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1 SAN FRANCISCO, CALIFORNIA
2 NOVEMBER 18, 2013 - 9:30 A.M.

3 * * * * *

4 ADMINISTRATIVE LAW JUDGE BUSHEY: The
5 Commission will come to order.

6 This is the time and place set for
7 the evidentiary hearing in order instituting
8 rulemaking on the Commission's own motion to
9 adopt new safety and reliability regulations
10 for natural gas transmission distribution
11 pipelines and related ratemaking mechanisms.

12 This is Rulemaking 11 --
13 R.11-02-019. Good morning. I'm
14 Administrative Law Judge Maribeth Bushey, the
15 assigned administrative law judge to this
16 proceeding. Also presiding with me this
17 morning is the assigned commissioner,
18 Commissioner Florio.

19 We'll begin this morning with
20 opening statements from four parties. And
21 then we will proceed to the cross-examination
22 of PG&E's witness Rosenfeld followed by the
23 panel of witnesses Johnson and Singh and
24 finally by witness Harrison.

25 Any questions before we begin with
26 opening statements?

27 (No response)

28 ALJ BUSHEY: Hearing none, then,

1 Ms. Paull.

2 STATEMENT OF MS. PAULL

3 MS. PAULL: Thank you, your Honor. I'm
4 Karen Paull representing ORA. PG&E's
5 vice-president of gas transmission and
6 maintenance, Mr. Johnson, has testified that
7 in his professional judgment Line 147 is safe
8 to operate at 365 psi, even though PG&E's now
9 requesting 330.

10 He says it is safe to operate at 365
11 psi because all of Line 147 has been
12 hydro-tested. And because the tests have
13 confirmed that 365 psi is a safe MAOP -- MAOP
14 for the court reporter is maximum allowable
15 operating pressure -- and hydro-testing is
16 the gold standard for checking the integrity
17 of a pipeline.

18 So ORA expected PG&E to demonstrate
19 in response to the order to show cause that
20 all segments of Line 147 have been tested,
21 especially since the line has been
22 hydro-tested relatively recently.

23 Now, ORA's witness, Mr. Roberts,
24 carefully reviewed the evidence PG&E provided
25 up until shortly before this hearing,
26 excluding the information we received just
27 before the hearing. And he found that PG&E
28 has failed to demonstrate that all of

1 Line 147 has been hydro-tested.

2 Keep in mind, if you will, that the
3 line that runs through San Bruno exploded
4 when a five-foot long pup failed. Every foot
5 of a pipe counts.

6 Mr. Roberts' testimony also shows
7 that the hydro-test information for Line 147
8 that PG&E has provided is internally
9 contradictory with inconsistent start and end
10 points for the same tests and is also
11 inconsistent with other test information
12 provided to the Commission. We cannot tell
13 for sure where PG&E's hydro-tests of Line 147
14 started and stopped. PG&E doesn't appear to
15 know, either.

16 Mr. Roberts' concerns are supported
17 by the fact that SED acknowledges in its
18 concurrence that two of the hydro-tests
19 performed for Line 147 resulted in MAOPs of
20 220 and 236, much lower than the MAOP of 330
21 that PG&E now says is the corrected MAOP.

22 SED, however, decided that these low
23 values could not be correct when all the data
24 is considered. And that conclusion is based
25 on engineering judgment.

26 No one can honestly stand here today
27 and say that Line 147 is safe to operate at
28 an MAOP of 330 psi. PG&E has not provided

1 evidence that demonstrates that. And this
2 Commission, as you know, is required to make
3 its decisions based on evidence and the
4 applicable law.

5 The federal pipeline safety
6 regulations provide several permissible ways
7 to determine a line's MAOP. If the different
8 methods produce different results, the
9 operator is required to choose the lowest
10 MAOP.

11 Two of the methods that apply in
12 this case are based on hydro-test results and
13 the design of the pipe. And when a pipe has
14 been in prior use as defined in the federal
15 regulations, which now appears to be the case
16 for parts of Line 147, the design MAOP is to
17 be calculated using a different formula that
18 uses more conservative values.

19 In this case, both the design MAOP
20 and the hydro-test MAOP require that Line 147
21 be operated at an MAOP of 220 psi. The
22 regulations do not allow the MAOP to be set
23 higher based on engineering judgment.

24 To be clear, this is not about
25 whether Mr. Johnson or Mr. Shori have good
26 judgment. It is a question about what the
27 safety regulations specifically require.
28 Engineering cannot trump those requirements.

1 In summary, Mr. Roberts' testimony
2 explains how PG&E's evidence of hydro-testing
3 is incomplete and inconsistent. In the
4 interests of public safety, the Commission
5 should not ignore deficiencies in PG&E's
6 showing and should require that the MAOP be
7 properly calculated as required by the safety
8 regulations.

9 That is why ORA recommends that
10 before the Commission authorizes any MAOP
11 above the 125 psi that it's operating at now,
12 it should require PG&E to show that every
13 foot of Line 147 has been tested consistent
14 with Mr. Johnson's representations and
15 confirm that those test results support
16 PG&E's requested MAOP.

17 And now I would just like to make a
18 brief comment about process, procedural
19 issues. The testimony ORA offers into the
20 record today addresses the question of
21 whether PG&E has shown that 330 psi is the
22 correct MAOP for Line 147 under the federal
23 regulations.

24 That narrow focus is consistent with
25 the guidance on scope that you provided, your
26 Honor, at the Prehearing Conference on
27 October 21st. We just discussed this off the
28 record. But I want to make the point on the

1 record.

2 Based on that guidance, ORA focused
3 its preparation for today's hearing on
4 Line 147. We prioritized our discovery to
5 make Line 147 the first priority. And we
6 agree that PG&E could respond to our
7 discovery requests on the broader issues
8 raised by the OSC after today's hearing. So
9 we are expecting that at the conclusion of
10 today's hearing, a schedule will be set to
11 address those broader issues.

12 And, finally, one word about SED's
13 concurrence, which we also discussed off the
14 record. We received it at the end of the day
15 Thursday last week. Also on Thursday and on
16 Friday, PG&E served a series of voluminous
17 files containing documents that PG&E said it
18 had provided to SED previously.

19 These documents include transcripts
20 of the examinations under oath of PG&E staff
21 that are quoted in the SED concurrence. PG&E
22 provided these transcripts to SED between
23 October 24th and October 29th, nearly three
24 weeks ago. But they were not provided to the
25 other parties until the eve of this hearing.

26 As we said in our joint motion to
27 revise the schedule for these hearings, which
28 we filed on Friday, there was not enough time

1 to process this information before the
2 hearing. ORA had to choose. We could
3 prepare for today's hearing on the basis of
4 the information we have gathered over the
5 past two and a half months, or we could spend
6 the entire weekend reviewing the large number
7 of documents received just before the
8 hearing. We chose to prepare for the hearing
9 based on the information we had already
10 sorted through.

11 And I just want to note for the
12 record that we did not have adequate time to
13 review the information provided on Thursday
14 afternoon and Friday. Thank you.

15 ALJ BUSHEY: Thank you, Ms. Paull.

16 Mr. Gruen.

17 STATEMENT OF MR. GRUEN

18 MR. GRUEN: Your Honor, I might just
19 echo -- I don't really have a substantive
20 opening statement to say, but I might just
21 echo one or two things in ORA's opening
22 statement. We discussed off the record the
23 focus of the hearings today. And based upon
24 SED's understanding of the PHC of what was
25 discussed at the PHC, SED informed PG&E that
26 in discovery that data responses not
27 pertaining to the operating pressure of
28 Line 147 could be responded to after hearings

1 today.

2 So we too would expect that a
3 further hearing be provided to focus on
4 issues not pertaining to Line 147. And SED
5 as well has not -- SED advocacy has not had
6 an opportunity to review the transcripts that
7 were provided on I believe it was Thursday
8 and supported the concurrence report.

9 ALJ BUSHEY: Thank you, Mr. Gruen.

10 Ms. Strottman.

11 STATEMENT OF MS. STROTTMAN

12 MS. STROTTMAN: Good morning, Judge
13 Bushey. Good morning, Commissioner Florio.
14 Britt Strottman for the City of San Carlos.
15 The City of San Carlos was brought in with
16 the consent of PG&E, who welcomed our
17 constructive contributions to these
18 proceedings.

19 The City would like to renew its
20 request for more time to conduct fracture
21 testing. This will help our expert,
22 Dr. Stevick with BEAR Laboratories to
23 determine the allowable operating pressure.
24 PG&E did not make an adequate showing of
25 urgency that this line needs to be operated
26 at a higher pressure for the winter months.

27 Or in the alternative, Judge Bushey,
28 Commissioner Florio, we ask you that you

1 leave the record open until fracture testing
2 is completed. It seems like this review of
3 Line 147 is rushed, to state the issue
4 simply. The City of San Carlos' interest is
5 that the line is safe. Line 147 runs through
6 the heart of the city and through densely
7 populated neighborhoods. The citizens want
8 to feel safe. The infamous "Are we sitting
9 on a San Bruno situation?" email, the level
10 of attention to this issue has led the
11 citizens to perceive this situation as
12 dangerous, and rightfully so.

13 We're looking to the Commission to
14 take prompt action that you keep the
15 operating pressure lower until the line is
16 replaced. Specifically, we concur with ORA's
17 recommendation that the line be operated at
18 125 until we have complete confidence that
19 every foot has been hydro-tested. Thank you.

20 ALJ BUSHEY: Thank you, Strottman.

21 Mr. Malkin.

22 STATEMENT OF MR. MALKIN

23 MR. MALKIN: Thank you, your Honor,
24 Commissioner Florio. I will be brief. The
25 testimony of the parties who made it last
26 week raised the question that you heard
27 discussed this morning. The evidence that
28 has already been presented to SED and the

1 parties does in fact demonstrate that every
2 foot of Line 147 has been hydro-tested.

3 The testimony this morning from
4 Mr. Johnson and Mr. Singh will explain the
5 confusion that Mr. Roberts apparently had in
6 trying to line up the documents and
7 understand how every foot of a line was
8 tested.

9 SED's concurrence did identify
10 errors in two of the reports on the
11 hydro-tests. Those were corrected. And
12 corrected reports were sent to the parties
13 last week and to SED's representative
14 somewhat prior to that.

15 So there were discrepancies in the
16 test reports. They have been corrected.
17 Every foot of Line 147 was in fact
18 hydro-tested, as the evidence will show.
19 Every foot was hydro-tested to a pressure
20 sufficient to support an operating pressure
21 of at least 330 psig, which is all that PG&E
22 is asking for today.

23 And you will hear from Mr.
24 Rosenfeld, the living expert on
25 hydro-testing, about the safety of this line
26 and the hydro-testing. You will hear from
27 Mr. Singh and Mr. Johnson as to the analysis
28 they have gone through and why the

1 hydro-testing does in fact cover everything.

2 And, finally, because of the
3 publicity around it, you will hear briefly
4 from Mr. Harrison what he really meant when
5 he wrote that email that's been splashed all
6 over the newspapers.

7 MS. PAULL: Your Honor --

8 ALJ BUSHEY: Question?

9 MS. PAULL: Is Mr. Malkin requesting an
10 opportunity to provide additional direct
11 testimony on behalf of PG&E? That's what it
12 sounded like from his statement just now.

13 ALJ BUSHEY: Why don't we wait to get a
14 witness on the stand and see what he asks
15 for. And we'll handle it at that time when
16 we have something specific in front of us
17 rather an abstract procedural discussion.

18 So, Mr. Malkin, are you ready to
19 call your first witness?

20 MR. MALKIN: We are, your Honor.
21 Consistent with the discussion we had before,
22 our first witness will be Mr. Rosenfeld. My
23 colleague, Mr. Hariston, will be presenting
24 Mr. Rosenfeld.

25 As he's coming up, I would like to
26 ask how we're going -- never mind.

27 ALJ BUSHEY: We'll be off the record.

28 (Off the record)

1 ALJ BUSHEY: We're back on the record.

2 Mr. Malkin, would you like to call
3 your first witness?

4 MR. MALKIN: Yes, your Honor. PG&E
5 calls Michael Rosenfeld.

6 ALJ BUSHEY: Raise your right hand.

7 MICHAEL ROSENFELD, called as a
8 witness by Pacific Gas and Electric
9 Company, having been sworn, testified
as follows:

10 ALJ BUSHEY: Thank you. Please be
11 seated. State your full name for the record
12 and spell your last name.

13 THE WITNESS: My full name is Michael
14 Rosenfeld, R-o-s-e-n-f-e-l-d.

15 ALJ BUSHEY: Thank you. Mr. Malkin, I
16 understand Mr. Hariston will be presenting
17 this witness.

18 MR. MALKIN: Yes, your Honor.

19 ALJ BUSHEY: Mr. Hariston.

20 DIRECT EXAMINATION

21 BY MR. HARISTON:

22 Q Good morning, Mr. Rosenfeld.

23 A Good morning.

24 Q Thank you for being with us today.

25 Can you briefly summarize your
26 background qualifications for the record?

27 A Yes. My background is I'm a
28 mechanical engineer by training. I received

1 a bachelor's degree in mechanical engineering
2 from the University of Michigan in 1979 and
3 master's degree in mechanical engineer from
4 Carnegie Mellon University in 1981. From
5 1979 to 1981, I worked at Westinghouse
6 Electric in Pittsburgh performing structural
7 analysis of power plant electrical
8 generators.

9 From 1981 to 1985, I worked at
10 company called EDS Nuclear, which then
11 changed its name to Impel, I-m-p-e-l. During
12 that time, I performed stress analysis of
13 piping systems and site structures and
14 equipment for nuclear power plants.]

15 From 1985 to 1991, I worked at
16 Battelle Memorial Institute in Columbus,
17 Ohio, where I performed analyses, design and
18 testing of various types of industrial
19 equipment, including everything from chicken
20 fryers to military equipment.

21 Also, began getting involved in
22 research and development work related to
23 natural gas pipelines starting around 1987.

24 From 1991 to the present, I've been
25 employed with Kiefner and Associates in
26 Columbus, Ohio. During the first ten years
27 my position was Senior Structural Engineer.
28 During the second ten years my position was

1 president of the company. For the last two
2 years, since we've been acquired by another
3 company, my position has been vice president,
4 chief engineer and service line manager for
5 pipeline fitness for service related work.

6 During my time at Kiefner and
7 Associates, I've been involved in pretty much
8 all of the types of work that we do on behalf
9 of operators of oil and gas pipelines,
10 including numerous pipeline failure
11 investigations, risk assessment, pipeline
12 stress analysis, fitness-for-service
13 assessments, evaluation of the time to
14 failure for conditions such as fatigue,
15 stress corrosion and cracking, corrosion, as
16 well as presenting seminars and training.

17 I am a member of several -- ASME,
18 that's American Society of Mechanical
19 Engineers -- committees involved in writing
20 standards for pipelines and piping systems.
21 I'm also ASME's designated instructor for
22 their workshop on the ASME B31.8 gas
23 transmission and distribution piping systems
24 workshop.

25 And I'm a registered professional
26 engineer in the State of Ohio, and have
27 written a few articles about pipelines.

28 MR. HAIRSTON: Q Thank you,

1 Mr. Rosenfeld. And have you recently been
2 involved in an occasion with PG&E related to
3 its natural gas transmission pipeline Line
4 147?

5 A Yes, I have.

6 Q And can you briefly describe the
7 objectives of that occasion?

8 A Yeah. The overall objective was to
9 try and understand whether the hydrostatic
10 test that was performed on sections of Line
11 147 in 2011 verified the integrity and
12 fitness for service of the pipeline at that
13 time and currently going forward.

14 MS. PAULL: Objection, Your Honor.
15 This is direct testimony. I thought the
16 purpose of this hearing was to cross-examine
17 PG&E's witnesses.

18 ALJ BUSHEY: Do you want a foundation
19 or do you just want to move it in?

20 MS. PAULL: I'm not moving anything in
21 right now. Foundation is --

22 ALJ BUSHEY: I assume that Mr. Hairston
23 is leading up to moving this into the record.
24 Are you willing to stipulate it into the
25 record and we can go right to
26 cross-examination?

27 You can't object to him making a
28 foundation to move his testimony in.

1 MS. PAULL: No, I'm not objecting to
2 his putting his testimony into -- offering
3 his testimony into the record, but I don't --
4 this hearing should not be allowed to turn
5 into more new direct testimony from PG&E.
6 That's what I'm concerned about because
7 that's what's happened in the past.

8 MR. HAIRSTON: Your Honor, this is
9 brief foundational testimony.

10 ALJ BUSHEY: He seems to be reading the
11 first paragraph of his letter from
12 October 18th.

13 MR. HAIRSTON: And I actually believe,
14 your Honor, that pursuant to stipulation of
15 the parties, the October 18th letter will
16 already be in the record --

17 ALJ BUSHEY: Right.

18 MR. HAIRSTON: -- because -- but there
19 was a subsequent letter that I would like to
20 move in and then --

21 ALJ BUSHEY: Where is the subsequent
22 letter?

23 MR. HAIRSTON: It was circulated to the
24 parties. It's not in evidence yet, which is
25 why I would like to move it in, and complete
26 some brief foundation. And Mr. Rosenfeld
27 will be available for cross.

28 ALJ BUSHEY: All right. Do you have

1 extra copies of that?

2 MR. HAIRSTON: Yes, we have.

3 MS. BONE: When was that circulated to
4 the parties?

5 MR. HAIRSTON: I don't know that off
6 the top of my head.

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

8 (Off the record.)]

9 ALJ BUSHEY: We'll be on the record.

10 While we were off the record, we
11 received a copy of a November 14, 2013 letter
12 from Mr. Rosenfeld to Mr. Singh at PG&E. For
13 the moment we've marked it as Exhibit A.

14 (Exhibit A was marked for
15 identification.)

16 ALJ BUSHEY: Ms. Strottman.

17 MS. STROTTMAN: Yes. Thank you, your
18 Honor. And we are objecting to Exhibit A
19 being entered into evidence. It's 17 pages
20 we justified received I guess at the end of
21 the last week. I'd like to renew my request
22 that this proceeding be continued to
23 a different time.

24 There are 17 pages of substantive
25 findings in here. This just isn't background
26 information and San Carlos thinks that it's
27 fair for the City to have more time to review
28 all this information.

1 And I'd also like to note that on
2 Friday afternoon before 5 o'clock, we
3 received all of our responses to our data
4 requests, which we still haven't had time to
5 review.

6 ALJ BUSHEY: Thank you, Ms. Strottman.

7 Exhibit A is identified only for
8 the record.

9 Mr. Hairston.

10 MR. HAIRSTON: Thank you, your Honor.
11 I think I'll just ask one more foundational
12 question and make Mr. Rosenfeld available.

13 Q So Mr. Rosenfeld, before we went
14 off the record we were discussing your
15 analysis of Line 147. Do you recall that?

16 A Yes.

17 Q And what was your conclusion
18 regarding the safety of Line 147?

19 A My conclusion is that
20 the hydrostatic test was effective at
21 demonstrating the integrity and fitness for
22 service of Line 147 at that time and
23 current -- there's no reason to believe that
24 that's not still the case, and the pipeline
25 is safe to continue operating.

26 MR. HAIRSTON: Thank you,
27 Mr. Rosenfeld.

28 Your Honor, I'm going to ask just

1 a few more foundational questions before we
2 make Mr. Rosenfeld available.

3 Q So Mr. Rosenfeld, can you briefly
4 summarize the materials that you relied on to
5 conduct your analysis?

6 A Yes. I relied on data from the --

7 MS. PAULL: Objection, your Honor.

8 This again is direct testimony.

9 ALJ BUSHEY: He's describing what he
10 relied on.

11 MS. PAULL: But --

12 ALJ BUSHEY: It cannot possibly be more
13 foundational.

14 MS. PAULL: Isn't it in the document?
15 Isn't it in the document?

16 ALJ BUSHEY: It's repetitious? Is that
17 your objection is repetitious?

18 MS. PAULL: Your Honor, if it's in the
19 document, it's not necessary to take up
20 precious hearing time with direct testimony
21 when the purpose of the hearing is to permit
22 the other parties to cross-examine PG&E's
23 witnesses.

24 ALJ BUSHEY: Are you willing to
25 stipulate -- well, this is already in
26 the record.

27 MS. PAULL: Yes.

28 ALJ BUSHEY: So let's just -- that's

1 enough. Mr. Hairston, you're done.

2 MR. HAIRSTON: Okay. Thank you.

3 ALJ BUSHEY: Cross-examination of
4 the witness, who would like to begin?

5 MR. GRUEN: Your Honor, we're prepared
6 to cross.

7 ALJ BUSHEY: Please begin, Mr. Gruen.

8 CROSS-EXAMINATION

9 BY MR. GRUEN:

10 Q Good morning, Mr. Rosenfeld. My
11 name is Darryl Gruen. I'm representing
12 the Safety and Enforcement Division for the
13 California Public Utilities Commission.

14 Just a couple of questions and just
15 to specifically note for the record I'm only
16 asking questions about the October 18 letter.

17 Were there any other individuals
18 other than yourself either who you supervised
19 or colleagues who helped you write that
20 letter?

21 A Well, I wrote all of the letter.
22 However, there's a fair amount of analysis
23 work involved and so I -- there were two
24 other engineers in our office who performed
25 analyses at my direction.

26 Q Okay. And so the information that
27 came, the results of these analyses from
28 those two other engineers were incorporated

1 into the October 18 letter; is that right?

2 A That's correct.

3 Q Okay. One other question about
4 the letter is, would it be your view if PG&E
5 had -- could conduct an in-line inspection of
6 Line 147, would it be able to pick up cracks
7 on that line?

8 A Currently, in-line inspection
9 technology for detecting cracks is not very
10 well developed for natural gas pipelines,
11 so --

12 Q So it would not be able to pick up
13 cracks on Line 147 if it was conducted; is
14 that correct?

15 A It's conceivable that it may. It's
16 also possible that it may not.

17 MR. GRUEN: Thank you, your Honor. No
18 further questions.

19 ALJ BUSHEY: Thank you.

20 Ms. Paull.

21 MS. PAULL: I do not have questions.

22 ALJ BUSHEY: Mr. Long.

23 MR. LONG: No questions.

24 ALJ BUSHEY: Ms. Strottman?

25 MS. STROTTMAN: Thank you. Sorry.

26 CROSS-EXAMINATION

27 BY MS. STROTTMAN:

28 Q Good morning, Mr. Kief- -- I'm

1 sorry, Mr. Rosenfeld. I'm Britt Strottman
2 with the City of San Carlos.

3 So, I wanted to you ask a few
4 questions about your October 18 letter.

5 You stated that there are three
6 limitations to hydrostatic testing and
7 I believe that's on page 5 of your letter.
8 Do you recall that?

9 A Yes, I do.

10 Q And I believe the first one is that
11 it doesn't ensure the -- assure the integrity
12 of the line.

13 A Sorry. I'm just trying to find --
14 oh, I'm sorry.

15 Q The first one is that it may only
16 assure integrity for a finite period of time;
17 is that correct?

18 A That's correct.

19 Q And what do you mean by that?

20 A Well, the hydrostatic test, if it's
21 successful and the test pipeline doesn't fail
22 during the test, the hydrostatic test proves
23 that there are no flaws or defects of a size
24 that would fail at the test pressure or at
25 the operating pressure since the operating
26 pressure is much lower than the test
27 pressure. However, there may still be flaws
28 that remain in the pipe that are not

1 currently a threat to the safe operation of
2 the pipeline.

