

IN THE UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF FLORIDA

ANDREA ROSSI AND :  
LEONARDO CORPORATION, :  
Plaintiffs, :  
vs. : Case No.  
THOMAS DARDEN, ET AL., : 1:16-CV-21199-CMA  
Defendants. :

CONFIDENTIAL VIDEOTAPED DEPOSITION OF  
RICK A. SMITH, P.E.

February 27, 2017  
8:51 a.m.  
VERITEXT LEGAL COURT REPORTING  
41 South High Street  
Suite 210  
Columbus, OH 43215

Reported by: Tracy J. Schell

EXHIBIT "D"

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Page 2

APPEARANCES

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- - -

ALSO PRESENT:

Richard D. Stevens, Videographer

- - -

CONFIDENTIAL

Page 3

Monday Morning Session

February 27, 2017

8:51 a.m.

- - -

STIPULATIONS

- - -

It is stipulated by and between counsel for the respective parties herein that this deposition of RICK A. SMITH, P.E., a Witness herein, called by the Plaintiffs under the statute, may be taken at this time and reduced to writing in stenotypy by the Notary, whose notes may thereafter be transcribed out of the presence of the witness; and that proof of the official character and qualifications of the Notary is waived.

- - -

CONFIDENTIAL

Page 4

## I N D E X

- - -

WITNESS	PAGE
RICK A. SMITH, P.E.	
BY MR. ANNESSER:	7

- - -

EXHIBIT	DESCRIPTION	PAGE
Exhibit 1	Plaintiff's Notice of Taking Videotaped Deposition Duces Tecum	8
Exhibit 2	Defendants' Objections to Plaintiffs' Notice of Taking Videotaped Deposition and Requests for Production	9
Exhibit 3	Handwritten Document Entitled Rick Smith	11
Exhibit 4	Resume of Rick A. Smith, P.E.	29
Exhibit 5	Publication: Safety on Trial, 75-Ton Bottle Rocket Case Study	62
Exhibit 6	Publication: Winter Storm Warning, Elementary School Boiler Malfunctioned after Ice Storm	64
Exhibit 7	Expert Report of Rick A. Smith, P.E.	68
Exhibit 8	Signed Retainer Agreement	96
Exhibit 9	Thermodynamics Textbook by Wark	148
Exhibit 10	Photograph of Building	191

CONFIDENTIAL

Page 5

1	EXHIBIT	DESCRIPTION	PAGE
2			
3	Exhibit 11	E-Cat MW1 Energy Plant In	199
4		Miami, Energy Multiple	
5	Exhibit 12	Pipe Steam Carrying Capacity	274
6		Spreadsheet	
7	Exhibit 13	Power Readings	322
8	Exhibit 14	Thermodynamics for Engineers,	329
9		Second Edition, Kaufui	
10		Vincent Wong	
11	Exhibit 15	Expert Disclosure of Prof.	331
12		Dr. Kaufui V. Wong	
13	Exhibit 16	Miscellaneous Documents from	339
14		Witness' Case File	
15	Exhibit 17	Copies of Two CDs	340
16	Exhibit 18	Two Memory Sticks	341
17			
18			
19			
20			
21			
22			
23			
24			
25			

CONFIDENTIAL

Page 6

1 THE VIDEOGRAPHER: We're on the record.  
2 Please note -- notice that the microphones are  
3 sensitive and may pick up whispering and private  
4 conversations. Please turn off all cell phones and  
5 place them away from the microphones as they can  
6 interfere with the deposition audio. Recording will  
7 continue until all parties agree to go off the record.

8 My name is Richard D. Stevens, representing  
9 Veritext. The date today is February 27, 2017. The  
10 time is approximately 0851.

11 This deposition is being held at Veritext,  
12 located at 41 South High Street, Suite 210, Columbus,  
13 Ohio 43215. It's being taken by counsel for the  
14 plaintiff. The caption of this case is Andrea Rossi,  
15 et al. versus Thomas Darden, et al. This case is being  
16 held in the United States District Court, Southern  
17 District of Florida, Case No. 1:16-CV-21199. The name  
18 of the witness is Rick A. Smith, P.E.

