:27 2524:13 2605:23	<b>posted</b> 2563:4	<b>potable</b> 2585:13	<b>potential</b> 2471:17 2505:3 2523:11 2526:3 2527:12 2540:19 2550:24 2574:18 2584:26 2586:1 2588:22 2590:10	<b>potentially</b> 2600:13,17 2602:1	<b>practical</b> 2588:17	<b>practice</b> 2472:25 2476:27 2477:4 2520:5 2571:19 2580:25,27 2581:23,25 2582:1 2594:17	<b>practices</b> 2477:13 2571:9,28 2573:11 2581:5 2582:2,27	<b>pre-2007</b> 2562:12	<b>pre-dating</b> 2562:7	<b>precise</b> 2607:19	<b>precisely</b> 2469:14	<b>preface</b> 2584:2	<b>prefer</b> 2500:12 2522:10 2530:25 2606:20	<b>preference</b> 2466:19	<b>preferences</b> 2466:10	<b>preformal</b> 2597:20 2600:4 2605:11 2606:15 2608:21	<b>preparation</b> 2533:15 2554:13 2560:19,27 2580:4	<b>prepare</b> 2609:24 2612:26	<b>prepared</b> 2471:26,28 2522:13 2530:7 2539:2 2543:11 2561:15 2592:23,27 2593:4,8,12 2604:2	<b>preparing</b> 2530:23	<b>present</b> 2533:25	<b>pressure</b> 2490:14,15 2497:23,25,27 2498:1, 2,5 2525:27	<b>pretty</b> 2519:9 2524:8 2547:22 2584:3 2602:24
---	--	--	-------------------------	-----------------------------	-----------------------------	---	-------------------------	-------------------------	---------------------------------------	---------------------	-----------------------------	--------------------	------------------------	---------------------	--	--------------------------------------	----------------------------	----------------------------------	----------------------------------	--------------------------	------------------------	---------------------------	----------------------------	---	---	--------------------------	--	--	---------------------------	--	--------------------------	--------------------------	--	--	------------------------------------	---	--	---	---------------------------------------	--	-------------------------	-------------------------	--------------------------	---	-----------------------	---------------------------	---	---------------------	--------------------	-------------------------	------------------------	-----------------------	-----------------------	--	------------------------	---	---	----------------------	---	--	---	-----------------------------------	------------------------------------	---------------------------------------	--	----------------------	------------------------	--	---	--------------------------	--	---	-------------------------	--------------------------	------------------------	--------------------------	-----------------------	--	---------------------------	----------------------------	---	--	-----------------------------------	--	--------------------------	------------------------	--	--

<b>prevailing</b> 2571:9	2537:9 2538:22,27 2539:1 2541:1	<b>proved</b> 2515:2	2611:1
<b>prevent</b> 2559:12,26		<b>provide</b> 2501:7 2502:2	<b>put</b> 2469:14 2486:9,24
<b>prevented</b> 2472:19	<b>proceedings</b> 2543:15	2517:1 2530:3 2532:2	2532:9 2559:12,23
<b>preview</b> 2523:11	<b>process</b> 2494:18	2539:9 2542:10 2545:9,	2572:20 2573:22
<b>previewing</b> 2527:12	2524:18 2551:17	19 2557:16 2565:19,26	2574:11 2575:17,21
<b>previous</b> 2582:20	2596:20 2598:22	2566:26 2569:1	2576:22 2581:3
<b>previously</b> 2522:25	2603:23 2605:25	2579:13,23 2580:3	2584:28 2588:25
2524:20 2532:12	2607:15 2608:2	2586:25 2587:7	2591:4,9,11 2600:19,20
2554:23 2601:10	<b>processes</b> 2607:14	2602:18 2613:16	2607:27
<b>primarily</b> 2501:4	<b>produce</b> 2526:15	<b>provided</b> 2514:26	<b>puts</b> 2591:24
<b>primary</b> 2492:20	2531:20 2612:26	2531:9 2532:17 2542:8	<b>putting</b> 2527:13
<b>prior</b> 2477:23 2479:13	<b>produced</b> 2526:19,24,	2554:5 2560:12,23	2608:27
2480:8 2482:28	28 2527:20	2582:5 2603:21	
2483:21 2522:3,18,27	<b>producers</b> 2577:26	<b>providing</b> 2601:12	<b>Q</b>
2527:13 2546:25	<b>producing</b> 2498:2	2605:23 2613:15	
2547:11 2553:20	<b>production</b> 2475:20	<b>proximity</b> 2573:19	<b>qualification</b> 2547:25
2557:20 2559:3	2526:23 2528:21	2574:18	<b>qualifications</b> 2546:16
<b>prioritize</b> 2552:8	2562:20 2583:25	<b>public</b> 2466:27 2520:24	<b>qualitative</b> 2550:14
<b>privilege</b> 2599:11	2586:2,5 2587:27,28	2523:19 2525:11,14	2551:19,23 2552:4,12,