3 If there's a mechanism for those
4 flaws to enlarge over time in service whether
5 it's due to corrosion or fatigue or anything
6 else, then essentially the proof of
7 the integrity of the pipeline or its fitness
8 for service eventually is no longer reliable
9 and you have to perform another assessment.

10 Q So can you give me a list of when
11 you would have to perform another assessment
12 when you have to hydro it, a line it again?

13 A Well, there are no regulatory
14 requirements. If you're in a designated high
15 consequence area, you have to perform --
16 under Part 192, you have to perform
17 a reassessment typically every seven to ten
18 years, depending on circumstances. Or if you
19 have a circumstance that you're concerned
20 about, for example, fatigue or something of
21 that nature, then one could perform
22 engineering analyses that evaluate how long
23 it will take for those conditions to become
24 a concern and one would perform
25 a reassessment prior to that time.

26 Q And a condition that would cause
27 concern, would that -- would a reconditioned
28 pipe be considered a condition that would

1 cause concern?

2 A Not if it's successfully undergone
3 a hydrostatic test to a high level above what
4 it's going to operate at.

5 Q What about the importance of good
6 recordkeeping. Is that a consideration of
7 whether a test should be -- or whether a pipe
8 should be hydrotested?

9 If you don't know what's in
10 the ground, for example, should a pipe be
11 hydrotested more often?

12 A No. I don't think that that
13 necessarily ties into how frequently one
14 would hydrotest the pipeline. The main
15 determinant for how frequently one would do
16 that is the ratio of test pressure to
17 operating pressure.

18 Q Do you think it's important to know
19 what's in the ground, though?

20 A Important. I'm not quite sure what
21 you mean by "important" and to what end so...

22 Q Whether a pipeline can be safely
23 operated, do you think it's important that a
24 utility know what's in the ground and have
25 accurate records?

26 A Certainly it's useful.

27 There are I think many pipeline
28 systems in the country that are operating

1 with some degree of uncertainty about exactly
2 what every individual feature in the pipeline
3 is. PG&E is not necessarily unique in this
4 regard. In fact, I know pipeline systems
5 built in the 1990s where there isn't complete
6 correlation between what's on the record and
7 what's in the facility.

8 Q But you still would agree that it's
9 useful to have that information to know
10 what's in the ground to have accurate
11 records?

12 A It's useful, but I believe that one
13 can operate a pipeline system safely provided
14 you have performed a hydrostatic test to
15 a high level with a generous margin over and
16 above what you operate at. Beyond that,
17 being a prudent operator means doing things
18 that you're supposed to do in day-to-day
19 operation of -- doing things to prevent
20 corrosion, doing things to prevent damage,
21 and so on. That doesn't necessarily rely on
22 having a great deal of specific data about
23 some things about the pipeline.

24 Q Now, referring to your October 13th
25 letter -- or I'm sorry, October 18, 2013,
26 letter, did any attorneys review your letter?

27 A I have no idea.

28 Q Did you notice any changes in your

1 letter from your initial draft that I assume
2 you sent over to PG&E and your final draft?

3 A No. I'm not aware of any changes.

4 Q And how many contracts do you have
5 with PG&E? And if you can estimate the total
6 income that you've made from your contracts
7 with PG&E.

8 A Yes. We have other work with PG&E.
9 I think this year we'll probably come close
10 to \$200,000.

11 Q And then how much is your rate per
12 hour?

13 A My rate is \$245 per hour.

14 MS. STROTTMAN: Your Honor, may I just
15 have one moment.

16 ALJ BUSHEY: Off the record.

17 (Off the record)

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

20 MR. MEYERS: Thank you, Judge Bushey,
21 Commissioner Florio.

22 CROSS-EXAMINATION

23 BY MR. MEYERS:

24 Q Mr. Rosenfeld, my name is Steven
25 Meyers. I'm representing the City of
26 San Bruno in this proceeding. I just have
27 a few questions for you this morning.

28 Line 147, a portion of Line 147

1 consists of what's called AO Smith pipe; is
2 that correct?

3 A Yes, sir.

4 Q And do you know the vintage of that
5 pipe; in other words, when was that pipe
6 manufactured?

7 A It appears to be first generation
8 AO Smith line pipe which would have been made
9 prior to the middle of 1930.

10 Q All right. Prior to 1930. And do
11 you know whether that pipe was previously
12 used at a PG&E facility or PG&E pipeline
13 system?

14 A No. I don't know specifically
15 where it might have been used.

16 Q Do you know whether this pipe is
17 reconditioned pipe as that term is generally
18 used?

19 A It appears to be, based on some
20 welding and repair features discovered on
21 the pipe.

22 Q And when was that reconditioned?

23 A Well, most likely would have been
24 before it was installed in that pipeline.

25 Q But you don't know specifically?

26 A No, I don't know specifically.

27 Q Does PG&E have records showing when
28 it was reconditioned?

1 A I haven't seen those.

2 Q Do you know where it reconditioned?

3 A No, I do not.

4 Q Does PG&E have records showing
5 where it was reconditioned?

6 A You'll have to ask PG&E that.

7 Q And do you know how it was
8 reconditioned, in other words, what did they
9 do to the pipe to recondition it?

10 A Generically, what is typically done
11 with reconditioned --

12 Q Sorry. I'm not asking you
13 generically. I'm asking you specifically
14 with respect to that portion of Line 147
15 existing at Mile Post 2.2.

16 A It appears that they filled
17 corrosion pits with weld metal.

18 Q Is that customarily what's done to
19 recondition pipe?

20 A Well, as I was about to explain
21 with the previous question, yes, that is
22 actual my fairly typical. In fact, there are
23 many pipelines all over the country that
24 contain reconditioned pipe. In fact, I know
25 of one pipeline that has been salvaged and
26 reinstalled in different locations three
27 different times.

28 So typically, what's involved is

1 the pipeline is -- the pipe materials are
2 cleaned up so that they can examine
3 the condition inside and outside of the pipe.
4 Any features such as corrosion pits are
5 filled with weld metal to restore
6 the strength. If there are -- if there's
7 damage that can't be properly repaired that
8 way, it's cut off the piece of pipe and
9 the pipe is recoated and reinstalled in
10 a pipeline.

11 Q Is there CPUC guidance given to
12 utility operators in California on how to
13 recondition pipe?

14 A I do not know that. I do know that
15 the American Society of Mechanical Engineers'
16 standard for gas transmission and
17 distribution pipeline systems has provisions
18 for using or reusing pipe, and they do
19 require going through exactly the steps that
20 I described before the pipe can be reused.

21 Q But as an expert for PG&E and as
22 you sit here today, you have no personal
23 knowledge that PG&E went through those steps
24 to recondition this pipe; is that correct?

25 A Well, it appears that they did do
26 some of those steps because there are
27 corrosion pits that have been repaired with
28 weld metal.

1 Q How much AO Smith pipe remains in
2 PG&E's system?

3 A I don't know.

4 Q Does PG&E have records showing
5 the amount of AO Smith pipe that it has in
6 its system?

7 A You'll have to ask PG&E that
8 question.

9 Q How many feet of AO Smith pipe is
10 there in Line 147?

11 A Off the top of my head, I'm not
12 exactly certain.

13 Q So if you were building a pipeline
14 today and you were advising the utility they
15 had a choice between 84-year old
16 reconditioned pipe or new pipe, what would
17 you tell them to use?

18 A Well, I'm not aware of people
19 using -- reusing old line pipe today. This
20 was a practice that was very common in the
21 '40s and '50s because the demand for pipe was
22 much larger than the available supply. It's
23 what people did.

24 Q So it's not done anymore; is that
25 your testimony?

26 A It's still allowed but I don't know
27 people who do that anymore.

28 Q Okay. Well, you're an expert --

1 A Because --

2 Q You're an expert in this business.
3 You obviously have extensive qualifications.
4 Are you aware of any recent, recent within
5 the last decade utilities in the United
6 States that have used reconditioned pipe?]

7 A Within the last decade, installing
8 reconditioned pipe?

9 Q Yes, sir.

10 A No.

11 Q I'm sorry?

12 A No. But they're certainly using
13 reconditioned pipe that's already in their
14 system.

15 Q You testified that PG&E
16 hydro-tested the entirety of Line 147 from
17 its connection at Line 132 to its connection
18 at Line 101; is that correct?

19 A I don't know that I used that word
20 anywhere. I said that they tested their
21 pipeline.

22 Q Okay. Well, let me ask it a
23 different way. To your personal knowledge,
24 based upon the records that you reviewed
25 produced by PG&E, did PG&E test -- hydro-test
26 Line 147 through its entire length from
27 Line 132 to Line 101 including all the
28 shorts, elbows, miters, joints, valves

1 associated with that pipeline?

2 A I did not check that. I didn't
3 view the purpose of my evaluation to be a
4 verification of start and end points or
5 reconciliation of discrepancies in records.
6 We have hydro-test records from 1987 and 1990
7 pipeline replacements. We have hydro-test
8 records from 2011 showing extensive amounts
9 of hydrostatic testing. And I take that
10 information at face value that line has been
11 hydrostatically tested.

12 Q I'm not sure I got an answer to my
13 question. Let me try it a different way,
14 Mr. Rosenfeld.

15 In your testimony, you said that
16 even though records may not exist for a
17 particular pipeline and even though the
18 pipeline that exists in Line 147 in San
19 Carlos that we may not have accurate pipeline
20 features for that, it's okay because PG&E
21 tested that line to a level that was
22 sufficient to maintain a maximum allowable
23 operating pressure of 365 -- in this case,
24 330 -- and it's okay because they
25 hydro-tested the line.

26 Are you with me so far?

27 A Yes, sir.

28 Q Okay. Did PG&E hydro-test all

1 aspects of that line from 132 to 101
2 including the shorts, the valves, the miters,
3 the elbows, the joints, everything else
4 associated with the line?

5 A I did not verify that.

6 Q Well, then how can you tell us that
7 the line is fit for service?

8 A The issue that I was asked to
9 evaluation was whether the hydrostatic test
10 is a good measure of the integrity of the
11 pipeline system. I was not asked to verify
12 that the test extended to every foot of the
13 pipeline.

14 Q But you testified that the line was
15 fit for service.

16 A That's correct. And Mr. Singh, I
17 believe, is PG&E's witness for describing the
18 reconciliation of reported various pressure
19 test records with respect to their start and
20 stop end points. And he has told me that he
21 believes that all of those discrepancies are
22 resolvable. So I'm going on the information
23 that I received from PG&E.

24 Q Okay. So just so the record's
25 clear and I'm clear -- I may be the only one
26 in this room that doesn't quite understand
27 this -- but your opinion is not based upon
28 your own personal analysis of the data. Your

1 opinion is based to some extent on the
2 statements made by other members of the PG&E
3 staff to you?

4 A With respect to the reconciliation
5 of discrepancies and start and stop points,
6 yes.

7 Q Okay. Thank you. What is API 579?

8 A API 579 is a fitness-for-service
9 standard that's panel recognized in various
10 industries for evaluating the fit for service
11 of pressure vessels in piping systems.

12 Q Does it have to do with crack
13 growth in pressure vessels?

14 A One aspect of it does discuss that,
15 yes.

16 Q And in the literature on API 579,
17 does any of that discuss weld material that
18 dates back to 1929?

19 A Not specifically, no. It discusses
20 weld material and carbon steels, among other
21 things.

22 Q Have you ever performed any crack
23 growth test for pipe that dates back to 1929?

24 A We performed a lot of mechanical
25 testing on line pipe of various vintages.
26 And the 1929 line pipe is basically a very
27 plain carbon steel that is no different than
28 a wide variety of carbon steels that are

1 adequately represented, in my opinion, by the
2 crack growth rate parameters recommended by
3 API 579.

4 Q Did you ever examine the cracks
5 that were evident in Line 132, Segment 180,
6 that exploded in San Bruno in 2010?

7 A I have read the metallurgist's
8 reports and other documents associated with
9 it. I haven't personally examined the pipe.

10 Q Have you done any study of the
11 crack growth rates in that section of pipe?

12 A The crack growth rates in that
13 section of pipe have never been tested.

14 Q And Doctor -- it's Doctor, isn't
15 it?

16 A No, no.

17 Q Sorry.

18 A Sorry. I can't prescribe
19 prescriptions.

20 Q But after today, you may need to.

21 If Line 147 were built today by
22 PG&E, would you recommend PG&E use
23 reconditioned A.O. Smith pipe if it was
24 available?

25 A No, because it's possible to get
26 new line pipe today.

27 Q Better pipe?

28 A New pipe.

1 Q New is generally better, isn't it?

2 A Not necessarily.

3 Q What time of seam weld is there on
4 A.O. Smith pipe?

5 A A.O. Smith Pipe made seam welds
6 using a variety of technologies depending on
7 when the pipe was made. In this particular
8 pipe, it would have been an automated
9 shielded metal arc weld used to fill a groove
10 from the outside of the pipe.

11 Q And the shielded metal arc weld
12 welds the top of the pipe, but not the inside
13 of the pipe; is that correct?

14 A No, that's not true. The way A.O.
15 Smith made this pipe was they machined a wide
16 bevel in the ends that would form a U-shaped
17 groove. They then pressed the edges of the
18 pipe together. And the inner portion of the
19 what would be called the land, the bottom of
20 the U-shaped groove, would then deform into
21 what's called a chill bar on the inside of
22 the pipe that would provide for cooling of
23 the weld metal that may come through the gap.
24 And then they would fill up the groove with
25 weld metal.

26 Q So the weld bead cap extends all
27 the way through the cross-section of the
28 pipe?

1 A That would be normally the case,
2 yes.

3 Q And why did they stop doing that in
4 1930?

5 A Because it was too slow a process.
6 They couldn't make pipe fast enough using
7 that process. So they went to something that
8 could allow them to make more pipe faster.

9 Q And in your examination of the
10 section of pipe from Line 147 that was
11 removed by PG&E in August of this year, did
12 you see that there was in fact shielded metal
13 arc welding on that piece of pipe?

14 A What I saw were photographs. I
15 didn't examine the pipe personally, but I
16 relied on photographs that I believe were in
17 the metallurgist's report.

18 Q So you didn't examine that pipe
19 yourself?

20 A I did not examine that pipe
21 personally. But based on a photograph that I
22 saw that was supposed to be of the scene from
23 that pipe, I concluded that it was A.O. Smith
24 pipe of that particular variety.

25 Q Does steel pipe get brittle as it
26 gets older?

27 A No. Its properties do not change
28 with time.

1 Q So 500 years from now, that pipe
2 would still have the same plastic properties?

3 A It should, yes.

4 MR. MEYERS: Thank you. I have no
5 further questions.

6 ALJ BUSHEY: Thank you, Mr. Meyers.

7 Other parties have further
8 questions?

9 Commissioner.

10 COMMISSIONER FLORIO: Thank you,
11 Mr. Rosenfeld. Appreciate you being here
12 today.

13 EXAMINATION

14 BY COMMISSIONER FLORIO:

15 Q At some point in the not too
16 distant future, my colleagues and I, none of
17 whom have a background in metallurgy or
18 welding, are going to be asked to allow the
19 pressure on this line to be restored to at
20 least 330 psi.

21 In the face of what appears to be
22 some fair degree of public skepticism, what
23 degree of assurance can you provide us that
24 this line is safe to operate? I don't know
25 if you can put percentages on it or. But,
26 you know, this is a big decision. And it's a
27 challenge for us.

28 A Sure. I understand that. You

1 know, I looked at it from the standpoint of
2 what do I believe the pressure test shows
3 about the pipe? What didn't it show as well?
4 And what other evidence is there that PG&E
5 understands the various integrity threats
6 affecting the pipe? And are they doing
7 something to manage that? And I think my
8 October letter describes that thought
9 process.

10 I believe that there's actually a
11 regulatory basis dating back to when Part 192
12 was first adopted that would support an MAOP
13 of 400 psi, which is greater than pressures
14 that you're talking about right now. And I
15 believe that the current condition of the
16 pipeline does in fact support that as
17 demonstrated by the pressure test.

18 And, to be honest, I'm aware there
19 are people living around the pipeline. And
20 throughout this process, I've contemplated
21 knowing what I know as a pipeline engineer
22 knowing what I or based on what I can
23 determine or infer from the information
24 available, how would I feel about living next
25 to that pipeline? And I don't see a cause
26 for concern. I mean, the only question I
27 came away with was are the schools any good?
28 So I wouldn't have a concern about it, about

1 living there.

2 Q Apparently some concern about
3 whether the entire pipe was tested. I take
4 it you're not in a position to say any more
5 about that than that you're relying on PG&E's
6 representation that it was?

7 A That is correct. I will point out,
8 though, that it's not unusual for a pipeline
9 operator to have discrepancies in stationing
10 or location information because what happens
11 is that the pipeline does have its length
12 changed at various times. New pipe is added.
13 Other pipe is taken out. Portions can be
14 relocated.

15 How you establish that, those
16 locations -- you can -- the positional
17 information you get can vary depending on the
18 technique you use, whether it's surveyor's
19 chain in transit or you're using electronic
20 theodolite or you resort to GPS sort of data,
21 every pipeline operator that I know of has to
22 carry forward historic locational data and
23 then try and reconcile that with new or
24 updated data that doesn't tie in. And it's
25 just thing that operators learn to work with.

26 COMMISSIONER FLORIO: Thank you very
27 much.

28 ///

EXAMINATION

1
2 BY ALJ BUSHEY:

3 Q I just have a couple questions for
4 you. I wanted to circle back to your notion
5 that the -- well, I'm sorry. Let's start
6 with a foundational question.

7 In the pantheon of pressure test
8 experts in the United States, would you place
9 yourself near the top?

10 A Well, I guess if I didn't, I
11 shouldn't be here. But, you know, I would
12 certainly put Dr. John Kiefner probably at
13 the top of that list. And there are other
14 well known experts in the pipeline industry
15 on hydrostatic testing. And I've tried to
16 make sure I understand exactly what they're
17 doing as well.

18 Q Okay. So it would be safe to say
19 that you're one of the top experts in the
20 United States on pressure testing of natural
21 gas pipelines?

22 A I'll accept that, yes.

23 Q Okay. Thank you. All right. Now,
24 I want you to think about all of the
25 pipelines that you've seen and that you've
26 had experience with in your history.

27 Of those that are reusing 1940s and
28 1950s pipeline or reconditioned pipeline,

1 what share of them do you think of them
2 pressure tested?

3 A I can't give you a proportion. I
4 do know of plenty of instances where that
5 we've been involved in hydrostatically
6 testing pipe that does contain salvaged or
7 reconditioned pipe, often with visible
8 crack-like features in repair welds not
9 unlike what we've seen here. And in most
10 cases, they do just fine in a hydrostatic
11 test and subsequently.

12 Q So you've seen this before in
13 pressure test. So that brings us though to
14 the efficacy of pressure tests and how
15 much -- what we can draw from the fact that a
16 pressure test has been conducted. I'd like
17 to put that together with the record-keeping
18 challenges that PG&E seems to experience.

19 Let me ask you first, based on your
20 experience, what is your assessment of the
21 level of record-keeping challenges that PG&E
22 seems to be facing? Are they above average,
23 average, or below average for the industry?

24 A Well, I think they're in the
25 category where they're not alone. Other
26 pipeline systems have -- there are many other
27 pipeline systems that are equally old or
28 variegated or complicated. And they also

1 have -- there other pipeline systems that
2 don't have any significant things to talk
3 about.

4 So, you know, in terms of
5 challenges, they're probably at the more
6 challenged end of things. But I know of
7 systems where pipeline operators are
8 operating at much higher pressures than this,
9 ten times this pressure, literally. And they
10 actually don't know what the pipe is, so --

11 Q And has it been pressure tested?

12 A That's the question.

13 Q Right. Let's talk a little bit
14 about that, about assuming that we have above
15 average record discrepancy problem at this
16 utility, what the best means for a regulator
17 to address that problem?

18 A Well, you know, the CPUC did direct
19 PG&E to hydrostatically test pipeline systems
20 where they can't verify a prior test or are
21 lacking information about the pipe. That's
22 an appropriate -- that's an appropriate
23 response because regardless of what's
24 actually in the pipeline, if you tested to
25 this level and you're operating down here, if
26 you tested this level and you have a
27 successful test where the pipe doesn't
28 rupture or, you know, doesn't leak during the

1 test, you've demonstrated the ability of the
2 pipeline to safely operate here. It's just
3 logical.

4 Q Okay. Back up to your preparatory
5 statements. Regardless of what's in the
6 pipeline -- explain that.

7 A It's like a load test, or it's a
8 proof test. You may not know the precise
9 properties of the material or certain other
10 data. But what you've proven is that the
11 pipe can withstand a pressure that's much --
12 and is therefore stressed that is much higher
13 than what you're intending to operate at.

14 Now, you're not proving that the
15 pipe is perfect, flawless material. But what
16 you are showing is that there's nothing
17 present in the pipeline today that could
18 threaten the safe operation of the pipeline
19 at this proposed operating level that's well
20 below the test pressure.

21 Now, you know, the validity of that
22 may decrease over time, if there's a
23 mechanism for whatever remaining flaws that
24 you don't know about, if there's a mechanism
25 for them to worsen over time. But insofar as
26 its current condition and for near-term
27 foreseeable future, you've proven the
28 strength of the system irrespective of what

1 the specific materials or details of the pipe
2 are.

3 Q So then really the only practical
4 response that a regulator has is
5 hydro-testing to when there are instances of
6 incomplete or inaccurate records?

7 A I think it's a good practical
8 response. One might -- actually, I believe
9 PHMSA is contemplating proposed rulemaking
10 right now concerning what's called their IVP
11 or Integrity Verification Process where they
12 are leaving the door open for performing an
13 engineering critical assessment and other
14 measures instead of hydrostatic testing.

15 So but the onus would be on the
16 operator to demonstrate that the combination
17 of engineering analyses and, say, in-line
18 inspections and institute properties testing
19 and whatever other methods operator may
20 attempt to use will be safe and reliable.
21 And the people who are performing it are
22 capable of doing it consistently and
23 repeatedly, repeatably, and so on. But they
24 are leaving the door open for -- I believe
25 for performing engineering assessment.
26 However, that's not a regulation yet.

27 Q And it's certainly not a regulation
28 in California?

1 A No, it's not.

2 Q Thank you. Just a couple last
3 questions. You stated that the most
4 important thing is the ratio of the test
5 pressure to the operating pressure?

6 A Yes, it is.

7 Q Okay. And, in your opinion, the
8 ratio of the test pressure here to the
9 operating pressure here or the proposed
10 operating pressure here is in excess of the
11 ratio that you would recommend?

12 A Yeah, I think it's plenty adequate
13 for the need. Essentially, I think for a
14 system like this, anything over one and a
15 half is going to provide good assurance. And
16 you're well above that.

17 ALJ BUSHEY: All right. Thank you.

18 Redirect, Mr. Hariston?

19 MR. HARISTON: Yes, briefly.

20 MR. LONG: Can I just ask a couple of
21 questions based on the questions of you and
22 the commissioner?

23 ALJ BUSHEY: Recross -- new cross. All
24 right, Mr. Long.

25 CROSS-EXAMINATION

26 BY MR. LONG:

27 Q I'm curious about something,
28 Mr. Rosenfeld. I'm Tom Long with TURN.

1 A Yes.

2 Q You're aware that under the federal
3 regulations maximum allowable operating
4 pressure or MAOP is to be determined by the
5 lower of MAOP calculated under various
6 methods; is that right?