19 At this time, the attorneys present in the  
20 room will identify themselves and the parties they  
21 represent.

22 MR. ANNESSER: John Annesser on behalf of the  
23 plaintiffs, Dr. Andrea Rossi and Leonardo Corporation.

24 MR. LOMAX: Christopher Lomax on behalf of  
25 the defendants, Thomas Darden, John T. Vaughn, Cherokee

1 Investment Partners, LLC, Industrial Heat and IPH  
2 International BV.

3 THE VIDEOGRAPHER: Our court reporter, Tracy  
4 J. Schell, representing Veritext, will swear in the  
5 witness and we can proceed.

6 - - -

7 P R O C E E D I N G S

8 - - -

9 RICK A. SMITH, P.E.

10 being by me first duly sworn, as hereinafter certified,  
11 testifies and says as follows:

12 EXAMINATION

13 BY MR. ANNESSER:

14 Q. Good morning, sir. As I just said, my name  
15 is John Annesser, and I represent the plaintiffs in  
16 this matter.

17 Can I ask you to please state your full name  
18 for the record?

19 A. Yes. It's Rick, R-I-C-K, A. Smith,  
20 S-M-I-T-H.

21 Q. What does the A stand for?

22 A. A.

23 Q. Just A?

24 A. That's it.

25 Q. No middle name?

CONFIDENTIAL

Page 8

1 A. No, sir.

2 Q. What is your home address, please?

3 A. 7400 Brown Road, Ostrander,  
4 O-S-T-R-A-N-D-E-R, Ohio 43061.

5 Q. And your business address, sir?

6 A. Is the same, second floor.

7 Q. You work out of your home?

8 A. I do.

9 Q. Okay. Who's your current employer?

10 A. Applied Thermal Engineering, Inc.

11 - - -

12 (Deposition Exhibit 1 marked.)

13 - - -

14 Q. Sir, I'm going to show you what I have marked  
15 as Exhibit 1. I apologize, I don't have any copies, so  
16 I'll hand that to counsel first.

17 Sir, have you seen this document before?

18 A. Yes, I have. Hold on one second. Yeah, it  
19 looks like the subpoena for my appearance here today.

20 Q. Okay.

21 A. Yes, sir.

22 Q. And have you reviewed that document prior to  
23 today?

24 A. Yes, sir.

25 Q. That document requests you bring certain



CONFIDENTIAL

Page 9

1 documents with you.

2 Have you brought those with you today?

3 A. I have.

4 Q. Now, specifically within Exhibit 1 -- let me  
5 ask it this way: Are there any documents identified in  
6 Exhibit 1 that you did not bring with you today?

7 A. I went through this a couple times, and to  
8 the best of my knowledge, I think I'm in full  
9 compliance with this. I mean, I may have inadvertently  
10 left something off, but I did try to be 100 percent  
11 compliant with it, sir.

12 Q. Did you instruct anyone to prepare objections  
13 on your behalf to the requests contained within Exhibit  
14 1?

15 A. No.

16 Q. So you're unaware of any objections that have  
17 been asserted on your behalf?

18 A. No, sir, I'm not. I am unaware, that's  
19 correct.

20 - - -

21 (Deposition Exhibit 2 marked.)

22 - - -

23 Q. I'm going to show you, sir, what I will mark  
24 as Exhibit Number 2.

25 Have you seen this document before, sir?

CONFIDENTIAL

Page 10

1 A. Not until just now, no, sir.

2 Q. Okay. I'm not going to ask you to read the  
3 whole thing.

4 A. Thank you.

5 Q. But I will ask you, has anyone instructed you  
6 to bring certain documents pursuant to any objections  
7 that have been made?

8 A. No, sir.

9 Q. Okay. Thank you.

10 Have you ever had your deposition taken  
11 before, sir?

12 A. Yes, sir, I have.

13 Q. How many times?

14 A. Six.

15 Q. And on what occasions were your deposition  
16 taken? Well, let me ask you this way: Within the last  
17 ten years, how many times have you been deposed?

18 A. Well, if I may, what I've done is in  
19 anticipating these questions, I've come up with kind of  
20 a cheat sheet, if you will, just a summary of what I've  
21 done, if that would be helpful in expediting things.

22 Q. Okay.

23 A. I will give you one first. I brought a whole  
24 lot of copies not knowing how many attorneys would be  
25 here.

CONFIDENTIAL

Page 11

1                   So in the last ten years, I don't know. In  
2                   total, I've had 21 depositions. Today will be number  
3                   22.