2600:18,22 2601:7,8,	2588:2,9,12,16 2597:3	2533:27 2534:10	15,21,25 2553:5,9
12,15,17,27 2602:4,11,	2605:16,24 2612:21	2539:21 2540:25	2580:14 2582:3
19 2603:5,7 2605:26	<b>productivity</b> 2547:2	<b>publication</b> 2570:15	<b>qualitatively</b> 2552:8
2608:26 2609:2,17,24	2548:22	<b>published</b> 2548:3	<b>quantify</b> 2551:13
2610:10 2612:26	<b>professionals</b>	2580:28	<b>quantitative</b> 2551:26
<b>privileged</b> 2596:22,23	2546:17	<b>pull</b> 2471:24 2472:13	2552:3,14,17,22,27
2598:24 2599:1	<b>program</b> 2503:21	2478:7,12,22 2489:20	<b>quantity</b> 2591:2
2602:20 2603:9 2604:5,	2559:7 2577:18 2578:7	2492:13,16,18,22,25	<b>quash</b> 2597:11,24
12,14 2606:1,6 2609:6,	2585:5,9 2589:2,3	2554:1 2564:14,17	<b>question</b> 2466:8
23 2613:6	2591:2	<b>pulled</b> 2503:11,12	2469:16 2476:4,28
<b>privileges</b> 2607:3	<b>progresses</b> 2466:22	2555:10	2479:25 2482:17
<b>privy</b> 2532:28	<b>project</b> 2547:23	<b>pulling</b> 2475:22	2484:26 2485:17
<b>problem</b> 2490:16	<b>prompting</b> 2526:17	2477:20 2503:7	2486:17 2487:6 2497:7
2491:9 2586:1	<b>proper</b> 2611:26	2569:26	2502:5 2504:14 2507:1,
<b>problematic</b> 2607:10	<b>properly</b> 2518:21	<b>Purchia</b> 2593:24	4,6 2511:25,26 2512:10
<b>problems</b> 2554:28	2610:10	2594:13,14,25	2513:2,9 2514:14
2574:8	<b>proposal</b> 2602:28	<b>purpose</b> 2495:13	2515:28 2517:6,10,28
<b>procedure</b> 2477:17	<b>proprietary</b> 2472:18	2523:27 2525:16,19	2518:2 2519:6 2521:12
2492:7 2539:16,26	<b>protect</b> 2578:12	2533:28 2539:27	2538:1,3 2539:14
<b>procedures</b> 2523:9	2589:11	2542:22,28 2565:18	2548:18 2553:3
2539:28	<b>protection</b> 2472:8,25	2586:24	2554:26 2555:27
<b>proceed</b> 2532:24	2474:12,23,26 2475:2,9	<b>purposes</b> 2477:10	2556:20,21 2557:13
2546:6	2572:15,19,23 2573:18,	2489:26 2500:26	2561:28 2562:8,17
<b>proceeding</b> 2525:1	22,28 2574:11,15,20	2589:11 2605:26	2563:15 2565:14,16,24
2527:5,25,28 2531:25	2575:1,17,22 2576:22,	<b>pursue</b> 2535:7	2579:11,13 2583:13,17,
2533:27 2534:5,15,17	27 2577:5,17,18 2578:9	<b>pursued</b> 2526:6	20 2585:2,20,22
	2594:17	<b>push</b> 2552:26	2586:17,20 2587:3,5,16
		<b>pushing</b> 2607:21	2589:18,25 2594:22
			2596:17 2603:27,28
			2608:11

<b>question-by-question</b> 2603:4	2502:17 2507:3 2508:7 2510:6 2519:22,24 2531:4 2537:5 2560:18 2563:6 2564:21 2565:9 2573:1 2574:27	<b>recommends</b> 2474:23	<b>reflected</b> 2559:14
<b>questioning</b> 2527:10 2528:19 2529:7 2535:7 2576:3	<b>reading</b> 2507:9 2597:16 2599:28 2600:1 2601:4 2611:6	<b>reconsideration</b> 2597:13,14 2605:5	<b>Reflective</b> 2559:18
<b>questions</b> 2487:11,13 2520:22 2523:11,20 2524:15 2525:6,10,13 2527:13 2529:16 2530:24 2532:7 2534:2, 26 2539:23 2540:2,20 2542:7,14,16 2548:26 2561:13 2568:2,9 2569:6 2575:28 2578:24 2580:9,15 2583:2 2589:23 2591:26 2603:12,13 2606:18 2610:9 2614:21	<b>ready</b> 2513:5 2515:16	<b>record</b> 2471:25 2472:22 2473:8 2482:7, 8,10,11,13 2488:6,7,8, 9,10 2498:17,20 2513:3,6,8 2520:15,17, 19,20 2537:23 2540:22 2541:7,13 2544:9 2545:4,9 2560:2,3,5,15 2566:12,13,15,16,17,19 2568:13,27 2573:2 2591:28 2592:1,3,4,14, 15,17,19 2593:20,23 2594:2,24,27 2595:4, 14,16,19,24 2596:1,2,4 2614:27	<b>refresh</b> 2468:11
<b>quickly</b> 2541:23 2560:2 2567:24 2569:27	<b>real</b> 2542:27 2612:19	<b>recordkeeping</b> 2582:22	<b>regard</b> 2483:24 2555:5 2557:13
<b>quiet</b> 2614:4	<b>realize</b> 2563:3	<b>records</b> 2501:1 2502:3, 7,9 2505:20	<b>regime</b> 2563:2,9
<b>quote</b> 2523:28	<b>reask</b> 2514:14	<b>recross</b> 2592:6	<b>regular</b> 2533:14
<b>quotes</b> 2507:8 2563:16	<b>reason</b> 2497:6 2503:20 2505:17 2531:19 2538:23 2549:7 2559:22 2585:27 2608:25	<b>redirect</b> 2466:18 2481:13 2487:6,16 2521:7 2567:4,8,11	<b>regulations</b> 2571:8,21, 22,23,24,27 2572:8 2584:19
<b>quoting</b> 2475:6 2563:24 2564:7 2565:17 2585:24 2612:9,15	<b>reasonable</b> 2562:18 2583:18,23	<b>redline</b> 2592:27	<b>relate</b> 2527:17 2598:11 2613:7
<hr/> <b>R</b> <hr/>			