7 A Correct.

8 Q Okay. And one method is based on
9 hydro-testing. And that's what you've been
10 talking about; is that right?

11 A Yes.

12 Q And another is based on the design
13 pressure calculated according to Barlow's
14 Formula; is that right?

15 A The design pressure is calculated
16 according to a formula that's in 192.105.
17 And that is not precisely Barlow's Formula.

18 Q Okay. Thank you. So under the
19 federal regulations, if the design pressure
20 is lower than the test pressure MAOP, then
21 the operator's is required to use the design
22 pressure MAOP; is that right?

23 A Well, what I have to point out is
24 that this pipeline system was already in
25 place and in operation before the federal
26 regulations were enacted in 1970 and in fact
27 before the concept of class location fact was
28 existed as well. So the regulations in 1970

1 contained provisions for dealing with already
2 existing systems which would have applied to
3 this pipeline.

4 And 192.619(c) said -- well, I
5 mean, 619 listed some of those various
6 methods of establishing the MAOP. But it
7 also said those requirements notwithstanding,
8 the pipeline operator could continue to
9 operate at the highest pressure that it had
10 experienced during the five years prior to
11 July 1st, 1970. So that would have been 400
12 pounds in this case.

13 And so there's a basis there. And
14 in addition to that, there's a paragraph
15 192.607 which no longer appears in the
16 regulations. That was taken out in like 1993
17 or '96 or something because it was no longer
18 needed. But that provided for a procedure
19 for the operator for the first establishment
20 of the -- or verification of the MAOP under
21 the new regulation.

22 And both 619(c) and 607 pointed to
23 meeting the requirements of 192.611. And
24 192.611 said that in lieu of doing a
25 hydrostatic test, you could -- the pipeline
26 could continue to operate not in excess of
27 what it experienced during the five years
28 prior to 1970. And provided the pipeline was

1 in good condition, it could operate or its
2 pressure had to be adjusted so that the
3 stress did not exceed what was allowed for
4 the particular location class. So this being
5 a Class 3 area, that would be 50 percent of
6 SMYS.

7 Now, there was also in 1979 PHMSA
8 or at that time it was called Office of
9 Pipeline Safety issued an interpretation
10 written by acting director, Cesar de Leon.
11 And he said in that interpretation, you do
12 not use the joint efficiency factor in
13 establishing -- in calculating the hoop
14 stress.

15 So when you piece all these
16 together, what that would indicate is that
17 the prior MAOP of 400 psi is essentially
18 validated going forward from 1970. There's
19 nothing in the regulations that took that
20 away.

21 Q Okay. I didn't know your answer
22 was going to go that long. I probably should
23 have interrupted. But anyway I appreciate
24 that response.

25 But I wanted you to focus on just
26 the MAOP. Put aside the grandfathering
27 provision. Put aside one class out. And
28 let's just focus on MAOP based on pressure

1 test and MAOP based on design pressure. And
2 if you just have those two and put aside
3 these other exceptions, the rules say if the
4 design MAOP is lower than the test pressure
5 MAOP, the operator is to use the design MAOP;
6 is that right?

7 A Well, no. The regulations say what
8 I just recited earlier.

9 Q But putting aside those, though, if
10 you have -- I mean, in fact, what's going on
11 here is PG&E is limited from Line 147 by the
12 design pressure; is that right?

13 A No. I believe PG&E is limited in
14 its pressure based on the chain of what the
15 different paragraphs in 192 permitted both
16 historically and currently.

17 Q You're aware that PG&E is proposing
18 an MAOP for Line 147 of 330 psi?

19 A Yes, sir.

20 Q And is that the MAOP calculated by
21 design pressure?

22 A That would be the MAOP that you
23 would get by taking the -- yeah, that would
24 be the pressure that you would get using the
25 design pressure for the least favorable pipe.
26 But that is not the MAOP that you would
27 arrive at using all of what the regulations
28 state.

1 Q The question I'm trying to get to
2 here is do you have an understanding of why
3 the experts who drafted the federal pipeline
4 regulations would say that, notwithstanding
5 your views, that the pressure test is the
6 gold standard, that in instances where the
7 design MAOP is lower than the pressure test
8 MAOP, that the operator should use the design
9 MAOP?

10 A I'm sorry. I'm going to have to
11 ask you to rephrase or restate the question.

12 Q Okay. Why does design MAOP
13 trump -- under the regulations, why are the
14 regulations set up so that the design MAOP
15 trumps pressure test MAOP?

16 A Well, you know, there are a number
17 of different things that for designing and
18 commissioning a new pipeline, which is not
19 what we're talking about here. But if you're
20 building a new pipeline, this is where design
21 enters. So you've got multiple multiple
22 criteria. You can't operate at more than the
23 lowest pressure --

24 ALJ BUSHEY: Excuse me, Mr. Rosenfeld.
25 I'm sorry to interrupt, but I want to back up
26 for a minute because I think it's important
27 that the record be clear. And I'm not clear
28 on the foundation of Mr. Long's question. So

1 let's try and get clarity on that. I'm going
2 to split it down into a couple of simple
3 questions.

4 I'm looking at Subpart J right here.

5 THE WITNESS: Okay.

6 ALJ BUSHEY: Is there a subsection of
7 this that says that you compare the results
8 of a pressure test to a calculated MAOP based
9 on pipeline features? Is there regulation
10 that says that?

11 THE WITNESS: If you go to 192.619,
12 that is where they will list that. So that's
13 not under Subpart J. Subpart J only talks
14 about the requirements for carrying out a
15 pressure test.

16 ALJ BUSHEY: And why would we use 619?

17 THE WITNESS: Well, because 619 is the
18 paragraph that talks about operation and
19 maximum allowable operating pressure.

20 ALJ BUSHEY: Okay.

21 MR. LONG: Your Honor, I was
22 referencing Section 619(a), Subpart 1.
23 Subpart A says lowest of the following. And
24 then the first one listed is the design
25 pressure calculated according to Subpart C
26 and D. And that is what Mr. Rosenfeld was
27 referring to as 192.105, I believe.

28 ALJ BUSHEY: Okay. All right. So

1 that's what we're talking about. Not
2 Subpart J.

3 THE WITNESS: That's correct.

4 ALJ BUSHEY: Okay. So it's the
5 operational requirements. Okay.

6 MR. LONG: How to set the MAOP.

7 ALJ BUSHEY: Right. Okay. Thank you.

8 MR. LONG: Q And the regulations,
9 Mr. Rosenfeld, said "lowest of." And one of
10 the listed elements is design pressure.

11 So my question is -- back to my
12 question, why are the regulations drafted
13 this way -- if you know, why do the
14 regulations require the design pressure to
15 trump a pressure established by
16 hydro-testing, if that design pressure is
17 lower?]

18 A Well, again, this is for
19 establishing the MAOP of -- essentially of a
20 new pipeline. There were already
21 provisions -- there are other provisions that
22 deal with establishing or verifying the MAOP
23 of an existing pipeline system, and that
24 occurred in 1970. So that would have carried
25 forward to today. So really you have to look
26 at this in the context of what have the
27 regulations always said.

28 Q Right. But let's -- okay. We'll

1 talk about an older pipeline, one that's
2 grandfathered, et cetera. But if the design
3 pressure is lower than all of those, then the
4 design pressure is still going to control;
5 isn't that right?

6 A Well, in 1970, what the language
7 said was "those requirements
8 notwithstanding," meaning, you don't have to
9 abide by those. Alternatively, you can
10 operate at how you operated for -- at the
11 highest pressure during the five years before
12 the regulations and subject to the
13 requirements of 192.611.

14 Q Let's talk about a post-1970
15 pipeline, then. Why -- back to my question.
16 Why would the regulations be drafted in such
17 a way that the design pressure trumps the
18 MAOP test pressure -- test pressure MAOP?

19 MR. HAIRSTON: Your Honor, I object.
20 Mr. Rosenfeld is here to discuss and opine
21 upon the safety of Line 147. He is being
22 asked to describe the original intent of
23 these pipeline safety regulations. I don't
24 know that this is the necessary forum for
25 that or that he's --

26 MR. LONG: Frankly, I'm trying to
27 understand why Mr. Rosenfeld is relying on
28 the test pressure as the gold standard for

1 safety -- and that's PG&E's position and
2 Mr. Johnson's statement as well -- when we
3 have the rules that seem to say a different
4 type of pressure is important to getting the
5 right MAOP.

6 MR. HAIRSTON: Your Honor, I suggest
7 that that's the appropriate question to ask
8 Mr. Rosenfeld, not to ask him to interpret
9 the original intent of the draft regulations.

10 ALJ BUSHEY: But he seems to be giving
11 us answers that -- there are two other
12 subsections to this particular rule and there
13 is a sub-subsection that talks about if
14 something is unknown, that it's 80 percent of
15 what looks like SMYS. It seems to be a rule
16 that has a lot of different permutations to
17 it.

18 MR. LONG: It's true, but I think
19 Mr. Rosenfeld has agreed that at least for
20 post-1970 pipeline, that if the design
21 pressure is lower than the MAOP pressure,
22 then we're going -- the operator must use the
23 design pressure as the controlling MAOP.

24 Q Is that right, Mr. Rosenfeld?

25 ALJ BUSHEY: Right. And that's a very
26 interesting point, Mr. Long, but Line 147
27 isn't post-1970.

28 MR. LONG: We don't follow the

1 grandfathering rule. And we can have --
2 there is a debate we can have about one class
3 out, but PG&E's current interpretation is one
4 class out doesn't apply here either.

5 ALJ BUSHEY: Well, the Subsection 3
6 seems to follow exactly what he says about
7 the highest operating pressure. So --

8 MR. LONG: That's the grandfather.

9 MS. PAULL: That's the grandfather
10 clause.

11 MS. BONE: That's been eliminated by
12 this Commission.

13 MR. LONG: We don't follow that. That
14 was your decision.

15 ALJ BUSHEY: I understand that. But
16 now you've gone perfectly in a circle. Now
17 you're back to pressure testing because that
18 decision said "pressure test."

19 MR. LONG: I guess I'm happy to ask it
20 the way counsel wanted me to ask it.

21 Q I would like an answer to the
22 question of why design pressure is important
23 and why the federal regulations seem to think
24 that if design pressure was lower than these
25 other ways of establishing MAOP, that we
26 should use the design pressure.

27 A Well, disregarding the original
28 language which included the "notwithstanding"

1 paragraph, it doesn't say what -- what it
2 says is use the lowest of any of about four
3 or five different ways of getting to that
4 pressure.

5 So it doesn't place a higher
6 priority on the design pressure. It says you
7 use the lowest of several alternatives. If
8 the design pressure is the lowest, then
9 that's the one you use. But there could be
10 other things that are lower than the design
11 pressure.

12 Q Right. But if the design pressure
13 is lower, then we use that.

14 A Yes, in the simplest
15 interpretation.

16 Q And why would that be?

17 A It's no different than saying --
18 they're saying use the lowest of several. If
19 that's the lowest, then that's the one you
20 use.

21 Q And is that for safety?

22 A Well, the whole regulation is for
23 safety.

24 Q Okay.

25 A It says minimum federal safety
26 standards.

27 MR. LONG: Okay. Thank you.

28 ALJ BUSHEY: Additional questions?

1 Ms. Paull?

2 MS. PAULL: Yes.

3 CROSS-EXAMINATION

4 BY MS. PAULL:

5 Q Mr. Rosenfeld, I'm Karen Paull, for
6 the Office of Ratepayer Advocates.

7 If you look at Subsection (a) 1 of
8 192.619 -- do you have the regulation in
9 front of you?

10 A No, I don't.

11 Q You don't. Okay. Well, are you
12 aware that it has a provision for pipe being
13 converted under Section 192.14?

14 A Being converted. So that would be
15 conversion of service from transporting
16 hazardous liquids, I think.

17 Q Well, here's what it says. "The
18 design" -- this is the section you've been
19 discussing with Mr. Long about the
20 requirement of the regulations at the lowest
21 MAOP be used if the different methods,
22 allowable methods, produce different results.

23 So Subsection (a) 1 says

24 "The design pressure of the weakest
25 element in the segment determined in
26 accordance with Subparts C and D," but it
27 says, "however, for steel pipe in pipelines
28 being converted under Section 192.14," and

1 then it goes on to say there is a different
2 formula that has to be used as a design -- to
3 calculate design MAOP.

4 Are you aware of that, that aspect
5 of the rule?

6 A Well, I'm not sure how it's
7 applicable. What's the title of 192.14?

8 Q That's the section about if a pipe
9 has been used, it's called conversion to
10 service subject to this part.

11 MR. HAIRSTON: Your Honor, can I ask
12 that Mr. Rosenfeld be provided a copy of the
13 regulations and a chance to look at them if
14 he is going to be questioned on this specific
15 language?

16 MS. PAULL: May I approach, your Honor?

17 (Pause in the proceedings.)

18 THE WITNESS: Well, I'm not sure how
19 this is applicable because the first sentence
20 of 192.14 says "A steel pipeline previously
21 used in service not subject to this part."

22 So this pipeline already was
23 subject to this part. So whatever it says in
24 there isn't necessarily applicable unless it
25 has identical requirements to parts that are
26 applicable.

27 MS. PAULL: Q What if you -- if you
28 don't know what the prior use was, prior use

1 of the pipe? What if you have no way of
2 knowing how it was used before it was put in
3 the ground in Line 147?

4 A Well, I'm pretty sure PG&E believes
5 that Line 147 has already been a natural gas
6 service.

7 Q But if it used pipe. There is
8 evidence in the record that PG&E -- at a
9 certain point in the past PG&E put --
10 relocated pipe from somewhere else and put it
11 into Line 147.

12 A Well, I believe that --

13 Q As far as I know, we don't know
14 where that pipe was before and how it was
15 used. So wouldn't this provision be
16 applicable?

17 A I don't see how. I think that all
18 parts of Line 147 that were in service as of
19 July 1, 1970, were covered by the grandfather
20 rules at that time, irrespective of how it
21 might have been used sometime -- how
22 individual pieces of pipe might have been
23 used sometime in the past.

24 Q Let me clarify. The grandfather
25 clause is really not applicable to my
26 question.

27 A I understand.

28 Q My question is simply: If the

1 pipe -- some of the pipe was used previously
2 somewhere else -- we don't know where, we
3 don't know how -- isn't it possible that this
4 provision about prior use calculating the
5 MAOP when a pipe has had a prior use and is
6 unknown, isn't it possible that this formula,
7 this provision, applies in that case?

8 A Well, I think you're overreaching
9 what the language says. I think the fact is
10 the pipeline was already in service when the
11 regulations came into effect in natural gas
12 service. I mean, if you really need an
13 interpretation on this, then you should write
14 to PHMSA.

15 Q No, I'm not asking you for an
16 interpretation.

17 I have -- let me just ask you one
18 more question about that. Do you know how
19 the -- the pipe that was previously used
20 somewhere else before it was installed in
21 Line 147, do you know where it was used?

22 A No, I do not.

23 Q Do you know how it was used?

24 A No, I do not.

25 Q Okay. Thank you. And then just
26 another question about the test, the hydro
27 test records that you looked at. Did you
28 look at any of the -- well, you're aware that

1 the line was hydro tested at times before
2 2011; correct? You're aware of that?

3 A Portions of new pipe were installed
4 in 1987 and 1990. So there is evidence that
5 they were pressure tested, if that's what
6 you're referring to.

7 Q Yes, it is what I'm referring to.

8 Did you look at those records?

9 A I did look at those records, yes.

10 Q Okay. And did you -- for the 2011
11 hydro test records that you looked at, which
12 test records did you -- the records for which
13 test did you look at?

14 A Well, I don't recall all of the
15 test section designations. I think there was
16 a test T 42 and a T 43A and a T 43B. And I
17 think there was one other and I don't
18 remember what it was called.

19 Q So a total of four?

20 A I recall four test sections, yes.

21 MS. PAULL: Thank you. No further
22 questions.

23 ALJ BUSHEY: Anyone else?

24 Mr. Meyers.

25 MR. MEYERS: Your Honor, just a couple
26 of questions for follow up.

27 ///

28 ///

1 CROSS-EXAMINATION

2 BY MR. MEYERS:

3 Q Mr. Rosenfeld, what's a mill test?

4 A What is a mill test. A mill test
5 is a pressure test of the pipe that the pipe
6 manufacturer performs to a specified level in
7 accordance with either the pipe product
8 specification that the pipe was manufactured
9 to or perhaps by an agreement between the
10 pipe manufacturer and the purchaser of the
11 pipe.

12 Q And that includes a percentage of
13 the SMYS of that particular steel; is that
14 correct?

15 A That's correct.

16 Q And today, as we sit here today,
17 what is the customary mill test pressure as a
18 percentage of the SMYS that a piece of steel
19 would have associated with pipe
20 manufacturing?

21 A Well, that depends on the pipe
22 product specifications. The API 5L versus
23 some ASTM -- that's the American Society for
24 Testing and Materials -- pipe product
25 specifications which may have requirements
26 that differ from API 5L. And it also depends
27 in 5L on the diameter and the grade of the
28 pipe.

1 Q Let me just simplify. For purposes
2 of Pacific Gas and Electric Company's
3 acquisition of gas pipeline today, do you
4 know, as you sit here, what the standard mill
5 test pressures would be for that pipe that
6 they acquire?

7 A Well, as I said, it would depend on
8 the diameter and the specified strength grade
9 for the pipe. But if we're talking about
10 large diameter high-strength pipe, it would
11 be 90 percent of the yield strength.

12 Q Thank you. And what was the
13 percentage of SMYS that A.O. Smith used in
14 1929 when they manufactured the pipe that is
15 in Line 147?

16 A It would have been at least
17 60 percent.

18 Q And why has that changed over time?

19 A Well, it's like anything else,
20 things have -- technology has evolved. So as
21 pipe manufacturers started making larger
22 diameter, higher-strength grades of pipe, the
23 value of testing to higher levels in the mill
24 became recognized. So they could do it.

25 Q Would it be correct for me to say
26 that this is a margin of safety?

27 A Well, it can be in lieu of a test
28 in the field. Although, I'm not certain that

1 the CPUC has necessarily recognized the
2 agreed direct value of a mill test as opposed
3 to a hydro test in the field. But we have
4 sometimes in evaluating other pipelines used
5 the mill test as a basis for judging the
6 integrity of the pipe.

7 Q And the mill test is information
8 that Pacific Gas and Electric Company would
9 have in its records for its pipelines
10 features list? Is that a correct statement?

11 A The mill test would be something
12 that one could determine if one knows the
13 specification that the pipe is manufactured
14 to and when.

15 Q And for the piece of pipe that
16 we're talking about here today in Line 147,
17 do you know what the mill test was?

18 A Are you talking about the A.O.
19 Smith pipe --

20 Q Yes, sir?

21 A -- or all of the various varieties
22 of pipe that are in there?

23 Q Well, we only know about the A.O.
24 Smith pipe so far. So let's try that.

25 A Well, actually, we know about other
26 varieties of pipe in there, too. We know
27 there is Grade B and X42 and X52.

28 Q The A.O. Smith pipe.

1 A Okay. Yeah, I believe that because
2 of what's known about A.O. Smith's pipe
3 manufacturing processes, I think that we can
4 conclude that those pieces of pipe were
5 tested by the manufacturer to 60 percent of
6 the specified minimum yield strength.

7 Q I'm sorry. Is that an assumption
8 or is that fact?

9 A It's informed by knowledge about
10 A.O. Smith's pipe manufacturing processes at
11 the time.

12 Q So that's an assumption.

13 A It's an informed assumption.

14 MR. MEYERS: Very well, Mr. Rosenfeld.
15 Thank you.

16 ALJ BUSHEY: Anyone else?

17 MS. STROTTMAN: I'm sorry, your Honor.
18 I have three questions.

19 ALJ BUSHEY: Okay.

20 CROSS-EXAMINATION

21 BY MS. STROTTMAN:

22 Q Mr. Rosenfeld, you said you had
23 performed many tests on old pipe; is that
24 correct?

25 A Yes.

26 Q Any actual crack weld tests on
27 single-sided submerged arc welds
28 with porosity and inclusion like San Bruno?

1 A No, we have not performed that
2 specific type of test. It's fairly uncommon
3 to do those kinds of test.

4 Q What about any crack growth tests
5 on pipes similar to Line 147 at issue here,
6 which is A.O. Smith pipe with SSAW?

7 A No, we have not. But there is test
8 data in the literature for pipe of a variety
9 of grades and vintages, all of which -- and
10 which would have similar -- I mean, at some
11 level steel is steel when we're talking about
12 plain carbon steel materials. And for a wide
13 variety of plain carbon and as well as high
14 strength low alloy structural steels, the
15 crack growth rate behavior falls within a
16 fairly narrow band irrespective of the
17 details of the grade, and they're all
18 bound -- upper bounded by the API 579 rate.

19 Q And then last question: Did you
20 perform a crack growth analysis for the mitre
21 bend?

22 A No, we didn't. We did perform a
23 structural or a piping stress analysis for
24 the span including the mitre bend.

25 MS. STROTTMAN: Okay. Thank you. I
26 have nothing further.

27 ALJ BUSHEY: Thank you. Redirect,
28 Mr. Hairston?

1 MR. HAIRSTON: Very brief redirect,
2 your Honor.

3 REDIRECT EXAMINATION

4 BY MR. HAIRSTON:

5 Q Mr. Rosenfeld, you testified
6 earlier I believe in a question from
7 Miss Strottman that Kiefner and Associates'
8 revenue from PG&E would be approximately
9 \$200,000; is that correct?

10 A That's correct.

11 Q Now, is Kiefner and Associates a
12 stand-alone entity or is it part of a larger
13 group?

14 A We're now a wholly owned company
15 operating -- a wholly owned company owned by
16 Applus -- that's spelled A-P-P-L-U-S -- and,
17 but we're operating as a separate company
18 called Kiefner and Associates.

19 Q Could you estimate the percentage
20 of total revenue for Applus that the PG&E
21 engagements represent?

22 A Well, Kiefner and Associates this
23 year will probably be -- do about
24 \$7.3 million. So for our company, it's
25 200,000 out of 7.3 million. Applus is about
26 a \$750 million company.

27 Q Thank you. Now, you were asked a
28 series of questions earlier about the

1 potential prejudice of reconditioned and/or
2 A.O. Smith pipe in Line 147.

3 Do you recall those?

4 A Yes.

5 Q Mr. Rosenfeld, does the presence of
6 reconditioned or A.O. Smith pipe on Line 147
7 change in any way your conclusions about the
8 safety of that line?

9 A No, it does not.

10 Q And why not?

11 A Well, for one, A.O. Smith pipe was
12 pretty good pipe, to start with. In fact,
13 for most of the period -- in fact, as far as
14 I know, as far as I'm concerned, for all of
15 the periods of time in which it was
16 manufacturing pipe, it was probably the best
17 stuff that you could buy.

18 Secondly, the hydrostatic test
19 establishes the ability of the pipeline to
20 safely operate at significantly lower
21 pressures. You've got a very large margin
22 between the test pressure and the operating
23 pressure. That's a -- provides a minimum
24 immediate factor of safety. And the larger
25 the test margin, the more time you have
26 before there is any -- any other concern
27 arises.

28 Q And that actually leads to my next

1 question. You testified in response to
2 Miss Strottman that the hydro test only
3 confirms the safe operation of pipe for a
4 certain period of time.