4                   Q.    Okay. So you've testified. Is that in  
5                   court?

6                   A.    You said testimony. Yes, sir, six times,  
7                   correct.

8                   Q.    So it says down at the bottom, total ATE  
9                   engagements?

10                  A.    Yeah, that's the total -- the number of jobs  
11                  I've had since I started in the business.

12   - - -

13   (Deposition Exhibit 3 marked.)

14   - - -

15                  Q.    Okay. Well, let me ask you about that. I'm  
16                  going to mark this document as Exhibit 3 for the  
17                  record.

18   Do you have a copy in front of you, sir?

19                  A.    I do, yes.

20                  Q.    Okay. I'd like to mark the one that you're  
21                  referring to --

22                  A.    Absolutely. I'll give you the original.

23                  Q.    -- just to keep the record straight. Thank  
24                  you.

25   So you have testified in court six times?

CONFIDENTIAL

Page 12

1 A. Correct.

2 Q. When is the last time you gave testimony in  
3 court?

4 A. Okay. Hold that thought for a moment. Let's  
5 see here. Unfortunately, I'm looking now at my  
6 databases, I've neglected to update some of the  
7 testimony dates, but I believe -- I believe it was two  
8 years ago -- I'm sorry. Here we go. Yeah, okay, I see  
9 what I did. Never mind. Hold that thought for a  
10 moment.

11 Okay. That would be on the 25th of October,  
12 2013.

13 Q. That's the last time you gave courtroom  
14 testimony?

15 A. Yes, sir.

16 Q. Okay. When was the last time you gave  
17 deposition testimony?

18 A. Okay.

19 Q. You can tell me roughly. I don't need the  
20 exact date.

21 A. I think it was about -- I think it was about  
22 the same time frame. I believe you only requested the  
23 last four years for this, at least that's what I was  
24 told.

25 Oh, I'm sorry, my last dep, no, my bad, it

CONFIDENTIAL

Page 13

1 was April 30, 2015. It actually was in this building,  
2 but not here.

3 Q. 2015?

4 A. Yes, sir. Yeah.

5 Q. What was the nature of that case?

6 A. That was a boiler case. The title of it was  
7 Young versus FirstEnergy. And a gentleman was working  
8 inside a large deaerator in a power plant up in  
9 Conesville, Ohio, and some hot water burped into the  
10 tank when he was working in it, aggravated a medical  
11 condition he had.

12 So the issue was, was this vessel properly  
13 isolated for people to be working inside it.

14 Q. Does that -- does the subject matter of your  
15 testimony in that case have anything to do with your  
16 testimony in this case; are there similarities that you  
17 would draw to?

18 A. No.

19 Q. Sir, have you ever been found by a court of  
20 competent jurisdiction to be an expert?

21 A. Yes.

22 Q. And what court is that?

23 A. Well, obviously the courts where I've  
24 testified. Let's see, one in Alaska; Delaware, Ohio.  
25 Let's see, one was in Akron.

CONFIDENTIAL

Page 14

1 Q. Is that Delaware and Ohio?

2 A. No. The City of Delaware, Ohio. About 20  
3 miles due north of here. Go straight up High Street.

4 Let's see, Fairbanks, Alaska, I mentioned  
5 that. Saskatoon, Canada. And I'm drawing a blank on  
6 the other ones.

7 But I have been qualified as an expert in  
8 several jurisdictions, yes, sir.

9 Q. Have you ever been qualified as an expert in  
10 the federal court?

11 A. This is the first -- this is the first time,  
12 I believe, in a federal issue like this, yes.

13 Q. Now, have you ever been offered as an expert  
14 in a federal court before?

15 A. Not that I recall, no, sir.

16 Q. Sir, were you ever offered as an expert in a  
17 case titled Bowe, B-O-W-E v. Conrail.

18 A. Yes, I was.

19 Q. Okay. And that was --

20 A. Mr. Hackman.

21 Q. Were you offered as an expert in that case?

22 A. I was.

23 Q. Sir, isn't it true that you were denied as an  
24 expert by the court pursuant to the Daubert standard?

25 A. I was not aware of that up until now. I know

CONFIDENTIAL

Page 15

1 there were some issues with that case that I found out  
2 in questioning in other depositions. I did not know  
3 that I was Dauberted in that case. So, no, that's news  
4 to me.