<b>R&amp;d</b> 2591:21	<b>reasons</b> 2472:18	<b>refer</b> 2468:26 2507:10 2509:10 2522:18 2531:16 2540:7 2541:18 2553:16 2612:11	<b>related</b> 2469:11 2470:11 2493:13 2519:27 2522:21 2526:3,6,7,20,24 2527:23 2528:23 2531:10 2532:20 2533:18,25 2535:18 2537:20 2538:13,19,27, 28 2540:27 2541:10 2542:16 2543:28 2545:15,22,25 2561:13 2562:7 2565:27 2580:22 2581:7 2587:8 2597:5,7,9 2604:6 2609:5
<b>radioactive</b> 2486:26	<b>recall</b> 2468:17 2491:26 2492:4 2501:10 2503:13,19 2504:11,15, 23,26,27 2505:5 2507:23 2514:2,17 2526:8 2528:28 2577:6 2578:24	<b>reference</b> 2481:21 2513:10 2531:15 2543:25	<b>relates</b> 2527:28 2545:21 2605:9
<b>raise</b> 2521:26 2522:2, 10	<b>received</b> 2488:2 2525:18 2528:11 2532:11 2594:4,6,8,10 2595:5,7,26,28	<b>referenced</b> 2514:24 2517:3 2525:8 2534:22 2541:3	<b>relative</b> 2471:19 2514:11 2562:19
<b>raised</b> 2530:12 2542:9	<b>receiving</b> 2487:25	<b>references</b> 2508:24 2509:15 2527:26,27 2541:17 2542:7 2545:19	<b>release</b> 2590:27,28
<b>Ranch</b> 2547:20	<b>recently</b> 2478:3 2541:4 2572:1	<b>referred</b> 2514:22,23	<b>released</b> 2505:21 2540:13,14
<b>rank</b> 2591:6	<b>recess</b> 2498:18 2544:10	<b>referring</b> 2508:6 2524:7 2580:19	<b>relevance</b> 2482:15 2488:11
<b>rare</b> 2586:16	<b>recognize</b> 2473:20,22 2487:23 2507:12,17	<b>refine</b> 2603:28	<b>relevant</b> 2482:13 2484:15,17 2533:7 2538:21 2563:19,26 2564:23 2565:4,11 2568:5
<b>RCA</b> 2524:25 2533:15 2535:11	<b>recognizing</b> 2610:25	<b>refinement</b> 2604:9	<b>reliable</b> 2519:9
<b>re-argued</b> 2601:9	<b>recollection</b> 2504:13 2525:28		<b>relief</b> 2519:19,23 2520:5
<b>re-cap</b> 2589:21	<b>recommend</b> 2475:8 2499:16		<b>relying</b> 2534:20 2544:1
<b>reached</b> 2499:23	<b>recommended</b> 2475:1 2574:28 2580:25,27 2581:4,22,25 2582:1,26		<b>remainder</b> 2528:21,27
<b>read</b> 2472:22 2475:24 2481:10 2485:19			

<b>remained</b> 2504:4	<b>represented</b> 2528:5	<b>responded</b> 2526:9 2528:2 2531:26	<b>review</b> 2474:10 2478:24 2482:22,26 2502:4,16 2511:10 2531:18 2535:12 2554:12 2560:17,26 2579:20 2583:22 2603:23 2604:11,14,20 2605:22 2606:8
<b>remember</b> 2492:3 2493:23 2503:20,24,27 2504:16 2514:20,27 2516:24 2541:24 2568:8 2576:2 2578:25 2580:15	<b>represents</b> 2488:24	<b>responding</b> 2482:3 2530:2	<b>reviewed</b> 2480:22 2500:21 2501:16,19,21, 28 2502:25 2571:7 2597:23
<b>remind</b> 2487:4	<b>request</b> 2499:12,24 2507:1,7,12,18 2511:16,18,19,20 2514:10,12 2523:3 2524:12 2527:23 2528:18 2530:3,4 2531:23 2535:18 2554:11 2555:27	<b>responds</b> 2512:15	<b>reviewing</b> 2491:21 2505:7,20 2558:11 2575:28 2576:21 2589:25 2596:21 2601:14 2604:27
<b>reminder</b> 2614:3	<b>Request-12</b> 2473:21, 24	<b>response</b> 2467:18 2473:21,24 2481:4 2499:18 2507:1,18,21, 25 2508:5 2512:26 2514:12,23 2515:20 2517:4 2527:22 2530:4 2532:2 2541:2,6 2554:11 2560:16 2561:28 2565:23 2579:8 2585:18,20 2586:8 2587:10 2594:21 2595:12,16 2606:24 2608:13 2609:27,28 2612:5 2613:28 2614:23	<b>revises</b> 2572:4
<b>remote</b> 2574:2 2575:19	<b>Request-65</b> 2594:21	<b>responses</b> 2500:1,4 2532:11,15 2562:5	<b>revise</b> 2605:3
<b>remotely</b> 2591:5	<b>Request-78</b> 2560:16 2595:17	<b>responsive</b> 2516:10 2518:6 2527:9,22 2528:4,22 2535:17 2612:27	<b>revisit</b> 2466:23
<b>removal</b> 2494:26 2495:4,5	<b>requested</b> 2529:14	<b>rest</b> 2533:7	<b>rework</b> 2569:5
<b>remove</b> 2491:28 2492:10,14 2493:14 2494:17 2495:11,13	<b>requests</b> 2523:17 2526:17 2528:23 2532:9 2536:5 2537:7 2593:19 2594:23	<b>restart</b> 2596:12 2605:25	<b>rip</b> 2588:15
<b>removed</b> 2491:25,27 2492:2,6 2493:6 2495:7,15 2503:22 2504:5 2588:2	<b>require</b> 2486:8 2582:12 2607:26	<b>restate</b> 2483:14 2517:8 2519:3 2538:2 2597:2	<b>risk</b> 2546:18,21,24,26 2548:6,9,14 2549:15, 20,22,26 2550:2,6,8,11, 14,17,19,21 2551:3,13, 20,22,27,28 2552:13, 16,21,22 2553:5,9,17, 20 2555:17,19,22 2556:1,5,7,12,22,25,28 2557:5,17,18,22 2558:5,10 2559:4 2562:2,7,12 2580:13,14 2581:7 2582:3,6,13 2588:22 2589:2,23 2590:1,5,6
<b>reopen</b> 2522:6	<b>required</b> 2477:21 2523:16,19 2582:16,22	<b>restriction</b> 2491:2	<b>riskier</b> 2551:15
<b>repair</b> 2569:21 2579:16	<b>required</b> 2477:21 2523:16,19 2582:16,22	<b>rests</b> 2537:18	<b>risks</b> 2553:11,27 2556:8 2558:14 2584:26