5 Do you recall that?

6 A Yes.

7 Q And is that in part because of the
8 impact of subsequent pressure cycles on any
9 remaining defects in the pipe?

10 A Well, in principle, yes. I mean,
11 that's what the -- that's what the NTSB found
12 in the case of San Bruno and that's why we
13 were looking at that particular issue of the
14 effects of pressure cycle crack growth,
15 specifically in this case. It's not commonly
16 an immediate or short-term problem for
17 natural gas pipelines, but it needed to be
18 looked at.

19 Q So you did in fact analyze the
20 crack growth on Line 147?

21 A Yes, we performed analyses about
22 that.

23 Q And what were your conclusions
24 about the remaining fatigue life of that
25 pipe?

26 A The fatigue crack growth due to
27 operating pressure cycles would not be a
28 problem in this pipeline for many hundreds of

1 years.

2 MR. HAIRSTON: Thank you,
3 Mr. Rosenfeld.

4 One minute, Your Honor.

5 (Pause in the proceedings.)

6 No further questions.

7 ALJ BUSHEY: Thank you, Mr. Hairston.

8 Final questions for anyone?

9 (No response.)

10 ALJ BUSHEY: Hearing none, then the
11 witness is excused. Thank you,
12 Mr. Rosenfeld.

13 We will take our morning break,
14 then, until 11:20. Off the record.

15 (Recess taken.)

16 ALJ BUSHEY: We'll be back on the
17 record.

18 Mr. Malkin, would you like to call
19 your next witnesses?

20 MR. MALKIN: Yes, Your Honor. PG&E
21 calls Kirk Johnson and Sumeet Singh.

22 ALJ BUSHEY: Stand.

23 MANLY KIRK JOHNSON, called as a
24 witness by Pacific Gas and Electric
Company, having been sworn, testified
as follows:

25 SUMEET SINGH, called as a witness by
26 Pacific Gas and Electric Company,
27 having been sworn, testified as
follows:

28 ALJ BUSHEY: Please be seated. State

1 your full name for the record and spell your
2 last name.

3 WITNESS JOHNSON: My name is Manly Kirk
4 Johnson, J-O-H-N-S-O-N.

5 WITNESS SINGH: My name is Sumeet
6 Singh, S-I-N-G-H.

7 ALJ BUSHEY: Mr. Malkin?

8 DIRECT EXAMINATION

9 BY MR. MALKIN:

10 Q Mr. Johnson and Mr. Singh, you have
11 both changed positions since you last
12 testified.

13 Mr. Johnson, would you please tell
14 us what your current position is at PG&E.

15 WITNESS JOHNSON: I am currently the
16 vice president of project management for gas
17 operations responsible for all the
18 transmission and distribution, major
19 projects.

20 Q And Mr. Singh, what is your current
21 position?

22 WITNESS SINGH: I am the senior
23 director of integrity management and
24 responsible for providing oversight of the
25 application of risk methodologies to develop
26 integrity management programs, to ensure
27 we're investing in projects to reduce the
28 risk on our system.

1 Q Thank you. We're going to jump
2 right into the elephant in the room: Hydro
3 testing.

4 Mr. Johnson, you signed the safety
5 certification for this pressure restoration
6 on Line 147; correct?

7 WITNESS JOHNSON: I did.

8 Q And what did you do to satisfy
9 yourself that the line had been hydro
10 tested -- that all of the line had been hydro
11 tested before you signed it?

12 MS. PAULL: Objection, Your Honor. I
13 would just like to note for the record that
14 we are going -- we are now having new direct
15 testimony from PG&E's witnesses, when we
16 thought the purpose of the hearing was to
17 cross-examine them on their previous
18 testimony that's already in the record.

19 ALJ BUSHEY: Same response as before.
20 Foundational information.

21 Please continue, Mr. Malkin.

22 MS. STROTTMAN: I'm sorry. The City of
23 San Carlos would like to share in ORA's
24 objection.

25 ALJ BUSHEY: Thank you.

26 Mr. Malkin?

27 MR. MALKIN: Q Do you remember the
28 question?

1 WITNESS JOHNSON: I believe so. So
2 prior to signing my verified statement in the
3 safety certificate, I reviewed the pipeline
4 features list and specifically focused on
5 things that had changed in that features list
6 since our filing approximately two years ago.
7 I went over the MAOP validation exercises,
8 and went through all that activity sitting
9 with Mr. Sumeet Singh and some of his team.
10 I reviewed all of the hydrostatic test
11 reports for the work we did in 2011.

12 I also looked at all of our
13 pipeline patrols and our pipeline inspection
14 records for the previous three years. I
15 reviewed PG&E's pipeline center line survey
16 information. And, in addition to that, I sat
17 down with Mr. Rosenfeld privately to ensure
18 that I had done my due diligence and to see
19 if he had any questions, any concerns
20 whatsoever with everything he was in the
21 process of reviewing for PG&E.

22 Q And focusing specifically on hydro
23 testing, what did you do to get comfortable
24 that all of Line 147 had been hydro tested?

25 A Well, previously, two years ago, we
26 had gone through that same exercise and I had
27 sat down with my engineering team, Ben
28 Campbell and Mark Cabral, and walked through

1 and made sure they had walked through tie-in
2 piece by tie-in piece and ensured that Line
3 147 had been hydrostatically tested either
4 with a hydro test in 2011 or a prior
5 hydrostatic test.

6 In addition, we conducted the same
7 exercises for shorts that operated above
8 20 percent, as consistent with the CPUC
9 recommendations or requests to uprate the
10 pressure. This time around I again reviewed
11 those records, asked those very same
12 questions, and reviewed one additional
13 document and that was for the leak repair
14 that had taken place at the end of last year.

15 Q Mr. Singh, you heard described in
16 ORA's opening statement and you read in
17 Mr. Robert's testimony the questions he
18 raises about his inability to line up the
19 mile posts and the stationing on the strength
20 test pressure reports and various other
21 reports, and his uncertainty whether
22 everything in Line 147 has in fact been hydro
23 tested.

24 Could you, please, explain how one
25 can determine and verify that all of Line 147
26 has been hydro tested?

27 MS. STROTTMAN: Your Honor, I would
28 object to that question.]

1 MS. STROTTMAN: Your Honor, I would
2 object to that question. That is, once
3 again, additional direct.

4 MS. PAULL: It's essentially rebuttal
5 and PG&E has the opportunity -- PG&E can
6 cross-examine Mr. Roberts if it wishes to do
7 so on his testimony.

8 ALJ BUSHEY: Is this information in the
9 MAOP records that were presented already?

10 MR. MALKIN: Well, the information,
11 your Honor, can be derived from the records.

12 ALJ BUSHEY: Right, but we need
13 someone --

14 MR. MALKIN: One needs to understand
15 how to do it, and obviously Mr. Roberts
16 doesn't.

17 And so I understand the parties
18 would like to have the record where they can
19 raise questions and there are never answers.

20 ALJ BUSHEY: I'll take that as an
21 editorial comment, Mr. Malkin.

22 MR. MALKIN: Yes, it is.

23 ALJ BUSHEY: Let's focus on the
24 question I asked you.

25 So the information is already in
26 the MAOP test records and this witness is
27 just going to tell us where to look for the
28 correct information. Is that an accurate

1 statement?

2 MR. MALKIN: I think it is
3 a fundamentally accurate statement.
4 The records consist of strength test pressure
5 reports, reports from RCP, the company that
6 oversaw the strength tests, as-built
7 drawings, and some other drawings the name of
8 which I can't remember, that Mr. Singh can
9 explain. And he can explain why Mr. Roberts
10 couldn't match up mile points and stationing
11 and why the records, in fact, show that
12 a hundred percent of the line, including
13 shorts over 20 percent, has been tested.

14 ALJ BUSHEY: To the extent that those
15 representations can be made without reliance
16 on documents that are not part of
17 the supporting information, then the witness
18 may proceed.

19 MR. MALKIN: Okay. Well, there is
20 information beyond that which was
21 specifically submitted that has been provided
22 to all of the parties, namely all of these
23 drawings.

24 ALJ BUSHEY: But those were the
25 background.

26 MR. MALKIN: They're not part of
27 the initial supporting information. They
28 were information that was data provided at

1 a later point.

2 ALJ BUSHEY: Okay. And was that -- did
3 that data provide the foundation for the MAOP
4 calculations and tests?

5 MR. MALKIN: Yes. It provides
6 the basis for being able to verify that every
7 foot of pipe has been hydrotested.

8 MS. PAULL: Your Honor, if those
9 records exist, if there are records that
10 Mr. Roberts should have looked at if he had
11 had them that make that showing, let PG&E
12 distribute those records and add them to the
13 record if they're not already in there.

14 ALJ BUSHEY: I think he just told me he
15 did that.

16 MR. MALKIN: Yeah. All the parties
17 have them.

18 MS. PAULL: When were these documents
19 served that you just referred to, Mr. Malkin?

20 MR. MALKIN: Would your Honor like me
21 to find that out?

22 ALJ BUSHEY: No. Let's get going here.
23 Let's get -- let's hear what he has to say
24 and go from there. So let's get the direct
25 on the record.

26 MS. BONE: Before that happens, ORA
27 renews its objection. If Mr. Johnson is to
28 simply going to tell us which documents we

1 need to look at, it seems like he should
2 simply say which documents we need to look at
3 and produce them.

4 Our point is that PG&E hasn't made
5 its showing and it shouldn't be able to
6 supplement its showing today on the stand.
7 We weren't prepared to cross examine.

8 ALJ BUSHEY: Let's see what they have
9 to offer and we'll go from there.

10 Mr. Malkin.

11 MR. MALKIN: I think I had asked
12 a question but let me rephrase it.

13 Q Can you please explain, Mr. Singh,
14 why Mr. Roberts' inability to match up mile
15 posts and stationing does not undermine
16 the fact that PG&E hydrottested all of
17 Line 147?

18 MS. BONE: I object. This actually
19 does not go to the issue of whether mis- --
20 whether PG&E hasn't provided the information.
21 This goes to the inconsistencies within
22 PG&E's data.

23 So this is a separate issue from
24 the issue of showing that PG&E has actually
25 provided all the documents needed to
26 demonstrate that this line is safe at an MAOP
27 of 330.

28 It's -- and it's -- again, it's

1 improper either direct or rebuttal. And to
2 the extent that Mr. Roberts,
3 the inconsistency can be explained away, it
4 should be done through cross-examination of
5 Mr. Roberts, not direct testimony of PG&E.

6 ALJ BUSHEY: So your objection is
7 relevance?

8 MS. BONE: Yeah. I mean, you're
9 allowing them --

10 ALJ BUSHEY: Overruled. Please
11 continue, Mr. Malkin.

12 MR. MALKIN: Q Mr. Singh, could you
13 please explain how, from the record,
14 the hydrotest records one can see that in
15 fact all of the pipeline has been
16 hydrotested?

17 WITNESS SINGH: A Based on my review
18 of the testimony submitted by ORA, there was
19 one missing key element of the record that
20 needs to be reviewed which is referenced in
21 the pipeline features list that have been
22 submitted as part of our recertification
23 filing, and they were also referenced in
24 the 2011 filing. And those records are
25 the detailed as-built drawings that clearly
26 show what was the starting location of
27 the test, what was the ending location of
28 the test, and that's what our engineers used,

1 coupled with the strength test pressure
2 records.

3 Furthermore, the analysis of
4 converting mile points strictly to footage by
5 multiplying the mile points or miles by 5280
6 does not get you the associated engineering
7 footage that's referenced in the Pipeline
8 Features List. And the reason is the mile
9 points that are referenced for Line 147 are
10 the historic mile points.

11 So these were the mile points at
12 the time the line was installed in 1947.
13 Since then, there's been a lot of work that's
14 been done on the lines.

15 In addition, the engineering
16 station that's referenced in some of the
17 STPRs is a horizontal footage and distance as
18 the crow flies and not the actual footage of
19 the pipeline which is in the Pipeline
20 Features List.

21 So a simplistic example is if you
22 have a pipeline that goes from point A to
23 point B and you have a pipeline that
24 traverses five feet horizontally, five feet
25 vertically, and another five feet
26 horizontally, that distance, when you measure
27 it as the crow flies on a horizontal plain is
28 ten feet but the actual footage of

1 the pipeline is 15 feet.

2 Q And is that the same reasoning,
3 same reason why you can't use the stationing
4 to line up with the actual footage tested?

5 A That is correct.

6 Q And based upon the work that you
7 and your team did in developing the Pipeline
8 Features List and looking at all of those
9 hydrotest documents, is there any doubt in
10 your mind that PG&E has in fact hydrotested
11 every foot of Line 147 main line pipe and all
12 of the shorts operating over 20 percent of
13 SMYS?

14 A Based on the discussions I've had
15 with my team, the work that our records team
16 has done, there's no doubt in any mind.

17 MR. MALKIN: That concludes my direct,
18 your Honor.

19 ALJ BUSHEY: Thank you, Mr. Malkin.

20 Who wants to go first for cross?
21 Mr. Gruen?

22 MR. GRUEN: Your Honor, may I approach
23 and circulate an exhibit?

24 ALJ BUSHEY: We'll be off the record.

25 (Off the record)

26 ALJ BUSHEY: We'll be back on
27 the record.

28 Mr. Gruen.

1 MR. GRUEN: Your Honor, may I circulate
2 the next exhibit.

3 ALJ BUSHEY: Yes, please.

4 We're not going to mark this as an
5 exhibit. This will just be used for our
6 reference at this point.

7 While the copies are being
8 distributed, why don't you ask the witnesses
9 the questions so they can start formulating
10 their answers.

11 MR. GRUEN: Okay.

12 Q Mr. Singh, the exhibit that's being
13 circulated is in reference to your testimony
14 on -- for hearings on -- that happened on
15 September 6. And this is page 2469 of
16 the September 6 transcripts and it notes,
17 the last line of the testimony right above
18 where Mr. Malkin says "Thank you" on line 19.

19 It says:

20 "And we're ... going to continue
21 to be open and transparent.

22 Do you recall making that
23 statement?

24 WITNESS SINGH: A It's on the
25 transcript, so I'm certain I made
26 the statement.

27 Q Okay. What do the terms "open" and
28 "transparent" mean to you?

1 A Open and transparent to me mean
2 that we're providing understanding of
3 the work that we are doing to all of our
4 stakeholders internal and, to the extent
5 relevant, external stakeholders as well. And
6 it's consistent with what we've done with
7 the MAOP validation project.

8 Q And would that include
9 the Commission?

10 A That's correct.

11 MR. GRUEN: Okay. And if I may
12 circulate one more, another exhibit, your
13 Honor. It's also a transcript so I wouldn't
14 ask that it be entered into the record but
15 just for referencing.

16 This is a -- also a section of page
17 2473. It's referenced as 2473 of
18 the September 6 transcripts. And it asks
19 Mr. Johnson:

20 I guess I would like a little more
21 [context] -- organizational
22 context. Who do you report to in
23 the organization?

24 And if I may take latitude, this is
25 a question from Commissioner Ferron that was
26 asked.

27 And the answer that Mr. Johnson
28 said is:

1 "I currently report to Jesus Soto,
2 Senior Vice President of Gas
3 Transmission."

4 "And Mr. Soto reports to?"

5 And the answer:

6 "Nick Stavropoulos."

7 And continuing onto the next page

8 2474:

9 "... Mr. Stavropoulos reports to?"

10 "Chris Johns."

11 And then the question:

12 "Your verified statement laid out
13 in some detail the timeline of
14 events surrounding Line 147. When
15 were you informed of
16 the discrepancy relating to that
17 line?"

18 So this is a line of questions that
19 go to when Mr. Stavropoulos and Mr. Soto were
20 informed of the discrepancy relating to
21 Line 147.

22 And Mr. Johnson, this is for you.
23 Isn't that accurate?

24 WITNESS JOHNSON: A As I read through
25 it, the best of my recollection, that's
26 accurate.

27 Q Okay. And turning on to the next
28 page 2475 of this document, it states:

1 "Okay. So if I" --

2 This is line 5, and I believe this
3 is Commissioner Ferron continuing.

4 "Okay. So if I could [ask you],
5 when you were first informed of
6 that information, who do you
7 inform up the chain of command?"

8 And the answer is:

9 "I honestly don't recall exactly
10 who I would have told at that
11 time. That was sometime ago."

12 Question:

13 "But presumably it would have been
14 Mr. Soto in the first instance?"

15 Answer:

16 "It would have presumably been
17 Mr. Soto."

18 "And Mr. Stavropoulos?" is
19 the question.

20 And the answer is: "I don't know."

21 Do you recall that or does that
22 seem true to you, Mr. Johnson?

23 A The questions seem true to me, yes.

24 Q Okay. And Mr. Singh, when those
25 questions were asked, you did not provide an
26 answer to Commissioner Ferron's questions,
27 those particular questions; is that right?

28 WITNESS SINGH: A To the best of my

1 recollection, no, I did not.

2 Q But in fact, you did know
3 the answers to those questions about when
4 Mr. Stavropoulos and Mr. Soto were informed
5 about the discrepancies on Line 147; isn't
6 that true?

7 A I did not recall at that the point
8 in time.

9 MR. GRUEN: Your Honor, I'd like to
10 circulate the next exhibit. And this I would
11 ask to be included in the record as
12 a transcript.

13 I have a copy, an unredacted copy
14 that's available for your viewing, your
15 Honor, and the rest of these circulated
16 exhibits need to be -- are redacted versions.

17 ALJ BUSHEY: We'll be off the record.

18 (Off the record)

19 ALJ BUSHEY: We'll be back on
20 the record.

21 Mr. Gruen.

22 MR. GRUEN: Q Mr. Singh, I have -- the
23 document I have circulated is an e-mail from
24 you to Mr. Soto and Mr. Stavropoulos, dated
25 November 16. Do you see that at the top of
26 the e-mail?

27 WITNESS SINGH: A Yes, I do.

28 Q And do you see on the subject,

1 the subject area where it says: Forward:
2 Line 147, Mile Post 2.2 Brittan Ave & Rogers
3 Ave, San Carlos -- Pipe Specification
4 Discrepancy. Do you see that?

5 A I do.

6 Q And was this an e-mail forwarded by
7 you on November 16th to Mr. Soto and Mr.
8 Stavropoulos?

9 A Now, that you've provided me with
10 a copy, I can see that.

11 Q So you are now familiar with the --
12 in fact, you did inform Mr. Soto and
13 Stavropoulos of pipe discrepancy information
14 on November 16th?

15 A In terms of the specific date,
16 right.

17 Q Okay. And also in terms of
18 the specific subject; correct?

19 A We did. And I did not respond to
20 the question as it was not directly stated to
21 me, but I believe we did state that
22 the discrepancy was communicated to our
23 leadership, executive leadership, and had
24 the exact specifics of the date and time.
25 And I did not recall that at the time until
26 you put this in front of me.

27 Q So you didn't recall. I see.
28 Okay.

1 Oh, yes, your Honor. May we have
2 this exhibit marked for identification?

3 ALJ BUSHEY: It's marked Confidential
4 pursuant to 583.

5 MR. GRUEN: The version that we
6 provided you is the only version that is not
7 redacted, your Honor.

8 ALJ BUSHEY: Oh. Okay. Well, then we
9 have a problem because that's what becomes
10 the record.

11 MR. GRUEN: Yes, your Honor. We can
12 provide you a redacted version as well.

13 ALJ BUSHEY: All right. We'll mark
14 that for identification as Exhibit B.

15 (Exhibit B was marked for
16 identification.)

17 MR. GRUEN: Thank you, your Honor.

18 The next line of questions --

19 ALJ BUSHEY: We'll be off the record.

20 (Off the record)

21 ALJ BUSHEY: We'll be back on
22 the record.

23 Mr. Gruen.

24 MR. GRUEN: Q This is also
25 a transcript from September 6 hearings, page
26 2434. And Mr. Johnson, I believe this is
27 your testimony.

28 Going to line 11, this is a,

1 I believe a question from Mr. Malkin. It
2 says:

3 In this morning's session, which
4 you were not present for, there
5 were questions raised as to
6 whether the error with respect to
7 Segments 103, 103.1, and 103.6 on
8 Line 147 -- where the MAOP
9 validation report incorrectly
10 listed seamless pipe was the same
11 type of error and raised the same
12 issues as on Segment 180 of
13 Line 132 where the accident took
14 place. It is it the same?

15 And the answer:

16 "No, I don't believe they have
17 anything in common. This
18 particular pipeline has seen a
19 hydrostatic test. It has ... one
20 with a spike on top of it."

21 So Mr. Johnson, is it your
22 testimony that Line 132 did not have
23 a hydrostatic test?

24 WITNESS JOHNSON: A I don't believe it
25 had a hydrostatic test or a hydrostatic test
26 with a spike.

27 MR. GRUEN: Thank you.

28 Your Honor, I could circulate

1 the next exhibit.

2 I'm sorry. This is -- circulate
3 another piece of transcript from --

4 ALJ BUSHEY: Another transcript?

5 MR. GRUEN: Yes, your Honor.

6 ALJ BUSHEY: All right. Mr. Gruen, how
7 many of these do you have you?

8 MR. GRUEN: I believe that this is --
9 okay.

10 Your Honor, may we go off
11 the record for a moment?

12 ALJ BUSHEY: We'll be off the record.

13 (Off the record)

14 ALJ BUSHEY: We'll be back on
15 the record.

16 Mr. Gruen.

17 MR. GRUEN: Q Mr. Singh, do you recall
18 answering questions about, in your direct
19 testimony on September 6 about the amount of
20 effort that went into the amount of time and
21 effort and resources that went into the MAOP
22 validation effort?

23 WITNESS SINGH: A I vaguely recall
24 that.

25 Is there a specific section in
26 the transcript you were going to point me to?

27 Q I -- no. I just asked for your
28 take on it. Not necessary.

1 But perhaps you could give
2 a general sense of how many man hours or
3 staff hours, excuse me, it took to complete
4 or to do the MAOP validation effort up to
5 this point?

6 MR. MALKIN: Your Honor?

7 ALJ BUSHEY: Relevance, yes.

8 Mr. Gruen, can we get focused on
9 Line 147?

10 MR. GRUEN: Okay.

11 Q Let me ask a hypothetical.

12 ALJ BUSHEY: And the hypothetical is
13 going to relate to some fact that has some
14 relationship to Line 147?

15 MR. GRUEN: Line 147, yes, your Honor.

16 ALJ BUSHEY: Okay, please do.

17 MR. GRUEN: Q In your opinion, what is
18 a safe maximum allowable operating pressure
19 for a line that contains AO Smith pipe
20 manufactured in 1929 and that PG&E cannot
21 assure the Commission has not been damaged by
22 hydrotesting it?

23 WITNESS SINGH: A I believe we've
24 already submitted the MAOP validation reports
25 for each and every feature of Line 147 as
26 well as the associated shorts. And in those
27 filings, we have stated at this point
28 330 psig, which is what we're here talking

1 about.

2 Q Let me just ask. Related to -- in
3 the hypothetical if the pipe had been damaged
4 by hydrotesting and it contained AO Smith
5 pipe manufactured in 1929, what would be --
6 what is, in your opinion, what would a safe
7 MAOP be for a line like that under those
8 circumstances?

9 MR. MALKIN: I'm going to object to the
10 form of the question. "Damaged by
11 hydrotesting" is incomprehensible.

12 MR. GRUEN: Your Honor, I believe I can
13 prove that up if I'm given a little bit of
14 latitude.

15 ALJ BUSHEY: Prove up?

16 MR. GRUEN: I believe I can show
17 evidence that suggests that PG&E at least has
18 concerns about damage to -- from hydrotest.
19 It's from their own data responses, your
20 Honor.