<b>repaired</b> 2512:2,18 2569:10	<b>requirement</b> 2539:18	<b>result</b> 2611:28	<b>road</b> 2598:19,27
<b>repairs</b> 2579:25	<b>requires</b> 2475:17 2492:21 2531:6	<b>resulted</b> 2508:18 2563:2	<b>robust</b> 2481:12,13 2585:9
<b>repeat</b> 2476:28 2515:27 2544:3,6,7 2576:24 2596:5 2608:16 2613:4	<b>reservoir</b> 2497:23,27 2547:5,27 2548:1,5 2570:26 2582:19	<b>resume</b> 2467:21 2614:26	<b>role</b> 2599:5 2602:14 2604:20 2605:10
<b>repeating</b> 2610:14	<b>reservoirs</b> 2547:4 2549:23	<b>resumed</b> 2468:3,5 2546:8	<b>root</b> 2533:3
<b>repetitive</b> 2610:23	<b>residual</b> 2504:18,22	<b>retrieval</b> 2494:21	<b>routine</b> 2476:27 2477:4,7 2558:23
<b>reply</b> 2471:26,28 2483:22 2505:26 2561:3,15,22 2568:3 2569:2 2592:23 2593:4, 12	<b>resolution</b> 2596:19 2612:24	<b>retrieve</b> 2494:19 2526:14	
<b>report</b> 2481:9,15,22,26, 28 2482:4,22,26 2485:20 2519:25 2523:22 2524:5,28 2525:5 2533:15 2540:14,15 2584:5	<b>resolve</b> 2505:17 2603:11	<b>returning</b> 2545:4 2566:20	
<b>representation</b> 2563:28	<b>resolved</b> 2505:10 2541:22	<b>reverse</b> 2527:15 2583:10	
<b>representatives</b> 2591:19	<b>respect</b> 2603:7		
	<b>respectful</b> 2567:17		
	<b>respond</b> 2480:13,28 2499:26 2522:13 2530:11,20 2535:22		

<b>routinely</b> 2496:5 2542:15	<b>Schlumberger</b> 2570:2 2594:15	2595:5	<b>setting</b> 2525:19 2589:5
<b>RP</b> 2581:13,22	<b>Schwecke</b> 2466:4 2467:4 2566:22 2614:13	<b>SED-304</b> 2473:11 2574:23 2594:19 2595:5	<b>severe</b> 2474:18
<b>rule</b> 2550:13 2580:18, 22,24 2581:11,16,19	<b>scope</b> 2479:17 2525:24,28 2538:21 2540:28 2599:6 2602:26,27 2603:1,20 2605:8 2606:10 2608:27 2612:16,17,20	<b>SED-306</b> 2594:20 2595:7	<b>shallow</b> 2474:18 2570:4,28
<b>rules</b> 2530:1 2531:4	<b>scoping</b> 2523:9,15,16 2529:25,26 2534:7 2537:4,13 2539:17,18	<b>SED-306.001</b> 2507:4	<b>shallow-set</b> 2570:20
<b>ruling</b> 2523:9,15,16 2534:7 2539:17,18 2597:14,25 2598:6 2599:7,9,28 2600:1,6, 28 2601:4,5,28 2605:4, 6 2606:13 2608:19,20 2610:16,17 2611:5,7,17 2612:10,11	<b>screen</b> 2482:6 2507:6 2535:15 2568:26 2570:13 2573:4	<b>SED-306.002.</b> 2578:22	<b>shallower</b> 2574:4 2577:28 2578:2,14
<b>run</b> 2475:27 2476:9 2477:5 2479:7 2482:27 2485:28 2486:19	<b>screwed</b> 2490:5	<b>SED-307</b> 2580:5	<b>share</b> 2482:6 2507:7
<b>running</b> 2475:15 2479:13 2585:9	<b>scroll</b> 2472:5 2473:19 2474:14 2487:20 2507:2 2509:22 2510:2, 3 2511:7,11,23 2554:8 2557:15 2560:8 2565:1	<b>seek</b> 2522:9 2537:22 2567:20	<b>shifted</b> 2600:25
<b>rupture</b> 2554:17 2558:17	<b>search</b> 2532:20	<b>seeking</b> 2542:13	<b>shoe</b> 2516:23 2562:20 2583:24 2585:13,14 2586:4,13
<b>ruptures</b> 2557:17 2558:6,10	<b>seat</b> 2575:25	<b>segments</b> 2581:13	<b>shopping</b> 2540:19
<b>rust</b> 2588:28	<b>secret</b> 2525:13 2539:24	<b>segue</b> 2501:16	<b>short</b> 2499:22 2566:20 2575:5 2609:27
<hr/> <b>S</b> <hr/>			
<b>safe</b> 2477:14	<b>Section</b> 2562:5	<b>sense</b> 2466:21 2489:6, 17 2521:13 2576:20 2588:23,24	<b>shorter</b> 2499:1
<b>safety</b> 2477:12,13,17 2488:19,26 2489:3,8,22 2490:2,11,17,23,25 2491:10,15,24 2492:2, 6,11,15 2493:6,11 2494:26 2495:6 2502:28 2503:8,11 2504:5 2558:15 2559:8, 15,23 2565:27 2570:2, 4,20,23,28 2580:21 2587:8 2591:22 2594:16	<b>SED</b> 2466:14,18,27 2473:21 2483:25 2487:17 2507:1,18 2514:10 2520:21 2526:4 2527:27 2534:15 2536:2 2537:1 2560:16 2571:3 2578:17 2592:5 2593:24 2594:12,21,23 2595:17 2597:11,22,27 2601:6,12 2605:8 2608:9 2609:10,15 2612:23	<b>sensitive</b> 2530:27	<b>shot</b> 2516:8
<b>sake</b> 2518:11,26	<b>SED's</b> 2597:20,24 2599:27 2600:3 2602:28 2605:11 2608:21	<b>sentence</b> 2474:22,28 2475:7 2563:22 2573:2, 13 2574:26	<b>show</b> 2493:20 2509:20 2510:3 2511:13 2513:22 2558:13 2579:14 2598:24
<b>saline</b> 2584:24 2585:15	<b>SED-302</b> 2488:17,23 2569:26 2570:1,14 2594:15 2595:3,5	<b>sentences</b> 2565:15	<b>showed</b> 2493:1 2515:1 2516:17 2534:23 2569:25 2578:28 2580:10
<b>sampling</b> 2506:15 2509:5 2513:20	<b>SED-303</b> 2472:14,23 2572:12 2594:16	<b>separate</b> 2531:17 2608:1	<b>showing</b> 2504:8 2579:28
<b>scanning</b> 2520:12		<b>Separately</b> 2539:13	<b>shown</b> 2486:2,20 2512:26 2515:4,19
<b>scenario</b> 2572:22		<b>September</b> 2523:15 2580:28	<b>shows</b> 2474:23 2510:27
<b>schedule</b> 2466:20		<b>Series</b> 2594:16	<b>shut</b> 2491:17
		<b>serve</b> 2467:2,5,9 2537:7	<b>shuts</b> 2490:19
		<b>served</b> 2523:17 2532:9 2542:28 2592:25 2593:1,10,14	<b>side</b> 2527:1,26 2531:12
		<b>service</b> 2467:1 2472:3 2549:6 2588:19	<b>sides</b> 2527:16
		<b>Sesnon</b> 2553:6 2556:2, 17 2557:1,6	<b>significant</b> 2591:2
		<b>SESSION</b> 2545:1	<b>signify</b> 2576:6
		<b>set</b> 2490:13 2539:16 2551:14 2568:15 2570:4,24 2584:18 2585:19 2589:14	<b>silence</b> 2606:25
		<b>sets</b> 2561:2,21	<b>similar</b> 2534:26 2548:18,25 2573:14 2609:20

<b>simplify</b> 2484:25	2574:14,19 2575:12	<b>sources</b> 2513:23	2586:7 2588:6 2590:26
<b>simply</b> 2528:13	2576:21,26 2581:26	<b>southeastern</b> 2577:9,12	<b>SS-4-0</b> 2484:20
<b>simulation</b> 2506:22	2582:25 2583:18,22	<b>Southern</b> 2561:18	<b>SSSV</b> 2503:21
<b>simultaneously</b> 2523:17 2530:5	2584:17,24,25 2585:8,28 2588:21 2590:1	<b>speak</b> 2536:19	<b>staff</b> 2607:13 2611:13
<b>sir</b> 2580:9	2591:6 2592:20	<b>speaking</b> 2468:26	<b>staffer</b> 2599:6
<b>sit</b> 2508:23 2514:27 2552:1	2593:16,19 2594:21	<b>specific</b> 2471:3,9 2483:6 2494:3 2501:13	<b>stamp</b> 2517:4
<b>site</b> 2479:20	2595:12,21 2598:3	2503:4,15 2504:10	<b>stand</b> 2468:3 2532:15 2546:8
<b>situation</b> 2497:15 2519:12 2530:10 2543:1 2575:20	2603:15 2610:9,13,28 2611:5,16 2614:16	2515:28 2517:28	<b>standard</b> 2472:9,24 2473:4 2477:12 2553:5
<b>situations</b> 2496:5 2573:11	<b>Socalgas'</b> 2473:20	2518:7,9 2539:20	2556:2,17 2557:1,6
<b>six-hour</b> 2596:18	2491:22 2523:13	2573:11 2609:16	2572:14,17,20 2573:10 2581:19 2594:16
<b>sleeve</b> 2496:4 2497:16	2524:21 2526:17	<b>specifically</b> 2484:13	<b>standards</b> 2477:18 2571:9,14 2572:2 2581:3
<b>sliding</b> 2496:4 2497:16	2528:22 2536:14	2487:14 2491:27	<b>standpoint</b> 2552:4
<b>slightly</b> 2511:8 2604:1	2562:2 2600:23	2493:23 2494:24	<b>stands</b> 2599:20
<b>smaller</b> 2510:10	<b>Socalgas's</b> 2505:20	2500:25 2505:22	<b>start</b> 2466:4 2476:1 2521:14 2530:13
<b>Socal</b> 2591:18,20	2538:7 2540:6 2553:19 2611:25	2508:15 2518:2	2546:13 2549:10
<b>Socalgas</b> 2466:9	<b>Socalgas-04-r</b>	2523:18 2525:2	2550:16 2554:3
2469:12,23 2470:4	2471:21,27 2475:12	2534:23 2538:24	2557:25 2560:10
2474:5 2477:16	2568:3 2592:26 2594:1,6	2539:1 2558:16 2562:4	2567:25 2574:25
2478:25,28 2479:3,7,8, 11,14 2482:26 2483:1	<b>Socalgas-04.2</b>	2601:6 2606:18 2609:15	2583:12 2591:8 2592:20 2613:14
2485:28 2495:13	2592:22 2593:28	<b>spending</b> 2576:16	<b>started</b> 2546:23 2567:26
2499:11 2501:1 2502:2, 20 2505:7 2506:7,11, 14,28 2507:17 2508:11	2594:4	<b>spent</b> 2567:26	<b>starting</b> 2475:13 2478:4 2482:5 2564:21
2509:2,4,28 2512:12,14	<b>Socalgas-05</b> 2593:3	<b>split</b> 2511:3	<b>starts</b> 2510:5 2573:9
2517:24 2522:5,20,28	2594:1,8	<b>spoke</b> 2471:16 2504:21 2580:17	<b>state</b> 2522:11 2571:21, 26
2523:1,3,7 2524:21,23, 26 2525:6 2526:6,23,27	<b>Socalgas-27</b> 2593:7	<b>spots</b> 2590:21	<b>stated</b> 2473:25 2474:18,20 2507:11 2533:21 2547:6
2527:1,11,15,17,21,25	2594:1,9	<b>squeezing</b> 2512:18	<b>statement</b> 2541:18 2565:17 2586:22
2528:2,18 2530:16	<b>Socalgas-28</b> 2593:11	<b>squiggly</b> 2486:12	<b>statements</b> 2541:19
2531:9,25,27 2532:5, 24,26 2533:3,5,13	2594:2,10	<b>SS</b> 2474:17	<b>states</b> 2474:25 2555:7 2561:12 2563:17 2572:9 2584:10
2534:3 2535:9,13,27	<b>soils</b> 2505:22	<b>SS-25</b> 2472:10 2475:16	<b>stating</b> 2539:6
2536:12 2537:10,17	<b>solicited</b> 2567:18	2479:8,9,12,14 2482:27	<b>status</b> 2614:18
2540:10,16,19,21,24	<b>soliciting</b> 2540:21	2483:1,13,15 2484:5, 10,23,28 2485:10,13, 20,23,27 2486:1 2489:3	
2541:5 2542:8,13,15	<b>solution</b> 2611:4	2490:6,12 2491:19,22	
2545:23 2553:4	<b>sooner</b> 2499:10	2492:10 2493:2,22	
2554:10 2555:28	<b>sort</b> 2502:22 2529:3	2494:25 2495:4,5,6,12	
2557:4,15,21 2558:5,9, 21 2559:3 2561:4	2550:15 2551:11	2500:20,21,23,25,28	
2562:18,24 2563:3,8	2553:11 2581:1,20	2501:8 2502:7,26	
2564:15 2566:22,26	2607:2	2504:2,20 2505:2	