21 ALJ BUSHEY: Right, I understand that.
22 But I think the way you've worded your
23 question, it's too vague. What are you
24 talking about "damaged by hydrotesting?"
25 Damaged how? Did a front-end loader hit it?
26 Was it dug out? What happened?

27 MR. GRUEN: Ah. Thank you, your Honor.
28 I would modify the question to say damage

1 from overpressurization related to
2 hydrotesting.

3 ALJ BUSHEY: Well now, what does
4 overpressurization mean?

5 MR. GRUEN: It would be above a hundred
6 percent SMYS.

7 ALJ BUSHEY: Okay. That's what your
8 question is about?

9 MR. GRUEN: Yes.

10 ALJ BUSHEY: Tests that go above
11 a hundred percent SMYS.

12 Mr. Singh or Mr. Johnson, have you
13 performed any of those tests, PG&E?

14 WITNESS JOHNSON: I'm not aware of any
15 tests where we have performed them above
16 a hundred percent SMYS based on
17 the information we have available to us.

18 ALJ BUSHEY: All right.

19 WITNESS JOHNSON: And our testing
20 records where we do stress strain curves and
21 yield testing has not indicated any yielding
22 of any pipelines that have been tested under
23 the PSEP program.

24 ALJ BUSHEY: Thank you.

25 They don't have any.

26 MR. GRUEN: Okay.

27 Q Does PG&E's hydrotesting procedure
28 recognize that damage to the pipe from going

1 over a hundred percent SMYS being tested may
2 occur if the test is conducted with too high
3 a pressure?

4 WITNESS JOHNSON: A Are you asking
5 that in theory can it be done, is that your
6 question?

7 Q No. I'm asking if hydrotesting
8 procedure, PG&E's own procedure recognizes
9 that damage to the pipe being tested may
10 occur if the test goes over a hundred percent
11 SMYS.

12 A I think I believe PG&E's
13 procedure -- and I don't have it in front of
14 me -- probably references the potential for
15 damage if you go over a hundred percent SMYS.

16 Q Okay.

17 A Potentially.

18 MR. GRUEN: The next exhibit would go
19 to that point, your Honor. May I circulate?

20 ALJ BUSHEY: Let's back up for
21 a minute. I'm wondering about the relevance
22 here. If they've never done this and their
23 rules say -- where are we going with this?

24 MR. GRUEN: Your Honor, I believe and
25 I have evidence later that I intend to use on
26 cross with Mr. Harrison that would suggest
27 that in fact they have gone over a hundred
28 percent SMYS on -- for hydrotesting on

1 Line 147.]

2 ALJ BUSHEY: Why are you going to wait
3 for Mr. Harrison? These are the experts.
4 And they just made representations that they
5 haven't gone over 100 percent.

6 MR. GRUEN: Because, well, I have to
7 look back at the email. Mr. Harrison was
8 part of the email. So I was going to use it
9 to lay a foundation with him because I
10 believe he would be familiar with the
11 documents, your Honor.

12 ALJ BUSHEY: All right. Bring it
13 forward.

14 MR. GRUEN: And, your Honor, before I
15 circulate this, I provided PG&E with a copy
16 of an excerpt of this and asked whether they
17 had any concerns. It's marked confidential,
18 but it's not redacted. So I would wonder if
19 PG&E has any concerns with circulating it.

20 ALJ BUSHEY: Why don't we get it
21 circulated so we can see what it is. And
22 we'll go from there.

23 MR. GRUEN: Yes, your Honor.

24 ALJ BUSHEY: Mr. Gruen, this just looks
25 like a copy of the regulations.

26 MR. GRUEN: It is, your Honor. That's
27 my understanding of it as well. This is a
28 copy of PG&E's own requirements, as I

1 understand it. But I note that it's marked
2 confidential provided pursuant to PU Code
3 Section 583. I didn't see any concerns, but
4 I wanted to be sure that PG&E didn't either
5 from a confidentiality standpoint.

6 ALJ BUSHEY: Mr. Malkin, do you have
7 any confidentiality objections to this?

8 MR. MALKIN: We don't have a
9 confidentiality objection to that excerpt.
10 We do believe the witnesses should be shown a
11 full section. This is one page out of a
12 middle of a section of a 41-page procedure.

13 ALJ BUSHEY: Right. But is there
14 any -- do we have any doubt --

15 MR. MALKIN: No confidentiality concern
16 about a single page.

17 ALJ BUSHEY: Do we have any doubt that
18 this is the page -- this is a page of the
19 actual regulations?

20 MR. MALKIN: We don't dispute that this
21 is a page taken --

22 ALJ BUSHEY: Good. So they're willing
23 to stipulate to that.

24 What else do you need from these
25 witnesses?

26 MR. GRUEN: Just to note the part that
27 identifies caution. It's under the first --

28 ALJ BUSHEY: Mr. Gruen, you don't need

1 to read things to us. That's why we put
2 things in the record so that we have them.

3 MR. GRUEN: Yes, your Honor.

4 ALJ BUSHEY: So other than reading this
5 to us, is there anything else you want these
6 witnesses to do?

7 MR. GRUEN: Q So after looking at
8 this, you would agree that PG&E's procedure
9 for hydro-testing prohibits pressures above
10 SMYS values, hydro-test pressures above SMYS
11 values?

12 WITNESS JOHNSON: A I'm not exactly
13 sure what you're referencing. This is one
14 page of a document, if I look at this
15 correctly, of 3-29-13. I'm not sure if
16 you're trying to back-date this to when the
17 hydro-tests were done, which was 2011.

18 And, again, without going through
19 the whole document and putting everything in
20 context and you can read it, I do believe at
21 the very end it says the pipeline cannot be
22 established without exceeding the rating
23 pressure of the equipment. Consult the
24 pipeline engineering. So if there's
25 questions about our hydro-test program, you
26 consult the pipeline engineers.

27 Q And doesn't it say before that that
28 the test pressure for any pipeline must not

1 be greater than the pressure which produces a
2 hoop stress of 100 percent of SMYS of the
3 pipe regardless of the strength of the
4 valves, regulators, and similar equipment?

5 Do you see that?

6 A Yes.

7 Q Okay.

8 ALJ BUSHEY: Okay. Now we both read
9 it. That's good. Let's mark this as
10 Exhibit C.

11 (Exhibit No. C was marked for
12 identification.)

13 ALJ BUSHEY: Put it in the record, and
14 we'll go from there.

15 Do you have any substantive
16 questions for these witnesses on this topic?

17 MR. GRUEN: Yes, your Honor.

18 Q What's the reason for this
19 prohibition against exceeding SMYS in a
20 hydro-test?

21 WITNESS JOHNSON: A I didn't write the
22 document. So I can't tell you exactly
23 everything they were thinking of as they went
24 through this. What I believe is -- I don't
25 know how many -- 41 pages. So I didn't write
26 all of it. I can simply state that, in
27 general, we would like to avoid going over
28 the MAOP of SMYS in some specific conditions

1 so as not to create problems.

2 Q And would those problems be safety
3 related?

4 A They could be safety related.

5 Q Does PG&E recognize that
6 hydro-testing damage to a pipe at too high a
7 pressure for the strength of the pipe can
8 damage and weaken the pipe without causing a
9 complete failure of the pipe during the
10 hydro-test?

11 A I'm sorry. Can you repeat that
12 question again?

13 Q Sure. Does PG&E recognize that
14 hydro-testing damage to a pipe again at too
15 high a pressure higher than a hundred percent
16 SMYS for the strength of the pipe can damage
17 and weaken the pipe without causing a
18 complete failure of the pipe during the
19 hydro-test?

20 A I believe there is a possibility of
21 that occurring in some types of pipe. But
22 Mr. Kiefner -- excuse me -- Mr. Rosenfeld,
23 who was up on the stand earlier, is much more
24 of an expert on that specific issue than I
25 am.

26 MR. GRUEN: In fact, your Honor, I
27 provided Mr. Malkin with another data
28 response that was marked as confidential.

1 And I would ask if PG&E has any concerns with
2 circulating this next document. I'm happy to
3 circulate it again if --

4 ALJ BUSHEY: We'll be off the record.

5 (Off the record)

6 ALJ BUSHEY: We'll back on the record.

7 Mr. Gruen.

8 MR. GRUEN: Your Honor, there is
9 additional explanation on this that may be
10 valuable for the Commission's and your
11 Honor's understanding of PG&E's precise
12 concerns with going over a hundred percent
13 SMYS.

14 May I circulate this in for the --

15 ALJ BUSHEY: We're not here for
16 edification. We're here for cross-
17 examination.

18 What do you need from this witness
19 that you don't already have on the record?

20 MR. GRUEN: Okay. I'll ask the next
21 question.

22 Q Didn't in fact PG&E contend that
23 hydro-testing damage to a pipe at too high a
24 pressure for the strength of the pipe, that
25 in the case of San Bruno, it was damaged but
26 it didn't fail and then it later failed --
27 isn't that exactly what happened in the case
28 of San Bruno?

1 MR. MALKIN: I'm got to object on both
2 relevance grounds and also it mis-
3 characterizes Dr. Caligiuri's testimony
4 rather egregiously.

5 ALJ BUSHEY: Mr. Gruen, what does it --
6 let's get back to Line 147. I understand
7 that you've got a witness coming that's going
8 to tell us that at some part of the line went
9 over 100 percent. Okay. These witnesses
10 have already admitted that if you go over 100
11 percent, there could be safety issues.

12 What more do we need to weave
13 together a story here?

14 MR. GRUEN: Okay. I believe that
15 that's it. I can move on to the next line of
16 questions, your Honor.

17 ALJ BUSHEY: Okay. Let's go.

18 MR. GRUEN: Q Let me ask you about the
19 leak found in the field on Line 147 now.

20 WITNESS JOHNSON: A I'm sorry. Who
21 are you addressing the question to?

22 Q I'll ask it, and then maybe we'll
23 see who can answer it.

24 ALJ BUSHEY: Let me interject.
25 Mr. Johnson, when you present yourselves as a
26 panel, the question is presented to the
27 panel. You can decide amongst yourself who
28 is going to answer, but he doesn't have to

1 decide who answers. Okay. We're not going
2 to play a guessing game here. Okay. All
3 right.

4 Mr. Gruen.

5 MS. BONE: Could you also admonish them
6 to tell the whole truth so that if one person
7 doesn't answer the question and the other
8 person knows the answer, that they should
9 answer the question.

10 ALJ BUSHEY: I just swore them both in.
11 Okay.

12 Go, Mr. Gruen.

13 MS. BONE: Well, that wasn't relevant
14 previously.

15 MR. GRUEN: Q And just touching
16 back -- actually, maybe this is for
17 Mr. Johnson because it's in your verified
18 statement. It's just confirming that the
19 leak on Line 147 that caused PG&E to file the
20 errata in July of 2013, just for memory, when
21 was that leak discovered again?

22 WITNESS JOHNSON: A It's in my
23 verified statement. I don't remember the
24 exact date.

25 Q Just the month is sufficient. Was
26 it October?

27 A I believe it was October.

28 Q October of 2012; is that right?

1 A October of 2012. That's correct.

2 Q And what was the date of the
3 hydro-testing for the segment of line that
4 PG&E found a leak on?

5 A Again, I don't have those documents
6 in front of me, but I think we consistently
7 said it was done in 2011.

8 Q So is it correct that no leak was
9 discovered during hydro-testing?

10 A Correct. There was no leak seen
11 during hydro-testing of that segment of line.

12 Q Okay. And PG&E later had third
13 parties test a small section where the leak
14 was observed; isn't that right?

15 A PG&E had two independent parties do
16 a I would say different testing and root
17 cause analysis on that.

18 Q I'm just asking about testing. I'm
19 sorry. I'm just asking about testing at this
20 point. I'll get --

21 A What kind of testing?

22 Q Testing for a leak.

23 A Testing for the leak itself?

24 Q I'm sorry. Field testing.

25 A I'm not following you at all. I'm
26 sorry. What field testing?

27 Q PG&E had third parties do field
28 testing of a small section where the leak was

1 observed; isn't that right?

2 A I believe what I'm thinking of --
3 and maybe this isn't what you're thinking
4 of -- but PG&E removed that section of pipe
5 with the leak in it and sent that into two
6 third parties for testing. So I wouldn't
7 consider that field testing.

8 Q I appreciate the correction. Thank
9 you.

10 And how long after the hydro-test
11 did PG&E take before sending the section into
12 the lab for testing?

13 A I don't have the dates when we sent
14 it into the lab, but you could do the math.

15 Q Could you give an approximation?

16 A Eighteen months. I don't know.

17 Q Eighteen months.

18 A That was my approximation, yes.

19 WITNESS SINGH: A I actually like to
20 add something here. We removed the section
21 in August of 2013. And it was sent shortly
22 thereafter for testing. Don't have that
23 exact date in front of me. Somewhere in the
24 August, September 2013 time frame.

25 Q Okay. August 2013, did you say?

26 A That is correct.

27 Q Okay. So, again, a significant
28 amount of time after the section where the

1 leak was actually observed -- after when the
2 leak was actually observed; isn't that right?

3 A I think you can quantify the exact
4 number.

5 Q And the two labs that it went to
6 were Anamet and Exponent. Are those the
7 names of the labs?

8 A That is correct.

9 Q Okay. And did the lab reports from
10 Anamet or Exponent identify an actual leak on
11 the section tested?

12 A That wasn't the objective of their
13 analysis. The objective of their analysis
14 was to identify potential root cause of the
15 contributing factor why that potential leak
16 occurred.

17 Q But isn't it true that you can't do
18 a root cause analysis if you don't know where
19 the leak is?

20 A Is your question you can't do a
21 root cause analysis if you don't know the
22 source of the leak?

23 Q Don't you need to know the leak to
24 see the leak before you can do a root cause
25 analysis of what actually caused the leak?

26 A You don't necessarily need to see
27 the leak. You actually don't see the actual
28 gas molecules.

1 Q But you need to know that the leak
2 exists. You need to have found the leak.
3 Let me ask it that way.

4 WITNESS JOHNSON: A If the question is
5 do you need to find the leak, yes, we found
6 the leak. We repaired the leak. We later
7 cut out the section with the leak in it, and
8 we sent it in to these two parties.

9 Q The question is did these labs find
10 the leak?

11 A I don't know. PG&E found the leak.
12 We found the leak. We had -- I think in our
13 certified statement we tell you exactly how
14 we found the leak, how we tested for the
15 leak, how we repaired the leak. And then we
16 took that segment, sent it in to the labs to
17 ask them to do root cause analysis.

18 Q Right. You're saying that -- if I
19 understand your verified statement, it's that
20 PG&E observed the leak through happenstance
21 in the field in October of 2013. And then
22 after observing the leak, took the section of
23 the pipe where it believed the leak was, sent
24 it in to the labs for analysis?

25 A No. We repaired the leak. Then
26 later on went back and cut out the section
27 that had the leak in it and sent it in to the
28 lab. The leak was repaired.

1 Q How did you repair the leak?

2 A We put a PLIDCO cap over the leak.

3 Q Okay. Can you describe the repair?

4 A We put a PLIDCO cap, which is
5 simply a cap, over the top of the section
6 that was leaking. We welded it on. We
7 tested it. The leak was gone. And that's
8 how we repaired the leak.

9 Q Okay. So that PLIDCO cap -- when
10 it was sent in to the lab, wasn't that cap
11 removed? And didn't they then look for the
12 leak in the lab?

13 A I don't have all the documents in
14 front of me. I think the reports have been
15 turned over, is my understanding.

16 MR. MALKIN: I would want to object to
17 this line of questioning. If we had an
18 infinite amount of hearing time, we could go
19 on forever. The reports are part --

20 ALJ BUSHEY: The reports are what they
21 are. So, Mr. Gruen, where are we going with
22 this?

23 MR. GRUEN: This gets at the actual
24 labs doing root cause analysis. And if the
25 labs can't identify the root cause of the
26 leak, how can PG&E be certain there aren't
27 other problems on the line? If they can't
28 identify the leak, they can't identify the

1 cause of the leak in the labs, how does PG&E
2 know there aren't problems elsewhere?
3 Perhaps there's a root cause that they need
4 to look at elsewhere on the line that they
5 haven't found yet.

6 ALJ BUSHEY: So is your point that
7 their vendor labs gave them incomplete or
8 useless analysis?

9 MR. GRUEN: Not necessarily, your
10 Honor. It's just that I'm clarifying whether
11 they know that the lab reports identify the
12 actual leaks and the lab reports themselves
13 did a root cause analysis.

14 ALJ BUSHEY: Do we have copies of the
15 lab reports?

16 MR. GRUEN: I don't have those --

17 ALJ BUSHEY: But you have them?

18 MR. GRUEN: I believe they're in the
19 record. One of those is attached to
20 Mr. Singh's declaration, I believe.

21 ALJ BUSHEY: Okay. All right. So it's
22 in the record. It's there. So what do we
23 need more from these witnesses? The labs did
24 what they did. What else do we need from
25 these witnesses that goes to the ability to
26 operate 147 at 330?

27 MR. GRUEN: We're good, your Honor.
28 Thank you.

1 ALJ BUSHEY: Okay. Where are you in
2 your cross-examination? It's time for us to
3 take our lunch break.

4 MR. GRUEN: I have a bit more to do,
5 but I do have a new line of questioning.

6 ALJ BUSHEY: And what's your best
7 estimate for how much more time you have?
8 Well, hold that when we go off the record.

9 We're going to take our lunch break.
10 It's 12:20. We'll resume at 1:20.

11 We'll be off the record.

12 (Whereupon, at the hour of
13 12:20 p.m., a recess was taken until
14 1:20 p.m.)

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1 AFTERNOON SESSION - 1:23 P.M.

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3 * * * * *

4 ALJ BUSHEY: We're back on the record.

5 SUMEET SINGH and KIRK JOHNSON,

6 resumed the stand and testified further as

7 follows:

8 ALJ BUSHEY: Mr. Gruen, would you like
9 to continue cross-examination of the panel?

10 MR. GRUEN: Yes, your Honor.

11 MR. MALKIN: Your Honor, may I bring
12 this one thing before Mr. Gruen begins? I
13 don't want to interrupt him.

14 Mr. Gruen before we broke for lunch
15 estimated another 90 minutes.

16 ALJ BUSHEY: He just reported to me
17 that he's significantly pared that down.
18 There are no more exhibits. So if we get
19 started, we'll be done sooner.

20 Let's go, Mr. Gruen.

21 MR. GRUEN: Yes, your Honor.

22 MR. MALKIN: I will hold that thought.

23 MR. GRUEN: That's true. We've pared
24 it down. And we have no other exhibits to
25 circulate for the panel here. That's exactly
26 right.

27 ///

28 ///

1 CROSS-EXAMINATION (resumed)

2 BY MR. GRUEN:

3 Q So good afternoon, Mr. Singh and
4 Mr. Johnson. Just want to ask a question
5 about the -- related to the leak that was
6 discovered in October on Line 147.

7 Could the gas on the line have been
8 coming from somewhere else on the line other
9 than the leak that verified statement said it
10 discovered?

11 WITNESS JOHNSON: A We had no reason
12 to believe it was coming from somewhere else.
13 We found the leak. We soak test for leaks.
14 We take the wrap off. You soap test, soap
15 bubbles. We found the bubbles or what are
16 sometimes referred to a bubble or a fizz
17 leak. We identified the location of the
18 leak. We repaired it. And then we recheck.
19 And there was no leak after this. So we're
20 confident we've got the leak.

21 Q Okay. I want to switch to another
22 topic and ask you in addition to those values
23 identified in the verified statement, what
24 other PFL values have you found in Line 147
25 that are either missing or wrong?

26 A Can I just ask what you're
27 representing when you say "those values"?
28 Which page or what section are you --

1 Q I don't have the verified statement
2 in front of me handy at the moment. But just
3 the reference is to the values on Segment
4 109, Segments 103 and 103.1, those particular
5 values, particularly with relation to seam
6 types. Let me ask it this way:

7 What values in the PFL -- what
8 other PFL values on Line 147 related
9 specifically to seam types are either missing
10 or --

11 A I'm sorry. Are either missing or
12 what?

13 Q Or incorrect.

14 A Everything we've given you on
15 Line 147 we believe to be accurate.

16 Q Okay. Wasn't the A.O. Smith pipe
17 characterized variously as both seamless and
18 DSAW in the PFL?

19 WITNESS SINGH: A If you're alluding
20 specifically to Segment 109, it was
21 characterized as DSAW when we initially
22 submitted the filing in 2011. And subsequent
23 to that, we discovered it was A.O. Smith when
24 we were performing leak repair in October and
25 November time of 2012. I think that's all
26 stated.

27 Q Was part of the PFL -- did some of
28 the values in the PFL initially reported on

1 Line 147 show that that particular segment
2 was -- showed that as being seamless as well?

3 A If you're specifically alluding to
4 Segment 109 on Line 147?

5 Q Yes, I am.

6 A My understanding is what we
7 submitted to the Commission -- is all on
8 record -- initially the October 2011 filing
9 where that segment showed it was DSAW. And
10 subsequent to that, we discovered it was A.O.
11 Smith.

12 Q Okay. Can PG&E assure the
13 Commission that no other characteristics that
14 affect Line 147 MAOP have been stated in
15 error on the PFL or elsewhere, for that
16 matter?

17 A The information that we provided is
18 the best available information we have today.
19 We have successfully strength tested the line
20 with a spike test in 2011, as our expert --
21 the pipeline expert Mr. Rosenfeld testified
22 to previously. To the best of our
23 information that we have today, we have filed
24 all the information that we have regarding
25 Line 147 to the Commission including all the
26 specifications.

27 MR. GRUEN: Okay. Your Honor, no
28 further questions for the panel at this time.

1 ALJ BUSHEY: Thank you, Mr. Gruen.

2 Ms. Paull?

3 MS. PAULL: Yes, your Honor. May we go
4 off the record for a moment?

5 ALJ BUSHEY: We're off the record.

6 (Off the record)

7 ALJ BUSHEY: We'll be back on the
8 record.

9 While we were off the record, we
10 identified the following exhibits: Exhibit D
11 is PG&E's data request -- I'm sorry -- PG&E's
12 response to DRA 86-40.

13 Exhibit E is PG&E's response to
14 DRA's data request 87-45.

15 Exhibit E (sic) is PG&E's response
16 to DRA's data request 87-39.

17 Exhibit G is PG&E's response to
18 DRA's data request 87-44.

19 And Exhibit H is PG&E's response to
20 SED's data request 11-05.

21 And Exhibit I is PG&E's response to
22 SED's data request 003-06.

23 (Exhibits Nos. E, E, G, H, and I
24 were marked for identification.)

25 ALJ BUSHEY: Okay. Ms. Paull, would
26 you like to begin your cross-examination?

27 MS. PAULL: Thank you, your Honor.

28 ALJ BUSHEY: Mr. Malkin.

1 MR. MALKIN: On that last one, we
2 haven't got that.

3 ALJ BUSHEY: I is 003-06.

4 Please begin, Ms. Paull.]

5 CROSS-EXAMINATION

6 BY MS. PAULL:

7 Q Good afternoon, Mr. Johnson, Mr.
8 Singh. I'm Karen Paull representing the
9 Office of Ratepayer Advocates today, and I
10 have actually only a few questions for you.
11 Mr. Roberts will have other questions. My
12 questions should take maybe 10 minutes.
13 First, I have a couple --

14 MR. MALKIN: May I ask a procedural
15 point? In various other proceedings Mr.
16 Long, who I feel a colleague since we're
17 sitting next to each other, has raised the
18 objection to more than one counsel for a
19 party making argument, let alone questioning.
20 I understand Mr. Roberts is not an attorney.
21 And we're fine with that, but we certainly
22 don't want the attorneys ganging up on
23 people.