2568:22 2573:21	<b>sorts</b> 2523:20 2534:2,3 2535:8	2519:22 2554:16	
	<b>sought</b> 2527:17	2555:5 2556:11,15,26	
	<b>sounds</b> 2466:14,19 2528:26 2605:14	2557:5 2562:21	
	<b>source</b> 2506:16 2509:5 2513:20 2539:22	2570:24 2571:17	
		2577:10,11,14,19	
		2581:17 2583:19,26	

<b>stay</b> 2491:6 2521:18	<b>stop</b> 2490:20 2574:10 2589:9 2601:21	2492:2,6,11,14 2493:6, 11 2494:26 2495:6 2502:28 2503:7,10 2504:5 2506:12 2508:12 2557:17 2558:6,10,15,18 2559:8,15,23 2570:20, 28 2591:22	<b>surface-facility</b> 2550:28
<b>staying</b> 2503:28	<b>stopped</b> 2503:21	<b>successfully</b> 2479:9, 12 2480:12 2482:27	<b>Surfaces</b> 2472:26 2594:18
<b>steel</b> 2472:26 2584:28 2588:25,28 2594:18	<b>stops</b> 2490:19 2505:17	<b>suddenly</b> 2600:24,25	<b>surprise</b> 2533:4,6
<b>step</b> 2605:13 2606:5	<b>storage</b> 2477:28 2478:5 2495:24 2546:17,18,28 2547:9, 15,26,28 2548:12,20,27 2550:12 2551:24 2552:19 2554:23 2555:7 2559:9 2569:23 2570:26 2571:12,21 2572:2,8,9,15 2574:4 2578:1 2580:23 2581:5 2582:18,25 2584:13 2588:5 2591:4,20	<b>sufficiency</b> 2562:1	<b>surprised</b> 2598:2
<b>steps</b> 2582:10	<b>streamlined</b> 2598:22	<b>sufficient</b> 2551:26	<b>surrounding</b> 2505:22
<b>stick</b> 2599:10 2603:16	<b>strictly</b> 2468:21	<b>suggest</b> 2484:8 2527:10 2611:20 2612:2	<b>survey</b> 2584:10 2585:5
<b>sticking</b> 2599:9	<b>string</b> 2478:11 2512:20 2588:8	<b>suggesting</b> 2537:11	<b>surveys</b> 2514:4,17 2516:5,13 2517:15 2518:13,20,21 2585:10
<b>Stinson</b> 2467:23 2468:2,8,10 2472:1,28 2480:21 2481:17 2482:15,21,23 2483:10, 11,19 2499:1 2500:18, 27 2502:12 2504:12,15 2506:3 2509:26 2513:12,15 2545:7 2546:4,7,13,14,15,20 2548:19 2549:10,14,16 2550:2,7 2554:2,3,7,12 2555:16 2557:10,11,25, 28 2558:4 2560:10,14 2561:1,6,9,16 2562:6 2564:17,25 2565:6,16 2566:9 2567:5,10 2569:13 2572:3 2580:7, 8 2583:2,6 2586:19 2589:22 2590:4 2591:12,13 2592:7,12, 24,28 2593:5,9,13	<b>strings</b> 2478:2	<b>suggestion</b> 2537:19 2611:9	<b>switch</b> 2491:5
<b>Stinson's</b> 2479:18 2548:25	<b>struggling</b> 2497:7 2535:27 2536:7	<b>summarize</b> 2598:2	<hr/> <b>T</b> <hr/>
<b>stipulate</b> 2500:3	<b>study</b> 2471:16,19	<b>supplemental</b> 2500:1, 4	<b>takes</b> 2573:13 2612:22
<b>stipulated</b> 2589:17	<b>subheading</b> 2472:7	<b>supplemented</b> 2526:22	<b>taking</b> 2533:8 2543:7,9 2549:6 2566:15
<b>stipulating</b> 2520:27 2521:7	<b>subject</b> 2473:27 2474:11 2512:13 2525:4 2528:16 2597:12	<b>support</b> 2524:24 2533:16 2541:11 2579:12	<b>talk</b> 2472:8 2473:26 2507:28 2508:14 2607:7,24
<b>stipulation</b> 2499:12	<b>submit</b> 2595:15	<b>supporting</b> 2509:19 2513:22 2568:14	<b>talked</b> 2491:27 2515:5, 7 2525:26 2526:1 2568:5 2580:13 2590:4
<b>Stoddard</b> 2466:12 2499:18,19,28 2500:6 2521:3,28 2522:1,17 2529:4,16,19 2533:10, 11,12 2536:22 2537:25, 28 2538:16,17 2542:25 2543:22,23 2545:9,18, 20 2596:28 2597:1 2599:13,14 2601:1,2 2604:25,26 2607:5,21 2608:13,14 2612:5,7	<b>submitted</b> 2507:26	<b>supports</b> 2537:1 2541:8 2568:28 2569:19 2572:26 2612:16	<b>talking</b> 2471:2 2474:16 2478:13 2491:12 2494:23 2495:2 2497:9 2508:16 2518:7 2525:2 2549:19 2550:7 2553:8, 10 2558:25 2599:4 2606:19 2607:11 2608:3 2610:26,27
<b>Stoddard's</b> 2610:24	<b>subpoena</b> 2597:3 2608:28	<b>supposed</b> 2536:13 2539:19	<b>talks</b> 2511:22 2574:7
	<b>subsection</b> 2563:7 2565:24	<b>Sur-reply</b> 2593:8	<b>Taul</b> 2522:8 2526:16 2527:3 2528:28 2532:14 2534:27 2541:19
	<b>subsequent</b> 2576:11	<b>surface</b> 2516:23 2552:9 2562:20 2563:21,27 2564:24 2565:5,18,26 2566:6 2571:2 2578:10,11 2584:12,16,18 2585:12 2586:3,6,25 2587:6,19, 23,25,26 2588:12 2589:5,10,11,15 2590:28 2591:1	<b>Taul's</b> 2531:13
	<b>substantiate</b> 2609:7, 15		<b>teams</b> 2546:17
	<b>substantiated</b> 2601:18 2609:10		<b>technical</b> 2505:15 2596:11
	<b>substantive</b> 2524:27 2533:26 2536:15 2540:17		<b>technol</b> 2486:13
	<b>subsurface</b> 2488:19, 25 2489:2,8,21 2490:1, 10,23,25 2491:10,24		<b>technologies</b> 2478:20

2480:4	2564:1,8,12,18 2565:17	2503:15,17 2507:21,24	<b>topics</b> 2501:12 2525:25
<b>technology</b> 2475:26	2567:21 2568:3,19	2515:1 2517:7 2518:9	<b>total</b> 2486:28