24 MS. PAULL: May I respond?

25 ALJ BUSHEY: I think you can take it,
26 Mr. Malkin.

27 MS. PAULL: I will assure you it will
28 be much more efficient if Mr. Roberts asks a

1 series of questions.

2 ALJ BUSHEY: That's okay. Go.

3 MS. PAULL: Q So first a few
4 questions about the circumstances under which
5 the leak was discovered, or rather, the leak
6 and the problems with Line 147.

7 Mr. Johnson, you said in your
8 verified statement of August 30th in
9 paragraph 25 that it was a routine leak
10 survey of Line 147 that led to the discovery
11 of the problems with Line 147, or to a
12 discovery, rather, to a discovery of the
13 leak. Do you recall that?

14 WITNESS JOHNSON: A I'm looking at my
15 verified statement on line 25 to a routine
16 leak survey. Yes, I see it here now, yeah.

17 Q Okay. And if you could take a
18 look, please, at the first exhibit I
19 distributed, which is a brief response to a
20 DRA data request.

21 A Is it Exhibit D?

22 Q It is.

23 A 086 Q 40?

24 Q It is 86, Question 40, yes.

25 A Okay.

26 Q And so in this we asked -- ORA
27 asked PG&E why this leak survey was performed
28 at this location. It was performed on

1 October 15th, correct?

2 A I believe -- I believe, yes,
3 October 15th, 2012.

4 Q 2012. And we asked why it was
5 performed at this location. And in the
6 discovery response PG&E responded that a PG&E
7 gas crew leader was performing a standby
8 during a water main repair conducted near our
9 pipeline by the local water utility. And it
10 was while he was standing on standby that he
11 observed the leak.

12 So my question is, that happened on
13 October 13th, and your discovery responses
14 indicate that the leak surveyor came to
15 inspect the leak the same day, right?

16 A The leak surveyor returned to the
17 site on the morning of October 15th.

18 Q And he returned on October 15th.
19 Now, why did he return on October 15th?

20 A As I recall, he wasn't able to get
21 a good read on the gas leak due to the
22 accumulation of water and mud in the hole.

23 Q Okay. So the original -- the
24 standby crew was at the location on October
25 13th because the water utility called PG&E
26 and told PG&E that they were going to be
27 doing some work in that location.

28 A Any time you work around a gas

1 transmission line or a critical facility,
2 standby is required to ensure that parties do
3 not damage our line. And this was a gas crew
4 leader who was conducting standby for PG&E.

5 Q And that sounds like a very good
6 thing. But this sequence of events to me
7 does not sound like a routine leak survey.
8 It sounds like a special circumstance. The
9 water utility was doing some work, called
10 PG&E. PG&E sent a crew. Those were the
11 circumstances, correct?

12 A So we had a gas crew leader
13 standing by, and then we sent a leak surveyor
14 out after the fact. This is routine leak
15 survey. It's not special. Special refers to
16 in our standards as an earthquake, a
17 landslide, something special and unique.
18 This is routine work. We do it all the time.
19 We stand by our facilities every time they're
20 dug around.

21 Q So the sequence of events we just
22 went through you consider a routine leak
23 survey?

24 A I consider it routine work, routine
25 where it looks, yeah, routine leak survey.

26 Q So you stand by your testimony that
27 it was a routine leak survey that led to the
28 discovery that the pipe in the ground at that

1 location on Line 147 was different from what
2 was indicated in the pipeline record?

3 A I'm sorry. I didn't follow your
4 question. If you're asking, do I stand by my
5 statement, my statement as I put in my
6 verified statement is that it was a routine
7 leak survey.

8 Q That led to the discovery of the --

9 A Yeah.

10 Q -- of the pipe in the ground?

11 A As I -- we either have routine or
12 we have special. Special is for unique,
13 one-off circumstances such as earthquakes,
14 accelerated leak surveys like after San
15 Bruno, landslides. Those are considered
16 special surveys. Everything else is
17 considered routine. Within the routine
18 category there are scheduled surveys, that
19 sort of stuff. This was a routine leak
20 survey --

21 Q Okay. So --

22 A -- conducted by our leak surveyor.

23 Q -- you've clarified. If the water
24 utility calls up and says we're doing work
25 and PG&E sends a crew, you include that, you
26 categorize that as routine?

27 A We stand by every time they're
28 working around the pipeline. So any time

1 anybody calls in a USA and is going to dig
2 within the vicinity of our pipeline and we
3 require hand digging within that vicinity, we
4 have a standby personnel there to ensure that
5 nothing happens to our pipeline. It's done
6 every time on a gas transmission system.

7 Q Sounds like a good thing. If the
8 water utility had not called PG&E to notify
9 PG&E that they were doing work on October
10 13th would PG&E have sent a crew on October
11 13th?

12 A We didn't send a crew. We sent a
13 standby person. If they hadn't called us to
14 let -- you mean if they hadn't conducted a
15 USA, it's hard to know whether or not we
16 would have sent somebody out there. But
17 they -- it's their obligation to call when
18 you're digging around a transmission line.
19 It's everybody's obligation.

20 Q So it wasn't a survey that PG&E had
21 scheduled independent of the water utility
22 calling them?

23 A It is not a scheduled survey. It's
24 not a semiannual or annual scheduled survey.
25 It's a routine survey.

26 Q Okay. Thank you. Let's move on.
27 If you could look at the next three exhibits
28 I distributed. So that E, F, G. They're

1 short data responses that have to do with the
2 questions about the welding and the leak.
3 And they all are titled something about root
4 causes.

5 So if you'd look first at Exhibit
6 E, which is PG&E's response to ORA's Data
7 Request 87-45, we asked about the probable
8 cause of the leak. Was it corrosion, cracks,
9 other reasons. And the answer, part of your
10 answer was that those defects were created
11 during the weld deposition process. Do you
12 see that?

13 WITNESS SINGH: A I see that.

14 Q Thank you. What's your best
15 estimate of when this weld deposition process
16 was performed?

17 A We don't have direct supporting
18 information that ties it back to a record of
19 when specifically that was done. Based on
20 all the facts that we have in front of us,
21 one of the likely scenarios is potentially
22 when the line was getting installed back in
23 1957 as part of the reconditioning process.

24 Q Okay. So that's the most likely --
25 what you believe is the most likely estimate,
26 most likely time period?

27 A That is potentially one of the
28 probable justifications.

1 Q But you don't know for sure? You
2 don't know for sure when, when this was done?

3 A So I want to define for sure just
4 so that there's no ambiguity around that.
5 For sure would be having a record that
6 identifies when that specific repair was
7 made. I believe I stated that we do not have
8 that record. The most probable justification
9 is what I just articulated.

10 Q Thank you. Okay. Now, would you
11 please look at Exhibit G, response to DRA
12 87-39.

13 WITNESS JOHNSON: A 87-39 is G? We
14 have it as F.

15 Q Oh, F.

16 MR. MALKIN: I thought that was F.

17 WITNESS JOHNSON: A So is it 87-39
18 you're looking for?

19 MS. PAULL: Q It's 87-39. And you are
20 correct. It is F.

21 WITNESS JOHNSON: A Okay.

22 Q And if you will -- I'm going to
23 skip over a couple of questions I was going
24 to do because I don't believe they're
25 necessary. We're going to move to my next
26 couple of questions.

27 Mr. Singh, you participated in an
28 examination under oath that Mr. Shori

1 conducted; is that right, for purposes of
2 this proceeding?

3 WITNESS SINGH: A That is correct.

4 Q And at a certain point Mr. Shori
5 asked you about changes in the safety culture
6 at PG&E within the last three years; is that
7 right? Mr. Shori asked you questions about
8 how things are changing at PG&E with regard
9 to safety culture; is that correct?

10 A I recall that question.

11 Q Okay. And did you say that one
12 thing that has changed is that the engineers
13 and the other PG&E employees now have easy
14 access to senior management to bring safety
15 concerns to the attention of senior
16 management? Did you say something like that?

17 A I recall making a statement that as
18 part of what we're focused on is fostering,
19 and I stated this previously as well, open
20 and transparent communication not just with
21 external stakeholders but also all of our
22 internal employees and internal stakeholders.

23 Q So do you feel that the engineers,
24 field personnel, other employees, middle
25 management now feel freer to bring their
26 safety concerns to senior management at the
27 company?

28 A That's a safety culture that we're

1 fostering. And there has been specific
2 examples that I've been a part of where an
3 e-mail from a crew foreman in the field has
4 gone directly to our Executive Vice President
5 of Gas Operations. I know that because at
6 times those questions are asked of me in
7 terms of what are we doing, some of the
8 questions, or whatever the potential issue
9 may be.

10 Q And do you personally feel free to
11 bring safety concerns to the attention of
12 management that you report to?

13 A Without a doubt, absolutely.

14 Q Including all the way to the top of
15 the management structure?

16 A If your question is if I feel that
17 I have the access to talk to Mr. Earley, who
18 is our CEO, or Mr. Johns, absolutely I do if
19 there's a safety related issue.

20 Q Thank you. Okay. Just one more,
21 one more area I'd like to cover. And if you
22 could go to the last exhibit, which I believe
23 is I. It's a data response to data request
24 from SED No. 003, Question 6. And it
25 consists of a page and a half question and
26 answer and then a short table. Do you have
27 that?

28 A Yes, I do.

1 Q So one of the questions that was
2 asked in this data request was which pipeline
3 features for Line 147 were not accurate. And
4 in response you said that you -- PG&E
5 re-reviewed all its records for all of Line
6 147. Was that the case? That's right, isn't
7 it, that PG&E reviewed, re-reviewed all its
8 records for Line 147?

9 A Yes, we did after we identified the
10 leak. It was as part of our routine root
11 cause analysis work that we do. When there's
12 an issue, we identify what the issue is,
13 learn from it. And in this case we wanted to
14 know as a prudent operator where else could
15 there be a potential discrepancy.

16 Q So to figure that -- to answer
17 those questions, you did do another review
18 of -- that is, you had completed MAOP
19 validation of Line 147, correct, when this
20 leak was discovered?

21 A That is correct. We went through
22 and completed the pipeline features list,
23 MAOP validation report that was submitted as
24 part of our October 2011 filing.

25 Q Okay. So after the leak was
26 discovered, you reviewed all of those records
27 again?

28 A That is correct.

1 Q Okay. And then if you could, in
2 response to this question you provided a
3 table showing what information changed when
4 you did your second review. That is, it
5 compares certain values, pipeline feature
6 values that you provided in October 2011 to
7 the Commission. It's on the left side of the
8 page. And on the other side you have the
9 updated specifications. Highlighted in green
10 are the things that changed. Am I reading
11 this correctly?

12 A That is correct.

13 Q Okay. And we've got several kinds
14 of things that change, don't we? We've got,
15 looks like there were changes to wall
16 thickness for some segments, correct?

17 A Correct.

18 Q And to the type of seam?

19 A That's what's stated here.

20 Q And changes to the SMYS, S-M-Y-S,
21 the yield strength?

22 A The Specified Minimum Yield
23 Strength, yes.

24 Q Specified Minimum Yield Strength.
25 So there were changes to those, those three
26 features after you reviewed your records in
27 2012 or 2013; is that right?

28 A That is correct.

1 Q So how long is Line 147,
2 approximately?

3 A Slightly over 4 miles.

4 Q Okay. And about how many feet or
5 how many miles of pipe had incorrect data,
6 incorrect feature data at one time or
7 another?

8 A I don't have that number in front
9 of me.

10 Q Well, if you look at the -- if you
11 look at the length of these various segments,
12 it appears that nearly 25 percent of the
13 length of the line had some kind of incorrect
14 data in what was presented to the Commission
15 in October 2011. Do you agree?

16 A If you add the lengths and do the
17 calculation, I'm sure you can come up with a
18 percentage to validate that.

19 Q So approximately 25 percent of the
20 pipe data for Line 147 was incorrect prior to
21 the leak investigation?

22 A The specification information was
23 different, correct.

24 Q Different and presumably incorrect?

25 A To the best available information
26 we had in October 2011, we presented that
27 information. As that information was
28 updated, we presented that. As you can see,

1 the sections were tested, tested and strength
2 tested to well above what the MAOP was
3 required for that line. And it was tested to
4 establish a MAOP of 400 pounds. And none of
5 that information changed. And we've stated
6 that on several occasions that strength
7 testing, and Mr. Rosenfeld also testified to
8 this this morning, is the industry's trusted
9 safety validation.

10 Q Thank you, Mr. Singh, but that
11 doesn't really respond to my question. I
12 think you have agreed that this table we were
13 just looking at shows features, pipeline
14 features for the line that were corrected
15 after you reviewed your pipeline records
16 after the leak?

17 A That's correct. They were updated.

18 Q That's all I want to know.

19 A Absolutely they were updated. And
20 it's a record of the continuous improvement
21 process.

22 Q When you say "updated," is that the
23 same thing as corrected in this case?

24 A They were updated to reflect what's
25 in the ground.

26 Q So when PG&E -- PG&E has used this
27 word "updated" quite a lot in its
28 presentations to the Commission. So if I

1 understand what you just said correctly, when
2 you say "updated to reflect what is in the
3 ground," to me that's the same thing as
4 correcting. If the record did not reflect
5 what was in the ground and you then change it
6 to reflect what was in the ground, isn't that
7 a correction?

8 A Yes. Could say that is true.

9 MS. PAULL: Thank you. Those are all
10 my questions. And now we -- if you -- could
11 we go off the record for a moment so that Mr.
12 Roberts can come forward?

13 ALJ BUSHEY: We'll be off the record.
14 (Off the record)]

15 ALJ BUSHEY: We'll be back on
16 the record.

17 While we were off the record, we
18 identified Exhibit J. It is PG&E's response
19 to DRA Data Request 086-22.

20 (Exhibit J was marked for
21 identification.)

22 ALJ BUSHEY: Mr. Roberts is going to
23 ask some questions regarding this document.

24 Please begin, Mr. Roberts.

25 MR. ROBERTS: Well, the questions don't
26 begin with questions about this document, but
27 that's in the first line of questions.

28 ALJ BUSHEY: Okay.

1 MR. ROBERTS: Okay.

2 CROSS-EXAMINATION

3 BY MR. ROBERTS:

4 Q Good afternoon. I'm Tom Roberts.
5 I'm with ORA.

6 I'd like you to start by turning to
7 page A-64 of Exhibit A to PG&E's October 11
8 filing.

9 WITNESS JOHNSON: A We don't have the
10 documents up here.

11 ALJ BUSHEY: I don't have one either.

12 MR. MALKIN: May we be off the record?

13 ALJ BUSHEY: We'll be off the record.

14 (Off the record)

15 ALJ BUSHEY: We'll be back on the
16 record.

17 Mr. Roberts.

18 MR. ROBERTS: Thank you.

19 Q So now if you can turn to page A-64
20 of Exhibit A.

21 WITNESS SINGH: A Okay.

22 Q Under section A, this is
23 determining the maximum allowable pressure
24 for Line 147. This summary report is to
25 determine the MAOP for Line 147 as a whole;
26 is that correct?

27 A That's correct.

28 Q Okay. Section A provides three

1 types of values used to determine the MAOP;
2 is that correct?

3 I can be specific. It provides
4 a design pressure, a pressure test data
5 point, and a historic operations data point.

6 A That is correct.

7 Q Can you explain why the value for
8 historic operation says not -- N/A which
9 I assume means is not applicable?

10 A I'm sorry. Can you restate your
11 question?

12 Q Yes. Under the -- so the bottom
13 left of this page, it says Historic
14 Operations and instead of a numeric value, it
15 says N/A, which I assume to be not
16 applicable.

17 I'd like to understand why that is
18 letters as opposed to numbers.

19 A On part B?

20 Q This is part 19 -- no. It's part
21 A.

22 A Okay.

23 Q Says part 192.619 A-3 Historic
24 Operations.

25 A Yes, I see that.

26 Q It's N/A. So why is there an N/A
27 there as opposed to a number?

28 A Because as part of the MAOP

1 validation process, the Commission was clear
2 that we would not be basing the MAOP of our
3 lines on the grandfather clause. And that's
4 what that's referring to.

5 Q I believe that the decision
6 actually refers to 192.619(c) only. But is
7 it correct then to say that your
8 interpretation that this other section of
9 the code is also influenced by the removal of
10 the grandfather clause?

11 A Correct. If you actually look at
12 the description, it's very similar -- it's
13 the same description, actually.

14 Q Okay. Thank you.

15 Now if we can turn -- and part B of
16 this page doesn't apply because this isn't
17 a distribution system. This is transmission,
18 correct?

19 A That will be correct.

20 Q Now for part C, there is a number
21 of 330 given and it's provided as the highest
22 operating pressure considered safe based on
23 operating history. I didn't find that
24 description in the code in either of
25 the sections you cite. Do you know what
26 the source of that language is?

27 A I show on page A-64.

28 Q No. This is page 65 now. Part C.

1 A Okay.

2 Q It gives a highest operating
3 pressure considered safe based on operating
4 history of 330. And that narrative
5 description isn't consistent with language in
6 either of the two regulations cited above it,
7 so I'm curious what the source of that
8 language is.

9 A Well, this number references 330 in
10 this case because the line over time has
11 operated at a pressure above this value. And
12 this is what we call our MAOP of record, of
13 what was the actual MAOP of the line when it
14 was put in service. The line was put in
15 service in 1947 and various modifications
16 were made to the line subsequent to that.

17 Q Thank you. For answering my next
18 question about what the number meant. That
19 still doesn't address -- what I was trying to
20 find out is how to tie this number back to
21 the federal code. And these citations here
22 do not reference the part of the code that
23 I would have expected it to and the language
24 doesn't exactly match. But let me -- maybe I
25 can paraphrase to get around this.

26 Is this the reference to the CFR
27 that says you can establish that one of
28 the pressures you look at in establishing

1 MAOP is what the operator considers to be
2 a safe operating pressure, is that what this
3 is referring to?

4 A This in this case is referring to
5 what has been PG&E's historical pressure of
6 that pipeline. And this is not a form that
7 we developed. We've made a few modifications
8 to it but it comes right out of what's cited
9 off the top of the report on page A-6. It's
10 based on AGA white paper on verification of
11 MAOPs for existing CO transmission pipelines.

12 And if you pull up that report from
13 the AGA, this specific form comes from the
14 1998 PHMSA guideline. And it's a form that's
15 taken right out of that reference guideline.

16 Q So if there's something that's
17 inconsistent between this document and the
18 federal code, it's because the AGA white
19 paper has it wrong?

20 A That's not what I stated. What
21 I stated is that this document is referenced
22 in the AGA white paper and the origination of
23 that is the 1998 PHMSA guideline on how to
24 establish MAOPs.

25 Q Correct. But if the language here
26 and the citations are not accurate references
27 to the federal code, then there's something
28 wrong with this page, this certification of

1 the MAOP of this line. And I'm trying to --
2 if you're saying you got this form somewhere
3 else, then AGA is the one -- AGA is the one
4 that started this, and we don't need to
5 discuss it any further.

6 A That's not what I stated. It's
7 referenced in the AGA white paper and PHMSA
8 is the one that developed the form as part
9 of --

10 Q This line references federal code?

11 A That's correct.

12 Q It does not reference applicable
13 federal code to a transmission line in this
14 case.

15 A Understood.

16 MR. MALKIN: Your Honor, I'm going to
17 object. This is irrelevant.

18 ALJ BUSHEY: Argumentive. Not focused.
19 Probably more correctly labeled as discovery.

20 Mr. Roberts.

21 MR. ROBERTS: We can move.

22 ALJ BUSHEY: Yeah, let's.

23 MR. ROBERTS: I think that it matters
24 that we cited the federal code correctly
25 but --

26 ALJ BUSHEY: But Mr. Roberts, that's
27 the type of thing you do on discovery, not
28 cross-examination.

1 MS. PAULL: I think he was trying to
2 clarify whether they relied on the Code of
3 Federal Reg- -- what in the Code of Federal
4 Regulations they were relying on --

5 ALJ BUSHEY: So he's got his answer
6 where the form came from.

7 MR. ROBERTS: Yes.

8 ALJ BUSHEY: So please move on,
9 Mr. Roberts.

10 MR. ROBERTS: Q When you described
11 what that number was, it sounded like it was
12 based on what you operated at historically,
13 the pressure you operated on historically to
14 determine this number which contradicts that
15 you are not using the grandfathering clause.

16 So I do want to understand
17 the source of this number.

18 And the reason I mentioned the code
19 is because what I think is the correct code
20 states that an operator can determine what
21 the minimum operating pressure is. And this
22 seems like the right slot for that number
23 that you operated this line, you know how it
24 operates. It's not that it was operated at a
25 lower pressure or a higher pressure before.
26 You know the line and did determine what's
27 safe.

28 MR. MALKIN: I'm not sure, your Honor,

1 who's the witness.

2 ALJ BUSHEY: Yeah.

3 WITNESS JOHNSON: What's the question?
4 Your question --

5 ALJ BUSHEY: You keep asking
6 the same -- do you have a clear answer
7 Mr. Johnson?

8 WITNESS JOHNSON: No. I'm asking what
9 the question was. I heard a lot of
10 conjecture, but hearing you need to go talk
11 to PHMSA.

12 MS. PAULL: Based on operating history.

13 MR. ROBERTS: No. I can do this.

14 ALJ BUSHEY: Let's back up.

15 The question I hear you asking is you put the
16 number 330 in this column.

17 MR. ROBERTS: Yes.

18 ALJ BUSHEY: Where did you get that
19 number from?

20 MR. ROBERTS: And what does it mean.

21 ALJ BUSHEY: Let's take it one step at
22 a time.

23 Where did you get the number from?

24 WITNESS SINGH: A So the number was
25 based on the fact that the pipeline, ever
26 since it was installed, either operated at
27 that value or higher.

28 ALJ BUSHEY: So you decided?

1 WITNESS SINGH: A No. We have
2 a record between 1965 to 1970 that states
3 what the highest operating pressure was of
4 the line, and that's what we've used as
5 the MAOP of record which was 400 psig.

6 The other aspect --

7 ALJ BUSHEY: Wait a minute back up.
8 Where did you get the 330 then?

9 WITNESS SINGH: So 330 in this case was
10 based on the fact that it was limiting MAOP
11 based on the design, based on the strength
12 test, and based on what we have operated
13 the pipeline at. We take a minimum of those
14 three values.

15 ALJ BUSHEY: Okay. So the historic was
16 400, the design was 330, and you took the
17 minimum of those two, 330?

18 WITNESS SINGH: We also take the test
19 pressure established for that respective
20 class, which was 404.

21 ALJ BUSHEY: 404. Okay. So 404, 400
22 and 330, and you took 330.

23 And we know where all three of
24 those numbers came from. Okay.

25 MR. ROBERTS: Q Actually,
26 the determination of the lowest seems to be
27 the final number where it says choose
28 the lowest. I think that's still unclear.