2476:8,17,22,26	2569:2,20 2571:8	2520:23 2522:4,5,9	<b>touring</b> 2555:6
2477:25 2478:14	2573:15 2579:1 2584:6	2523:2 2524:14	<b>tracers</b> 2486:26
2480:7 2486:14	2585:25 2586:23	2529:22 2530:27	<b>Traci</b> 2499:8
2519:10	2592:23,27 2593:4,8,12	2532:18 2537:2 2543:9,	<b>track</b> 2501:22 2508:28
<b>telling</b> 2481:5	<b>testing</b> 2525:27 2585:5	25 2544:7 2547:13,16,	<b>tracking</b> 2493:9,18
<b>temp</b> 2514:28 2516:5	<b>text</b> 2517:26	22 2548:14 2549:25	2604:22
2518:20	<b>textbook</b> 2547:26	2553:6 2554:17 2556:2	<b>trail</b> 2509:1
<b>temperature</b> 2486:25	<b>theory</b> 2491:8	2557:6 2566:10	<b>transcript</b> 2530:21
2514:4,17,21 2515:9	<b>there'd</b> 2493:19	2567:26 2571:15,16	2534:22 2541:18
2516:13 2517:15	<b>thickness</b> 2486:20	2576:16 2584:19	2542:8 2543:15,26
2518:13 2519:2,8	<b>thing</b> 2467:25 2499:27	2586:19 2588:6 2592:9	<b>treatment</b> 2580:2
<b>term</b> 2468:15,17,19,20,	2512:23 2531:22	2596:18 2598:28	<b>trend</b> 2590:16,25
24,25 2469:2 2494:11,	2577:13 2584:2	2599:15 2600:9,19	<b>trials</b> 2558:14
14 2495:9 2503:8	2604:18 2611:3	2601:11 2602:10	<b>true</b> 2491:13 2503:14,
2584:2 2597:23	2613:18	2603:13 2604:16	15 2551:26 2552:20,22
2599:17 2604:24	<b>things</b> 2466:1 2530:18	2606:16 2607:11,12,28	<b>trump</b> 2610:15
<b>termed</b> 2484:15	2535:4 2542:14 2549:3,	2609:21 2611:13	<b>trust</b> 2542:2
<b>terms</b> 2468:14 2502:13	8 2551:3 2552:27	2612:22,25	<b>tubing</b> 2475:22
2535:12 2539:13	2562:11 2591:15,23	<b>timely</b> 2466:28 2467:5	2477:20 2478:2,7,12,22
2540:5 2589:7 2599:27	2598:16 2599:1,23	<b>times</b> 2468:16 2526:23	2489:23 2490:5,6,8,21,
2608:3	2602:19,23 2603:18,22	2547:16,18 2567:17	27 2491:2 2492:7,14
<b>terrific</b> 2541:21	2604:4,10 2606:2,5	2576:16	2494:1,4,6,7 2495:6,15,
<b>test</b> 2609:1,11	2611:14	<b>timing</b> 2536:18	16,21,25 2496:8,18,21,
<b>testified</b> 2468:3	<b>thinking</b> 2497:27	2545:13	23 2497:13,22 2588:1,9
2479:28 2480:2	<b>thought</b> 2475:3 2499:2	<b>title</b> 2473:15 2509:21,	<b>tubing-conveyed</b>
2513:26 2516:25,28	2531:3 2556:5 2574:16	27	2490:2,4
2520:8 2522:23	2581:8 2613:9	<b>titled</b> 2561:14	<b>Tuesday</b> 2614:10,15,
2532:15 2534:24	<b>thousand</b> 2516:26	<b>today</b> 2466:1,15,19	20,26
2540:8,9 2546:8	<b>threat</b> 2563:4	2467:2,3,6,9 2480:2	<b>turn</b> 2475:11 2487:17
2576:13	<b>threats</b> 2582:7,8	2541:21,22 2545:11	2498:7 2505:6 2506:27
<b>testify</b> 2539:12 2542:21	<b>thrown</b> 2526:10	2552:19 2553:1 2576:2	2537:25 2568:20
<b>testimony</b> 2471:26	<b>Thursday</b> 2567:1	2581:25 2582:27	2571:3 2574:22
2472:1,4 2473:8 2476:6	2614:17	2603:3 2604:3 2606:21	2578:17 2583:5
2479:18,24 2480:6,26	<b>tie</b> 2479:24	2613:21,25	2585:16 2589:18
2481:9,20,28 2482:14	<b>tier</b> 2591:24	<b>told</b> 2527:21 2556:4	2604:3
2483:22 2484:24	<b>till</b> 2513:1	<b>tomorrow</b> 2466:3,6,18	<b>turning</b> 2498:10
2505:27 2507:8,9	<b>Tim</b> 2468:2 2546:7	2467:4 2543:12 2614:9	2505:19
2508:3,7,28 2511:17	2561:15 2592:23,28	<b>tool</b> 2478:18	<b>twisted</b> 2471:5,6
2522:7,21 2523:27	2593:5,8,13	<b>tools</b> 2476:11,14	<b>two-and-a-half-year</b>
2524:28 2525:26	<b>time</b> 2466:6 2467:26	2477:22 2486:8,22,23	2480:20
2528:7,9,13,17 2532:17	2469:3 2475:28 2476:7	2588:4,5	<b>type</b> 2477:28 2493:13
2534:26,28 2535:3	2477:11 2481:25	<b>top</b> 2472:23 2507:15	2550:14 2570:2
2537:20 2538:13,25	2488:13 2498:11	2508:25 2564:5	2579:16,25 2606:16
2539:1,2,3,5,7 2540:8,	2499:17 2501:3	2591:10	
28 2542:15,17,18		<b>top-kill</b> 2520:7	
2543:28 2545:22,26		<b>topic</b> 2504:1	
2558:20 2559:1 2561:3,			
15,22 2563:17,24			

<b>types</b> 2471:10 2555:22 2556:7 2606:19	<b>unpack</b> 2468:13	2582:8 2597:25 2605:7 2612:18	<b>weeks</b> 2522:19,20 2599:16
<b>typically</b> 2490:26 2496:14 2548:27 2558:23	<b>unreliable</b> 2491:16	<b>views</b> 2567:17	<b>weigh</b> 2608:12
<b>typo</b> 2510:13,16,23	<b>update</b> 2521:24 2566:27 2614:16	<b>violations</b> 2526:4	<b>well-thought-out</b> 2585:4
<hr/>			
<b>U</b>			
<hr/>			
<b>ultimately</b> 2485:9 2512:16 2515:2,18 2516:6 2517:16,23 2518:15	<b>upper</b> 2473:4 2591:11, 24	<b>vis-à-vis</b> 2579:26 2582:3 2583:24	<b>wellbore</b> 2475:21,23 2493:19 2494:17 2504:7,16 2508:20 2558:19 2563:4 2565:11,20 2579:28 2586:27