1 It seems like you're saying that
2 Part C value of 330 came from historic
3 operating pressures; is that correct?

4 WITNESS SINGH: A What I'm saying is
5 we've historically operated the baseline up
6 to 400 pounds based on the actual pressure
7 log information we have from 196. And we've
8 at least operated the line at 330 or higher.
9 And that's what you see here is 330.

10 Q Okay. And so in -- okay. Thank
11 you.

12 On pages before this summary page,
13 you provide this MAOP data for each feature
14 in the pipeline, is that correct, that we
15 have a more fine resolution breakdown of
16 the MAOP of record for each feature that
17 leads to this summary report for the entire
18 line?

19 A That is correct.

20 Q And in that table, you have
21 different values for the MAOP of design for
22 each feature, you have different values for
23 the MAOP of -- per test because there were
24 multiple tests performed. But the MAOP per R
25 is consistent for the entire line. So that's
26 because you operated at 400 psi so you
27 consider, as the operator, you can operate it
28 safely at 330; is that correct?

1 A That's correct.

2 Q Okay. Now, if we can go to page
3 A-175. Actually, I'm sorry. It's good to
4 hold that page, but now I do want to turn to
5 Exhibit J.

6 WITNESS JOHNSON: A Which is what now
7 again?

8 Q In particular, I'll be asking about
9 PG&E's response to DRA 86 Question 22.

10 A Okay.

11 Q And in particular the response to
12 part a) on page 2. The question asked
13 basically if there are repercussions of
14 testing a pipe at too high a pressure if you
15 didn't know what the pipe was made of.

16 And if I could ask one of you to
17 read the first sentence of your response to
18 part A.

19 A I can read it.

20 If the test pressure causes the
21 hoop stress on the pipe to exceed
22 a hundred percent of the specified
23 minimum yield strength (SMYS) of
24 the steel, then the steel can
25 weaken and experience structural
26 damage.

27 Q Thank you.

28 A I think it is important to point

1 out we didn't have any of that on Line 147.
2 As we've already stated, the pipeline was
3 tested. It was hydrotested. There was no
4 yielding of the pipeline. So this discussion
5 on what can happen is simply theoretical. It
6 didn't happen on Line 147.

7 Q But since -- I understand that.
8 Okay. But what I wanted to get at is there
9 are negative repercussions if you don't have
10 the correct pipe specifications, isn't that
11 correct, in performing the hydrotest?

12 A If you exceed -- if you go to too
13 high a test pressure, things such as rupture
14 can occur, things such as significant yield
15 could occur if you not do any information
16 whatsoever. That's why you do stress strain
17 curves and that's why you check for yield
18 when we do a hydrotest, to ensure that you
19 don't put yourself in that circumstance.

20 Q Okay.

21 A As we've already stated, that
22 didn't happen on Line 147 and we haven't had
23 it happen on any hydrotest we've done.

24 We've done -- we will have done
25 over 500 miles in the last three years. So
26 we've got a strong record there.

27 Q So now we can turn to 175, please.
28 Let me know when you are there.

1 A Okay.

2 Q This document on this page refers
3 to which test?

4 A Test 43 B. We're on Exhibit A-175,
5 correct?

6 Q Correct. Yes.

7 A Page 1 of 12?

8 Q Correct.

9 A It says at the top it's T-43-B.

10 Q Okay. Do you happen to know if
11 Segment 109 was tested as part of this
12 particular hydrotest?

13 A My recollection is Segment 109 was
14 part of the Test 43-B.

15 Q Okay, thank you.

16 This report was written by it says
17 at the top of the page RCP. What was RCP's
18 role in the hydrotest?

19 A RCP is an independent third party
20 that oversees our hydrotests and makes sure
21 that things like stress strain and all
22 the relevant features of a hydrotest are
23 conducted properly for in-situ hydrotesting
24 that we're doing under the PSEP program.

25 MR. MALKIN: Your Honor, if there's
26 going to be questioning about that test
27 report, may we provide the witnesses with
28 a corrected copy that we provided to

1 the parties last week?

2 ALJ BUSHEY: Do you have copies,
3 corrected copies?

4 MR. MALKIN: Well, I know we have one
5 but I don't know --

6 MS. PAULL: What was the question?

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

8 (Off the record)]

9 MICHAEL ROSENFELD

10 resumed the stand and testified further as
11 follows:

12

13 ALJ BUSHEY: We'll be back on the
14 record.

15 While we were off the record we had
16 an extensive discussion about stress-strain
17 curves and evidence and yielding.

18 Mr. Rosenfeld has retaken the stand.
19 He remains under oath, and he's going to
20 describe in summary terms what he explained
21 off the record. And he's going to address
22 changes that have been presented by PG&E to
23 their report from RCP regarding pressure test
24 43 B.

25 Mr. Rosenfeld.

26 THE WITNESS: Yes. So the pressure
27 versus volume chart is analogous to a
28 material stress-strain curve because pressure

1 is -- stress is tied directly to pressure in
2 the pipe. And strain is a measure of
3 deformation which is tied to the volume of --
4 the volume of the pipe. And so if the
5 material is behaving elastically, meaning it
6 hasn't -- has not yet yielded, you would
7 normally expect a linear portion of the
8 stress-strain curve, and you would expect the
9 pressure volume chart to also be linear in
10 that range.

11 However, that as far as the pressure
12 versus volume, that assumes that in fact the
13 pipeline has -- is full of water with no
14 bubbles or pockets of air in the pipeline.
15 And when you introduce water into a pipeline
16 that has various elevations and so on, air is
17 going to get trapped in portions, portions of
18 the pipe inevitably.

19 So what we see here is that if
20 your -- you see on the stress-strain curve
21 which we talked about earlier, the curve does
22 in fact deviate from a straight line, but
23 it's curving and bending to the left and
24 going -- and the slope is increasing as it's
25 doing that. That is not indicative of
26 yielding. If a joint of pipe or several
27 pieces of pipe in the pipeline were in fact
28 yielding, what would happen is that the curve

1 would bend to the right and it would move
2 farther to the right faster than it goes up.
3 Here instead we see it's rising, and it's
4 essentially showing that the system is in
5 fact stiffening.

6 So that's occurring as -- my
7 interpretation of this is that that's a
8 result of air being absorbed in the water.
9 When it finally does go straight, it's
10 behaving in an elastic manner. It doesn't
11 necessarily match the slope of what was
12 predicted potentially for a number of
13 reasons. For example, one could be that
14 there's still a pocket of air trapped at
15 the -- say in the header at the end of the
16 test section, and it's continuing to compress
17 kind of like a big spring. And so what you
18 see is an air spring. And the pipe is also
19 elastic, and it's behaving like a steel
20 spring. And the water is elastic, and it
21 behaves like a big hydraulic spring.

22 So these springs in series are going
23 to have, especially with the air pocket, are
24 going to -- will have a lower elastic slope,
25 which is going to affect the pressure versus
26 volume relationship. However, that does not
27 mean that it didn't get to the pressure. The
28 pressure is pressure, and the pipe doesn't

1 really know the difference whether it's
2 coming from water or air or a combination of
3 those. So I don't think that this shows
4 yielding.

5 The earlier version of the report
6 indicates a -- that a yield pressure of 442
7 pounds, you can see that that's actually not
8 even on this -- that pressure level isn't
9 even shown on this chart. I don't think
10 there's any way that it could have been -- I
11 think the only explanation for that number is
12 a typo. People do make typos. So the second
13 -- the revised version of this shows the --
14 it indicates a yield pressure at 748. That's
15 simply the maximum pressure that it was taken
16 to during the test. So it very likely would
17 have yielded a -- if it were pressured to the
18 point of yielding, that would have been at a
19 most likely a much higher pressure than that.
20 So that's my interpretation of this
21 information.

22 ALJ BUSHEY: Thank you, Mr. Rosenfeld.

23 Any questions for Mr. Rosenfeld?

24 All right then.

25 CROSS-EXAMINATION

26 BY MS. BONE:

27 Q Yes, Mr. Rosenfeld. Which chart
28 are you referring to, on what page of the

1 report or what's supposed to replace what
2 page of the report?

3 A I was referring to this chart.

4 Q Okay. And that's the only one you
5 were referring to?

6 A Yes.

7 Q Okay.

8 A I don't believe that chart changed
9 in the two different versions.

10 Q For the record, what page is that?

11 A I see that as page 11 of 14 on the
12 corrected report.

13 Q The corrected report, the third
14 corrected report?

15 A The one that --

16 Q By RCP?

17 A -- is dated 11/11/2013.

18 Q Okay. The one we don't have here.

19 ALJ BUSHEY: Okay. Final questions?
20 Yes, Ms. Strottman.

21 MS. STROTTMAN: Yes. Thank you.

22 CROSS-EXAMINATION

23 BY MS. STROTTMAN:

24 Q Mr. Rosenfeld, looking at this
25 chart, there's a green line that says
26 predicted, correct?

27 A Mm-mm.

28 Q And then you have the -- it's the

1 actual line --

2 A Yes.

3 Q -- there? Okay. And so you
4 testified that there were some, I guess
5 perhaps some air bubbles. Is that between
6 150 and 200? I was trying to give you a
7 reference. Where are the air bubbles located
8 on the actual line?

9 A Well, they're -- what I would
10 interpret as absorption of air in the water
11 is indicated by the fact that the curve is as
12 it goes up it's curving to the left and the
13 slope of it is increasing. So what that
14 indicates is that the overall stiffness of
15 water plus air plus steel all being elastic
16 under pressure is increasing. So that's the
17 opposite of yielding.

18 Q So then why didn't the estimated
19 level go back to the predicted level?

20 A Well, because it has -- it has
21 absorbed -- it's taken additional water to
22 arrive at that pressure. So what happens is
23 if you have the whole system having a --
24 behaving with a lower stiffness or lower
25 compliance, it will take more water to arrive
26 at a particular pressure. It's affecting the
27 pressure versus volume relationship because
28 portions of -- essentially what's happening

1 is you're collapsing pockets of air or
2 something of that nature. So it's behaving
3 with a lower -- lower overall compliance.
4 But you can see that it eventually does
5 become elastic. In other words, you've got a
6 straight line as you're coming to the
7 completion of the test.

8 Q But it's still not behaving as
9 predicted?

10 A No. That's because you can't
11 predict the quantity of air that might be
12 trapped somewhere in the pipeline.

13 Q And was any one -- was any one at
14 the leak site when this pressure test was
15 conducted? Do you know?

16 A At the leak site.

17 Q Yes.

18 A You mean the place that leaked a
19 year later?

20 Q Yes.

21 A I couldn't tell you that, but it
22 would surprise me if they were.

23 MS. STROTTMAN: Thank you.

24 ALJ BUSHEY: Mr. Meyers.

25 MR. MEYERS: One question, your Honor.

26 CROSS-EXAMINATION

27 BY MR. MEYERS:

28 Q Mr. Rosenfeld, referring to excerpt

1 from PG&E response to DRA Data Request 86,
2 Question 2, Attachment 4, this chart.

3 A Yes.

4 Q When is the first time you saw
5 this?

6 A I saw this when I was reviewing the
7 data back in October.

8 Q And this was part of your
9 conclusions then when you evaluated the
10 hydrostatic test?

11 A You know, I wasn't especially
12 focused on this chart. I was actually more
13 interested, to tell you the truth, in this
14 chart. And this shows --

15 Q Sir, can you identify for the
16 record what chart you're holding up?

17 A That is on page 10 of 14 on the
18 11/11 report, but it also appears in the
19 earlier reports as well. It's in both. It's
20 the page before the pressure versus volume
21 chart. And what this shows is, I was
22 concerned about were there changes in
23 pressure during the whole period that would
24 have indicated a leak. And if there were
25 changes in pressure, would they be tied to a
26 leak or would they be tied to changes in
27 temperature of the pipeline because a long
28 column of water is a pretty sensitive

1 temperature transducer.

2 And what I see is that the
3 pressures held steady. The pressures on the
4 chart match the pressures that were in the
5 test notes. And so this to me, this was the
6 chart that I felt was most important in terms
7 of understanding the outcome of the test.

8 Q Is the predicted path of this chart
9 in the spike pressure test, is that an
10 arithmetic calculation or is that someone's
11 opinion?

12 A Well, you would have to really ask
13 RCP about that. All of these spreadsheets
14 and worksheets are their work products. But
15 they have indicated to me in conversations
16 that it was based on their information about
17 the lengths of various segments of the
18 pipeline having different diameters and wall
19 thicknesses.

20 Q So would it also be affected by the
21 hydraulic head of the section being tested?
22 In other words, the fact that the spike line
23 runs up downhill?

24 A I don't think it would be
25 significantly affected by that.

26 Q And so you asked the experts how
27 they arrived at the calculations that led to
28 the expected yield. And did you have any

1 concerns with respect to the analysis that
2 they gave you as justification for the
3 predicted calculation here?

4 A I'm not sure I answered your
5 ques -- understand your question.

6 Q Were you satisfied in your
7 discussions with the retained consultant by
8 PG&E that the information or assumptions or
9 calculations that they were using to come up
10 with the expected yield as shown on this
11 graph was in fact accurate and would be
12 consistent with what you would do if you were
13 in the same position as the world's expert on
14 hydrotesting?

15 A Their description of what they did
16 made sense to me.

17 Q Thank you.

18 CROSS-EXAMINATION

19 BY MS. BONE:

20 Q One more clarification. Mr.
21 Rosenfeld, Mr. Meyers just asked you when you
22 reviewed this report. And you mentioned I
23 think October of this year. So the report
24 you reviewed, was it the one dated March
25 15th, 2012, or was it the current one, the
26 11/11/2013 report that's now been corrected?

27 A Well, since I was reviewing it in
28 October, it couldn't have been the one dated

1 11/11.

2 Q Right. So the report you reviewed
3 for Test T 43 B showed the 236 psig on that,
4 on page -- what is that, I can't see -- 10 of
5 the 12.

6 A Right. And I -- I was somewhat
7 baffled by that number. But I was more
8 concerned with things like the actual written
9 pressure and stroke counts and the chart that
10 I just showed you a minute ago showing
11 pressure over time and temperature over time.
12 And so that was -- that was what I focused
13 on.

14 Q So the 11/11 version, when did you
15 first see that version of the report?

16 A I think yesterday.

17 Q Okay. And can you rule out for us
18 that Line 147 was not damaged by this test?

19 A Yeah, I think I can. First of all,
20 there's no evidence that yielding took place,
21 and to be perfectly honest, yielding does not
22 necessarily mean that the pipe -- pipe is
23 damaged. A lot of pipe is actually
24 manufactured by expanding it to a final
25 diameter to get -- get strength. So you
26 know, yielding is -- all pipe is yielded in
27 some form in turning it from a flat plate to
28 a circular cylinder.

1 I think the -- without going out on
2 a limb here, I suspect that you're concerned
3 about the possibility of some kind of damage
4 during the test from some kind of tearing or
5 crack growth, kind of like what the NTSB
6 reported observing in the pipe that failed at
7 San Bruno. And you know, you actually can't
8 rule that out with any test. Even in brand
9 new pipe that's always a possibility.

10 The issue is, can it be so bad that
11 it -- the creation of or the occurrence of
12 tearing, small amount of tearing at the root
13 of a flaw that may have been present before
14 the test, if that reduces the strength of the
15 pipe such that it affects the reliability or
16 the integrity of the pipe at its operating
17 pressure. And the -- so long as you've got a
18 significant, a reasonable or significant
19 margin between what you test to and what you
20 operate at the answer is no, it's not going
21 to do that.

22 Now, in fact, this isn't supposed
23 to be a discussion about -- I mean this whole
24 thing isn't about San Bruno. It's about this
25 particular pipe, but San Bruno is sort of the
26 reference for everything that we're talking
27 about in a way. And so tearing did occur
28 there. That pipe was tested to only -- to a

1 relatively small margin over what it operates
2 at. And yet it was in fact able to tolerate
3 that condition for quite a few decades. And
4 that's with a relatively small test margin.

5 Now, this pipe has been tested
6 with, effectively, that was a test of 1.25
7 times what it operated. In this case the
8 spike test level was double what the pipe is
9 proposed to operate at. So that's
10 essentially four times the margin of what we
11 saw with the San Bruno pipe. So even if a
12 small amount of tearing did occur, it will
13 take a long, long time for that to ever
14 affect the pipe.

15 The other thing that people worry
16 about is the so-called pressure reversal
17 phenomenon where the tearing is actually
18 significant enough to lower the failure --
19 lower the failure pressure after achieving a
20 successful test. And you know, this is
21 something that's been observed with some old
22 varieties of old low frequency ERW pipe, for
23 example, or occasionally with something like
24 mechanical damage which is where the pipe has
25 been hit by a backhoe.

26 And the vast majority of observed
27 incidences of that have been on the order of
28 5 or 10 percent of -- a reduction in failure

1 pressure of 5 to 10 percent of what the test
2 pressure is. In fact, that's why you use
3 that 5 to 10 percent bump up for the spike
4 test. All right. It's the same issue there.

5 So I don't think that there have
6 ever been so-called pressure reversals that
7 lower, immediately lower the strength of the
8 pipe after a successful test by more than
9 about 25 percent. So something like here
10 where you've tested to double what you're
11 going to operate at. I'm not worried about
12 that affecting this pipe.

13 Q Okay. Thank you. One other
14 clarification. I thought PG&E witnesses
15 testified this morning that there was no
16 hydrotest on the San Bruno line?

17 A You know, there's -- there was a
18 metallurgist, Bob Caligiuri with Exponent,
19 who examined those fracture surfaces. And I
20 think he has gone on the record as saying,
21 well, there's ductile tearing. There's --
22 you think about what are the opportunities
23 where that could have occurred. It didn't
24 occur where at wherever whoever made that --
25 wherever that piece of pipe was made, whoever
26 made it we don't know because the material
27 was -- the weld was so weak and the material
28 was so low in strength there's no way that it

1 was -- you can't even call it pipe. It's
2 cylindrical, but it's not pipe. And so it
3 wasn't made the way pipe is supposed to be
4 made or even was supposed to be made at that
5 time. It didn't occur then.

6 There was no evidence of the
7 pipe -- pipeline operating at excessively
8 high pressures, at least not in past -- the
9 past ten years of pressure records. So it
10 didn't occur then. And so, you know, I have
11 been -- I'm given to understand that there
12 was a sworn witness who claimed that they did
13 see a pressure test at 1.25 times the MAOP at
14 that time. So given the choice between
15 something that a sworn witness has said
16 versus something for which I have no
17 evidence, I'm going with there probably was a
18 pressure test to 1.25.

19 And you know, the occurrence of a
20 possible pressure test for a short time is
21 not -- and then a failure about 50 years
22 later is not inconsistent with what we know
23 about the behavior of pipelines that have
24 been pressure tested. 1.25 is great for a
25 pipeline operating at very high stress
26 because 1.25 times a high stress is a very
27 high stress. And only very small flaws could
28 withstand that. Whereas 1.25 times a low

1 stress is -- or a low or moderate stress
2 isn't a very high stress. And very large
3 flaws can potentially survive that. And
4 large flaws grow faster all -- grow faster
5 than small flaws all other things being
6 equal.

7 And in fact, we did, just to
8 satisfy ourselves that we understood what
9 might have been going on, we used the NTSB's
10 metallurgical report to make our own
11 calculations in using the pressure data that
12 we had from Line 132 to make our own
13 estimates of the time to failure. And we
14 calculated a time to failure that was about
15 49 years. It went 56. So I think it all
16 ties together.

17 But in this case you've tested to a
18 very large margin over -- or PG&E has tested
19 to a very large margin over what the pipes
20 can operate at. And consequently, I don't
21 have concerns about pressure reversals that
22 would affect this pipeline as a result of the
23 phenomenon that we were talking about. And
24 that ties directly to the long predicted
25 times to failure from pressure cycle fatigue.

26 Q Thank you.

27 ALJ BUSHEY: Mr. Gruen.

28 MR. GRUEN: May I ask a follow up, your

1 Honor.

2 CROSS-EXAMINATION

3 BY MR. GRUEN:

4 Q Mr. Rosenfeld, does it factor into
5 your thinking, assuming that Line 147 was
6 hydrotested above 100 percent SMYS, if that
7 fact is true, can you still rule out the
8 possibility of damage to the pipe from the
9 hydrotest?

10 A I don't consider yielding to be
11 necessarily a no man's land in terms of what
12 that does to -- what that does to the pipe.
13 There are situations where it's -- where you
14 actually have to test to above a hundred
15 percent of the Specified Minimum Yield
16 Strength of the pipe to deal with particular
17 situations. There are other situations where
18 that's not a good idea, mainly if you have
19 pipe with seams that have shown a sensitivity
20 to extremely high -- to trying to be tested
21 or a sensitivity to being tested to higher
22 than the pressures that it may have seen
23 historically or at the pipe mill.

24 So that would be some low-frequency
25 ERW seam pipe that has had seam ruptures in
26 the past, or it could be lap-welded pipe, for
27 example, which has a -- tends to fail
28 spontaneously at a historically high test

1 pressure. You couldn't take some of those to
2 above a hundred percent SMYS. I don't think
3 this pipe went that high, but if it did, I
4 wouldn't necessarily be -- consider that it
5 was irreparably damaged.

6 Q Would you think it's a good idea if
7 there were unknown values in the pipe and
8 that there could in fact be reconditioned
9 pipe on Line 147, what about then, would it
10 be a concern for you?

11 A No. No, it wouldn't. I mean if it
12 was a problem for the pipe, it would have
13 failed during the test. And if this was pipe
14 that was susceptible to pressure reversals
15 after being tested that high, the next
16 attempt to test would probably have resulted
17 in a failure as well, probably at a lower
18 pressure. In fact, where you have
19 subsequent -- where you have test failures at
20 lower pressures than the prior occurrence,
21 that's when you know that you're damaging
22 your pipe. There's no evidence that that
23 occurred here. There were no failures. I
24 don't think it did yield.

25 MR. GRUEN: No further questions, your
26 Honor.

27 ALJ BUSHEY: Thank you. Final
28 questions for the witness?

1 (No response)

2 ALJ BUSHEY: Thank you again, Mr.
3 Rosenfeld.

4 THE WITNESS: Thank you.

5 ALJ BUSHEY: We will let Mr. Singh and
6 Mr. Johnson resume the stand then and return
7 to Mr. Roberts' cross-examination.

8 SUMEET SINGH and KIRK JOHNSON
9 resumed the stand and testified further as
10 follows:

11
12 ALJ BUSHEY: Mr. Roberts.

13 CROSS-EXAMINATION

14 BY MR. ROBERTS:

15 Q Thank you. I'd like to start with
16 an exhibit that I circulated initially. It
17 hasn't gotten an exhibit number yet, but it
18 says, "Pipe features with assumed data on
19 Line 147 DRA sort of PG&E spreadsheet."

20 ALJ BUSHEY: This will be Exhibit K.

21 (Exhibit No. K was marked for
22 identification.)

23 WITNESS JOHNSON: What document was it
24 again? There are documents everywhere here.

25 WITNESS SINGH: Was it titled "Pipeline
26 features with assumed data"?

27 MR. ROBERTS: Q Yes. Let me know when
28 you're there.

1 WITNESS SINGH: A Okay.

2 Q You may recognize that this is data
3 that was taken from the spreadsheet that PG&E
4 provided, which was an Excel version of the
5 MAOP report that was included in Exhibit A,
6 PG&E's October 11, 2013 filing. Does that
7 look familiar and correct to you?

8 WITNESS SINGH: A There's no specific
9 date on this report. So I'll take your word
10 for it. This is a MAOP validation report.

11 Q What this is, I sorted -- so first
12 of all, if you look at the first page of that
13 attachment, you'll see that in the very far
14 right column are either a 3 or a 1.]

15 Do you see that?

16 A I do.

17 Q The legend's a little bit blurred,
18 but can you tell me what a value of 3 means
19 relative to the adjacent SMYS to the left of
20 that?

21 Let me rephrase that.

22 Does that indicate that this is
23 a federal minimum standard?

24 A The 24 -- are you alluding to
25 a specific feature and number?

26 Q No. I'm referring to
27 the Footnote 3 that -- if we were to go back
28 to Exhibit A, the footnote's clear and it

1 says federal minimum is what that footnote
2 means. And so I'm asking, does that mean
3 that the 24,000 SMYS is a federal minimum
4 number?

5 A Yes. That's cited in the federal
6 code.

7 Q Okay. And then short of
8 the manufacturing bends at the top of this
9 list, we then go to a number 1 and the values
10 start at 30,000 for SMYS; is that correct?

11 A That's what's included here,
12 correct.

13 Q Okay. And that footnote 1 says
14 historical procurement practices sound
15 engineer analysis. Is that the same thing as
16 your PRUPF document used to determine assumed
17 data?

18 A Yes. The Pipeline Resolution for
19 Unknown Pipe Features, PRUPF for short.

20 Q Okay. Now, just so we have an idea
21 of the scope of this assumed data, I sorted
22 on features that have assumed data and summed
23 the footage on the final page of this
24 exhibit. So it shows both total footage and
25 assumed length. And that number indicates
26 that 10 percent of the pipeline 147 currently
27 as updated by PG&E through this OSC has
28 assumed data. Does that sound correct to

1 your knowledge about the line?

2 A That's what this analysis states.
3 Without looking at this in more detail, I'll
4 take your word for it.

5 Q Okay, thank you.

6 Okay. So we have 10 percent
7 assumed data. So if you look through this
8 exhibit, other than the values that are
9 indicated with the 3, is it correct that this
10 lowest SMYS value in this table is 30,000
11 meaning 30,000 psi?

12 A That's what this data shows.

13 Q Okay. Now, if I can turn your
14 attention to Exhibit A to the October 11
15 filing page A-60 about halfway down the page.

16 A I'm sorry. I'm not there yet.

17 Q Sure.

18 A Okay.

19 Q And if you can look at any piece of
20 data with the seam type that says AO Smith
21 SMAW and with an MAOP per design of 330,
22 there are a few of them right in the middle
23 of that page.

24 Let me know when you find that.

25 A I'm there.

26 Q Okay. For any of those lines, is
27 the SMYS value shown 33,000?

28 A Yes, it is.

1 Q If that SMYS value were lower than
2 33,000, what would happen to the MAOP of
3 design that's shown for that feature, would
4 it go higher or lower?

5 A It would be lower.

6 Q And from the safety perspective of
7 say the City of San Carlos, would the use of
8 a SMYS for a piece of pipe where you don't
9 know everything about it, would an MAOP that
10 is higher be more conservative or less
11 conservative than an MAOP of design using
12 a lower SMYS?

13 Want me to rephrase?

14 A Yes, please.

15 Q Is a lower MAOP more or less
16 conservative than a higher MAOP whether that
17 MAOP is based on an assumed SMYS?

18 A Well, it depends. It's relative to
19 the design factors for that respective class
20 location. And again, the values that we're
21 looking at here, and I believe Mr. Rosenfeld
22 addressed this earlier, the MAOP of design is
23 for pipelines installed in 1970 and going
24 forward. And what we've done is we've
25 actually been conservative in our methodology
26 and we've retroactively applied section
27 192.105 as part of the MAOP validation
28 process.

1 Mr. Rosenfeld also stated there's a
2 difference in the code between the design and
3 the operations section of the code. And he
4 made a reference to hoop strengths to ensure
5 if the hoop stress is operating within
6 the respective class which does not use
7 a joint efficiency factor. So in essence --

8 Q Excuse me. I'm sorry. This was
9 a very general question.

10 MR. MALKIN: Your Honor, I'm going to
11 object to the witness being interrupted.
12 I mean, I understand we're not really
13 searching for truth but --

14 ALJ BUSHEY: At least we want some.

15 MR. MALKIN: The witness ought to be
16 allowed to complete the question. We've got
17 one engineer asking another engineer and --

18 ALJ BUSHEY: At a minimum, this will
19 inconvenience the court reporter. So for
20 the convenience of the court reporter,
21 Mr. Roberts, let's let the witness answer.

22 MR. ROBERTS: My apologies.

23 ALJ BUSHEY: So Mr. Singh, do you have
24 anything you wish to add?

25 THE WITNESS: I've stated what I needed
26 to state.

27 ALJ BUSHEY: Thank you.

28 Mr. Roberts.

1 MR. ROBERTS: Q MAOP of design is
2 something that's required by federal
3 standards for determining the MAOP for
4 a line; is that correct?

5 A For pipelines installed in 1970 and
6 going forward.

7 Q Is it a coincidence here that
8 the MAOP of design of 330 happens to
9 correspond to the hoop per R a few columns to
10 the right.

11 A Well, there's no coincidence.
12 The -- what I stated earlier was the MAOP of
13 R is the MAOP of record. And this value is
14 the value that PG&E operated the line to
15 prior to the MAOP validation effort as well
16 as the strength test effort and the actual
17 MAOP of record that we have is 400 psig.
18 The reason why we're showing 330 here is
19 because that's what the limiting factor is
20 based on our current interpretation of
21 the regulatory code.

22 Q This whole Order to Show Cause is
23 taking place because PG&E has to adjust
24 the MAOP for this line down to 330; is that
25 correct?

26 A That is correct, but there's
27 several factors that brought us to the place
28 of where we are today from the starting

1 point.

2 Q Is one of those factors the changed
3 assumed data for line segment 109?

4 A One of the factors is the fact that
5 we identified at the time the leak was done a
6 AO Smith section of pipe which we take on
7 a conservative basis the value of .8. We do
8 an efficiency factor. And that's what
9 reduced the MAOP of design. There's also
10 another key contributing factor and that was
11 the application of a repealed section of
12 the code which was 192.607 and in our current
13 interpretation it states, which is
14 counterintuitive to engineering, that you
15 can't use a more recent strength test to
16 operate one class out. And had this pipeline
17 been tested between '71 and '74 which was
18 the then-applicable section of that code, we
19 would be able to operate one class out. So
20 those two inputs taken together end up
21 reducing the MAOP on the design basis.

22 Q When was section 607 repealed?

23 A My understanding is it was repealed
24 in 1996, maybe earlier, subject to check.

25 Q Okay. Let me try this one other
26 way. Going back to the exhibit that we
27 started on, you have assumed SMYS values in
28 this table which are used to calculate

1 the MAOP of design which is included in, for
2 whatever reason, you have included it in your
3 MAOP certification report and it does show in
4 the summary and it just so happens that
5 the value that you want to run this line at
6 corresponds to the MAOP of design of
7 the segment that that had revised
8 characteristics.

9 The SMYS value that's used there is
10 33,000, which is higher than the federal
11 minimum; is that correct?

12 A That is correct. And that is also
13 consistent with -- I'll point you to
14 a document that we submitted on the record,
15 was I believe a public document March 21 of
16 2011, and that clearly articulated to
17 the Commission our methodology that we're
18 going to use for the MAOP validation effort.
19 The specifications and the MAOP of design is
20 not a substitute for strength testing. We do
21 not use it as such. It's an interim safety
22 measure.

23 And in that March 21, 2011,
24 document, we also clearly stated that we
25 don't have traceable, verifiable, complete
26 specifications with a hundred percent perfect
27 chain of custody for every single
28 specification given that some of these

1 records are 60, 70, 80 years old. And in
2 those cases, we would use conservative
3 assumptions based on PG&E's historical
4 procurement practices.

5 Q Okay. So that's what PG&E said it
6 wanted to use, correct, and it submitted that
7 to the Commission for approval?

8 A That was filed March 21 of 2011,
9 correct.

10 Q So there's a federal standard,
11 192.107 which says if you don't know what
12 kind of pipe is in the ground, the default
13 value unless you've done tensile testing is
14 24,000 psi; is that correct?

15 A That is correct. But it also
16 states what you just read that you don't know
17 anything about that pipe, which is not true
18 in some of these cases. And that's the basis
19 for the conservative assumptions being based
20 on historical procurement practices because
21 we do know something about those lines, i.e.,
22 the diameter of the line, i.e., when was that
23 particular line installed, the fact that it
24 was engineered and constructed under PG&E's
25 standards. So those, that serves as
26 additional information that we use to make
27 and base our engineering analysis on.

28 In those circumstances where we

1 have acquired pipe from third-party operators
2 and we didn't have that information,
3 absolutely we use the federal minimum
4 standard.

5 Q So in other words, according to
6 PG&E's discretion in their document where
7 they design -- where they define their
8 assumption criteria, it allows you to
9 establish, according to what we see in this
10 line, a value no lower than 30,000 psi for
11 a SMYS where you know limited information
12 about the pipe, which is higher than
13 the federal minimum standard of 24,000.

14 So in essence, what it seems that
15 you're saying is that if PG&E feels it knows
16 more about the pipe than nothing, it's
17 justified in coming up with a SMYS for that
18 unknown pipe where you don't know where
19 the pipe came from, let's say you don't know
20 where it was purchased, you don't know when
21 it was purchased, which is the case with 109,
22 that you can use a SMYS value which is higher
23 than the federal minimum which results in an
24 MAOP that is higher than would be calculated
25 using the federal minimum SMYS; is that
26 correct?

27 A That the basis of our analysis and
28 conservative assumptions is exactly as

1 I've stated. And what we do is, if you
2 actually follow the PRUPF, that there's
3 certain specifications associated with
4 diameters of lines and when they were
5 purchased and when they were installed and we
6 use the actual minimum of those values.

7 So our specifications didn't state
8 just 30,000. They stated 30,000, 35,000,
9 42,000, 52,000. But we use the minimum of
10 our procurement standards and material
11 specifications consistent with the
12 methodology that we submitted.

13 MR. ROBERTS: Your Honor, I can finish
14 this line of argument if I could refer
15 directly to the PRUPF, which I did include as
16 a attachment but it is confidential because
17 it's considered proprietary, it sounds like.

18 ALJ BUSHEY: Well, first of all, it's
19 not a line of argument. It's a line of
20 questioning.

21 Second of all, what is it that you
22 want to ask him about? And is it possible to
23 take just a couple sentences out of that and
24 just read that to him?

25 MR. ROBERTS: I can refer to a specific
26 table and ask a question about that.

27 ALJ BUSHEY: Okay. Why don't you do
28 that without saying what's in the table.

1 And for clarity of the record, if
2 you could call it by something other than its
3 acronym, that would be helpful.

4 MR. ROBERTS: I will try.

5 Q So you have a document called
6 Procedure for the Resolution of Unknown Pipe
7 Features, correct, that defines how you
8 populate MAOP calculations where there's
9 limited information; is that correct?

10 WITNESS SINGH: A That is correct.

11 Q And since we're limited in what we
12 can discuss about that, there is a table in
13 that procedure which specifically relates to
14 the diameter of pipe that we have in Line 109
15 which we know is not confidential. It's
16 20-inch diameter. I can tell you it's on
17 page 80 of the document.

18 Just let me know when you're there.

19 A It's page 80 of 89?

20 Q 80 of 89, yes.

21 A Is that page --

22 Q You're there?

23 A I'm there.

24 Q Okay. Is there a value in this
25 table that is as low as the federal minimum
26 standard of 24,000 psi?

27 A No, there's not.

28 Q So PG&E's Procedure for Resolution

1 of Unknown Pipe Features does not allow
2 the assignment of a SMYS at the federal
3 minimum for pipe with certain unknown pieces
4 of data?

5 I'm sorry. I could be clearer if
6 I could refer directly to this, but my hands
7 are a little bit tied.

8 A If you actually review the rest of
9 this document, it makes a distinction
10 between, as I just articulated previously,
11 those pipelines that were engineered by PG&E
12 and constructed at PG&E's oversight versus
13 those pipelines that were acquired by third
14 party operators. In the instances where
15 PG&E's standards do not cover third-party
16 acquisitions, we absolutely defer to
17 the minimums in the federal standard.

18 Q So in the case of 109 where you had
19 reconditioned pipe brought in to use on that
20 line in 1956, if I recall from the record
21 correctly, we don't have verifiable,
22 traceable procurement records for that pipe
23 so we don't really know where it came from,
24 wouldn't it be more appropriate to assign a
25 SMYS of 24,000 to that the same way you would
26 have if it was owned by a third party?

27 A Not in this instance because we
28 have a specification associated with AO Smith

1 which identified that the minimum yield
2 strength that we purchased or specified for
3 AO Smith pipe would be 33,000.

4 And in the specific instance that
5 was actually validated that our assumption of
6 33,000 is more conservative, there's a
7 metallurgical report that we submitted from
8 Anamet in addition to the root cause
9 analysis.

10 We're just looking at the material
11 properties and those material properties
12 conclude two things. First, the actual SMYS
13 of the base metal which we are assuming here
14 of 33,000. It was greater than that number.
15 Subject to check, if my memory serves me
16 right, that was 39,300. And the second piece
17 it validated was we also tested the strength
18 of the base metal versus the strength of
19 the weld. And what it showed was the weld
20 had a greater strength and that actually
21 gives an indication of your joint efficiency
22 factor. It continued and continued to
23 use .8. But for that specific location, we
24 validated through destructive testing and
25 laboratory testing. We did not have to
26 derate a joint efficiency factor nor did we
27 have to derate a yield strength at that
28 specific location. But we will continue to

1 use .8 and 33,000 as a conservative
2 assumption.]

3 Q You say that it's conservative, but
4 you're using a value that is less
5 conservative than the federal minimum
6 standard when it comes to establishing the
7 MAOP; is that correct?

8 WITNESS SINGH: A But lower than the
9 actual value of the validated as part of the
10 destructive examination in the laboratory.

11 Q So then what you're saying it
12 sounds like is that rather than using the
13 default per 192.109, you're establishing a
14 SMYS based on the existence of a tensile test
15 in accordance with Section 2-D of Appendix B.

16 Is that a correct statement?

17 A I'm not following what you just --

18 Q Well, the federal standard says you
19 can use 24,000 or do tensile testing. And
20 that seems to make sense. What I haven't
21 seen is a test report that says a single
22 sample on one portion of Line 109 allows you
23 to make an assumption about all A.O. Smith
24 pipe that was reconditioned and is used in
25 Line 147 throughout the MAOP validation
26 process.

27 So I guess my question is do you
28 have a report that says you have established

1 the SMYS for these segments with assumed
2 values per Section 2-D of Appendix B of
3 Section 192.109?

4 A I believe everything that I've
5 stated is consistent with the MAOP validation
6 methodology that we put forward prior to
7 commencing this work. And we have stated
8 that in those instances where we do not have
9 the specifications for some of the features,
10 that we would base it off PG&E's historical
11 procurement practices. And that's exactly
12 what we've done. Our specifications for A.O.
13 Smith pipe have always been a minimum yield
14 strength of 33,000.

15 And one other aspect I just wanted
16 to clarify is that the MAOP -- and the
17 Commission's been very clear about this -- is
18 only established through strength testing.
19 And that's been done in this instance as
20 well.

21 Q The Commission is a state
22 regulatory body, correct? The CPUC is a
23 state regulatory body?

24 MR. MALKIN: I think we're getting a
25 little --

26 ALJ BUSHEY: Mr. Roberts, at a minimum,
27 that's argumentative.

28 MS. BONE: Well, it's actually leading

1 to a very important point that he wants to
2 make.

3 ALJ BUSHEY: Can we do that in a
4 nonargumentative respectful way? Mr. Singh
5 knows that we're the California Public
6 Utilities Commission, okay?

7 MR. ROBERTS: What seems confusing is
8 that Mr. Singh's response is saying that
9 because we said we're going to do it this
10 way, we did it this way, while it is less
11 conservative than what the federal standard
12 says they should do. And so because the CPUC
13 has approved their request to do it that way,
14 there seems to an argument that it's okay to
15 do something less conservative than the
16 federal minimum standards because they said
17 this is what they were going to do. So
18 that's what I'm trying to clarify.

19 ALJ BUSHEY: That seems to be an
20 accurate summary of Mr. Singh's testimony.

21 MR. ROBERTS: Okay. Q Going back to
22 Exhibit A -- this is the last question --
23 once again, Exhibit A, page 60. And one of
24 those examples with A.O. Smith pipe with a
25 design MAOP of 330.

26 Do you see that?

27 WITNESS SINGH: A I do.

28 Q If instead of using the 33,000 from

1 the procedure for Unknown Pipeline Features
2 document, if instead of using that value, you
3 used the federal minimum of 24,000 psi, would
4 you agree that the MAOP of design would be
5 lower and in fact it would be 241 psi?

6 A If that was a pipe we were
7 installing in 1970, that will be correct.
8 Given the fact that it was a pipeline that
9 was installed in 1957 and if we want to be
10 consistent with the federal regulations, we
11 should go back to Mr. Rosenfeld's statement
12 which was when we're actually calculating the
13 hoop stress of the line, you use Barlow's
14 equation, which was clarified by PHMSA
15 themselves, the acting director at that point
16 in time in 1979, that you would not use joint
17 efficiency factor of 0.8, that you would
18 continue to use the joint efficiency factor
19 of 1.0. That's a clarification that
20 Mr. Rosenfeld cited this morning.

21 Q So with that clarification -- and
22 this is strictly an arithmetic question, not
23 a question of policy or regulations -- if you
24 were to use a SMYS of 2400 in your
25 calculation of design MAOP, would the MAOP of
26 design -- would it be lower?

27 You have a formula. And it's got
28 an input variable. That input variable can

1 be higher or lower. And I'm asking what the
2 output of that equation would be. It seems
3 like an easy yes/no.

4 A So I believe in the question you
5 stated 2400. I just want to clarify and
6 validate did you mean to say 24,000?

7 Q No. If we used a SMYS of 24,000,
8 we would have an MAOP of design significantly
9 less than 330 psi?

10 A For pipeline installed in 1970 or
11 thereafter, you would be correct because the
12 code has to be applied to the relevant time
13 frame that it exists.

14 Q Does the equation change depending
15 on when the pipe was installed? because I'm
16 asking a question about an equation, how you
17 got from one column to another. And I wasn't
18 aware that the calculation -- the Barlow's
19 equation had changed.

20 A So I believe Mr. Rosenfeld
21 clarified this earlier as well. Barlow's
22 equation actually does not include the joint
23 efficiency factors. The design equation
24 referenced in 192.105 does. And that
25 pertains to pipelines installed in 1970 and
26 going forward.

27 And in our conservative
28 methodology, we applied that same design

1 equation retroactively. So we've in essence
2 treated any pipeline that's ever been
3 installed in PG&E's system as a new pipeline.
4 That's how we've done our methodology. And
5 that's conservative methodology.

6 MS. BONE: Your Honor, could you please
7 direct the witness to answer the question?
8 It was a very simple question about if you
9 used 24,000 psi in the calculation, would you
10 have an MAOP of lower than 330? It's an
11 arithmetic calculation.

12 ALJ BUSHEY: Arithmetic doesn't change.
13 And we don't need this witness to do
14 arithmetic for us. If it's simply
15 arithmetic, then the answer is what it is.
16 Okay.

17 So, yes, Mr. Malkin. Nothing.

18 Okay. Do we have further questions
19 for these witnesses? We have a little bit
20 of -- Mr. Roberts, are you done?

21 MR. ROBERTS: No.

22 ALJ BUSHEY: No, you're not done?

23 MR. ROBERTS: No. I have no more
24 questions.

25 ALJ BUSHEY: Okay. Ms. Bone, do you
26 have some questions?

27 MS. BONE: No, I do not.

28 ALJ BUSHEY: Okay. Ms. Paull,

1 questions?

2 MS. PAULL: No.

3 ALJ BUSHEY: Okay. We've got a little
4 bit of time. Does somebody have a short
5 series of questions that they'd like to get
6 started with? No one has any questions for
7 these witnesses?

8 MR. MEYERS: We have questions.

9 MS. STROTTMAN: We have questions. Do
10 you want me to start?

11 ALJ BUSHEY: Yeah, we have got 15 or 20
12 minutes. Is there something that we can get
13 taken care of? We don't want to waste one
14 moment.

15 MR. MEYERS: Before we get to that,
16 your Honor, if I can ask, what's the
17 resolution of this issue of coming back in a
18 workshop context? Are we likely to come back
19 here to finish our questions tomorrow
20 morning?

21 ALJ BUSHEY: Or we can -- we'll be off
22 the record.

23 (Off the record)]

24 ALJ BUSHEY: We'll be back on the
25 record.

26 While we were off the record we
27 discussed the schedule for the remaining
28 cross-examination. We have decided that we

1 will reconvene for evidentiary hearings,
2 cross-examination of these witnesses and an
3 additional witness at 9:00 a.m. on Wednesday,
4 November 20th.

5 In addition, PG&E's witnesses will
6 arrange for a clarification session with DRA
7 and any other party that's interested in
8 participating regarding the issues raised in
9 DRA's testimony tomorrow.

10 So is there anything further to come
11 before the Commission at this time?

12 (No response)

13 ALJ BUSHEY: Hearing none, then this
14 evidentiary hearing is continued to November
15 20th at 9:00 a.m., and the Commission is
16 adjourned. Thank you.

17 (Whereupon, at the hour of 4:35
18 p.m., this matter having been continued
19 to 9:00 a.m., November 20, 2013, at
San Francisco, California, the
Commission then adjourned.)

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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE
STATE OF CALIFORNIA

Order Instituting Rulemaking on the
Commission's Own Motion to Adopt New
Safety and Reliability Regulations
for Natural Gas Transmission and
Distribution Pipelines and Related
Ratemaking Mechanisms.

Rulemaking
11-02-019

CERTIFICATION OF TRANSCRIPT OF PROCEEDING

I, Alejandrina E. Shori, Certified Shorthand Reporter No. 8856, 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 the above-captioned matter on November 18, 2013.

I further certify that I have no interest in the events of the matter or the outcome of the proceeding.

EXECUTED this 18th day of November, 2013.

Alejandrina E. Shori
CSR No. 8856

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE
STATE OF CALIFORNIA

Order Instituting Rulemaking on the
Commission's Own Motion to Adopt New
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Rulemaking
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I further certify that I have no interest in the events of the matter or the outcome of the proceeding.

EXECUTED this 18th day of November, 2013.

Thomas C. Brenneman
CSR No. 9554

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE
STATE OF CALIFORNIA

Order Instituting Rulemaking on the
Commission's Own Motion to Adopt New
Safety and Reliability Regulations
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Rulemaking
11-02-019

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I further certify that I have no interest in the events of the matter or the outcome of the proceeding.

EXECUTED this 18th day of November, 2013.

Michael J. Shintaku
CSR No. 8251

BEFORE THE PUBLIC UTILITIES COMMISSION
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STATE OF CALIFORNIA

Order Instituting Rulemaking on the
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Rulemaking
11-02-019

CERTIFICATION OF TRANSCRIPT OF PROCEEDING

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I further certify that I have no interest in the
events of the matter or the outcome of the proceeding.

EXECUTED this 18th day of November, 2013.

Gayle Pichierri
CSR No. 11406