<b>ultrasonic</b> 2476:11,17	<b>usage</b> 2570:23	<b>visits</b> 2576:11	<b>wellbores</b> 2506:13 2508:13
<b>uncontrolled</b> 2590:27	<b>USIT</b> 2476:18 2477:21, 22,25 2478:18 2479:7, 13 2480:3 2482:28	<b>volume</b> 2506:23 2545:23,28	<b>wellhead</b> 2490:17
<b>underground</b> 2495:24 2508:19 2547:15 2552:19 2572:15 2580:23 2582:24 2591:19	<b>utility's</b> 2563:1	<b>volunteered</b> 2611:18	<b>wells</b> 2471:6,17,18 2476:24,25 2477:3,5,9 2478:26 2480:4 2495:25 2497:21 2502:7 2505:23 2506:10,17 2508:10 2509:7 2549:6,22 2551:14,15 2552:9 2553:21,27 2554:27 2556:2 2558:6,10,17,25 2568:6 2572:16 2573:18,19,23,26,28 2574:1,3,4,17 2576:23, 26 2577:2,15,23,27 2578:1,2,8,14,16 2586:14 2590:7,8,14,19
<b>underlying</b> 2542:2	<hr/>		
<b>understand</b> 2476:18 2489:21 2496:11,25 2502:19 2518:16 2523:22 2536:8 2538:1 2542:3,23 2543:13,16 2546:15 2553:19 2554:25 2575:11 2601:12,25 2612:23	<b>V</b>		
<b>understanding</b> 2483:12,14 2484:10 2485:24 2490:10 2496:17 2520:4 2530:9 2562:19,25 2576:26 2583:18,23 2589:8,28 2597:23 2598:13 2604:19,23 2605:1 2607:2 2610:18	<b>vacuum</b> 2486:27	<b>wait</b> 2471:23 2513:1 2524:12	<b>walking</b> 2512:13
<b>understands</b> 2600:6	<b>valve</b> 2488:26 2489:22 2490:11,18,23,25 2491:24 2492:6,11,15, 18 2493:6,11 2494:26 2495:7 2503:8,11 2504:5 2559:23 2570:2, 5,20,21,23 2571:1 2594:16	<b>walk</b> 2567:11 2568:26, 28 2583:11	<b>wall</b> 2486:2,11,20
<b>understood</b> 2508:26 2510:25 2519:14 2568:18 2583:16 2598:5 2600:27	<b>valves</b> 2488:19 2489:3, 8 2490:2 2491:10,16 2492:2 2502:28 2558:15 2559:8,15 2591:22	<b>wanted</b> 2495:11,13 2524:9,18 2525:21 2538:14 2581:10	<b>warrant</b> 2484:6
<b>unhelpful</b> 2540:22	<b>variable</b> 2498:3	<b>warranted</b> 2506:6	<b>watch</b> 2505:11
<b>United</b> 2584:9	<b>varied</b> 2547:13	<b>water</b> 2470:10 2516:25 2555:14 2584:11,16,21 2585:13 2588:28 2589:8,12,16	<b>western</b> 2577:25
<b>unlike</b> 2551:25	<b>verbal</b> 2501:8	<b>waters</b> 2585:15	<b>wind</b> 2487:1
<b>unlimited</b> 2540:1	<b>verbally</b> 2527:12	<b>ways</b> 2497:12 2538:26 2613:19	<b>wireline</b> 2492:12 2493:7
	<b>version</b> 2471:28 2500:3 2592:27	<b>wear</b> 2554:22	<b>wireline-conveyed</b> 2490:3
	<b>versions</b> 2489:7	<b>webinar</b> 2523:19 2525:7,12,14 2533:27 2534:10,11 2539:21 2540:25	<b>wirelined-conveyed</b> 2490:7
	<b>versus</b> 2496:22 2552:15 2571:22,23	<b>week</b> 2471:16 2476:7 2487:25 2567:1 2614:6, 7,10,16	<b>withdrawal</b> 2497:5
	<b>Vertilog</b> 2478:16,17	<b>weekend</b> 2467:24 2468:12	<b>witnesses</b> 2467:22 2482:14,18 2499:22 2521:25 2522:7 2523:4 2526:15,20 2527:8,11 2528:28 2529:17 2531:1 2533:23 2534:19,20 2536:5 2537:2,21 2538:9,14 2542:13 2545:14 2566:21 2567:4 2592:7
	<b>Vertilogs</b> 2476:8		
	<b>viable</b> 2577:4		
	<b>video</b> 2505:9,16,17 2596:8,10,12 2610:5		
	<b>view</b> 2494:8 2521:5 2523:13 2526:3 2549:17 2573:13		

2603:8 2614:12	
<b>witnesses'</b> 2526:25	<hr/> <b>Y</b> <hr/>
<b>wondering</b> 2515:14 2557:20 2571:5	<b>year</b> 2549:1 2570:15
<b>word</b> 2473:23 2484:16 2531:15 2541:25,26 2601:22 2607:24	<b>years</b> 2476:15 2547:23 2554:19 2586:15 2590:13,26
<b>worded</b> 2517:9	<b>yes-or-no</b> 2487:7,13, 14
<b>wording</b> 2537:6	<b>yesterday</b> 2567:27
<b>work</b> 2469:3,6 2471:18 2491:28 2493:14 2506:9 2508:9 2516:15 2525:11 2546:28 2548:21 2597:17 2600:5 2603:20 2604:1 2610:26 2611:12,26 2612:27	<hr/> <b>Z</b> <hr/>
<b>worked</b> 2547:12 2577:20 2591:2,5 2600:13	<b>Zarchy</b> 2471:23 2507:16 2509:20 2511:8,24
<b>working</b> 2505:18 2534:14 2548:28 2572:5 2576:17 2611:16 2613:14	<b>zone</b> 2516:25 2574:4 2584:13,21 2589:16
<b>workover</b> 2468:25 2469:2,11,12,19,25,27 2475:18,19 2492:21,25, 26 2495:14 2569:18	<b>zones</b> 2584:16 2589:8, 12
<b>workovers</b> 2469:10,19 2470:3,8,9,16,19,22,26 2477:8 2479:1,4 2549:5	
<b>world</b> 2542:20	
<b>worry</b> 2575:22	
<b>worse</b> 2574:10	
<b>worth</b> 2486:6 2609:13	
<b>WRDP-02</b> 2594:15	
<b>write</b> 2547:27	
<b>writing</b> 2523:12 2527:1,14 2551:8	
<b>written</b> 2540:25 2551:11	
<b>wrong</b> 2484:27 2518:1	
<b>wrote</b> 2473:8 2598:16	