5 Q. Did you ever testify in that case, sir?

6 A. I did give a deposition, yes, I did, but I  
7 did not testify in court.

8 Q. And you never asked why?

9 A. No.

10 Q. Are there any other courts, sir, that have  
11 found that you did not satisfy the Daubert standards or  
12 any other expert standard --

13 A. I do have a --

14 MR. LOMAX: Objection to the form of the  
15 question.

16 Q. -- that you're aware about?

17 A. I did have a Daubert challenge in a case in  
18 Oklahoma City. And my understanding is the challenge  
19 was that the attorney that I was working for did not  
20 give me enough information to make a proper judgment.

21 And interesting -- oh, I'm sorry, go ahead.

22 Q. I'm sorry. What was the name of that case?

23 A. Oh, I don't remember, but it was in Oklahoma  
24 City.

25 Q. When was it, sir?

CONFIDENTIAL

Page 16

1 A. Seven years ago time frame.

2 Q. Is there any way that I could find that  
3 information?

4 A. Yeah. The -- I'm pretty sure the attorney  
5 that did the Daubert challenge was a guy named Steve  
6 McLaughlin. He's in White Plains, New York. I forget  
7 the name of the firm. But I've actually worked for him  
8 on occasion, too, so -- but I forget the name of his  
9 firm. It was kind of hard names to remember.

10 Q. Is there a reason that case was not disclosed  
11 as part of your expert witness report?

12 A. I don't follow your question.

13 Q. Is there a reason you did not disclose that  
14 as a case in which you --

15 A. Outside the time frame.

16 Q. What time frame?

17 A. I understand I had a four-year window of  
18 disclosure.

19 Q. Who gave you that understanding?

20 A. In looking through the -- well, maybe it was  
21 Ms. Handleman [sic] who said they're looking for the  
22 last four years. And I think in looking through the  
23 subpoena, it might have been the last six. It might  
24 have been Tim, but I tried -- I did try to comply with  
25 the subpoena.



CONFIDENTIAL

Page 17

1 Q. And are you aware, sir, that in that case,  
2 you were not accepted under the Daubert standard as an  
3 expert witness?

4 A. No, I'm not aware of that either. This is  
5 news to me this morning.

6 Q. Are there any other cases, sir, which  
7 you've --

8 A. In fact -- in fact, I was told that I did  
9 survive the Daubert challenge.

10 Q. Who told you that?

11 A. I believe it was the counselor I was working  
12 for.

13 Q. Did you ever testify in that case?

14 A. In a deposition. No testimony. I believe  
15 that case did settle out of court.

16 Q. Has there been any other court or arbitration  
17 panel that has found that you did not satisfy the  
18 standards either pursuant to Daubert or any other  
19 standard that you're aware about for expert witnesses?

20 A. Not that I'm aware of.

21 Q. How many times, sir, have you been retained  
22 as an expert witness?

23 A. Roughly 85. I'm sorry. 82. My bad. 82.

24 Q. How long have you been working with the legal  
25 industry as an expert?

CONFIDENTIAL

Page 18

1 A. Since the 1989, 1990 time frame.

2 Q. Sir, I'd like to ask you about your current  
3 employment.

4 You said you were with Applied Thermal  
5 Engineering, Inc.?

6 A. Correct.

7 Q. Okay. Who owns that company?

8 A. I do.

9 Q. How many employees does Applied Thermal  
10 Engineering, Inc., have?

11 A. Two.

12 Q. Who are the employees?

13 A. Myself and my wife.

14 Q. Is your wife a licensed engineer?

15 A. No. She does -- she handles a lot of the  
16 administrative work, marketing, sales, the insurance,  
17 all the administrative stuff.

18 Q. What is the nature of the business of Applied  
19 Thermal Engineering, Inc.?

20 A. It is an engineering consulting business.

21 Q. And what does the company do under the --  
22 under the heading of engineering consultant?

23 A. We're primarily a power plant and utility,  
24 industrial power plants, industrial utilities. And  
25 when I'm doing consulting work, I do some design --

CONFIDENTIAL

Page 19

1 assist other engineering companies with design work.  
2 Obviously I do expert witness work. I do a fair amount  
3 of teaching. I do boiler and steam system surveys.  
4 And then I do P.E. certifications for boilers, hot oil  
5 boilers that go on vessels that the Coast Guard has to  
6 certify.

7 Q. What percentage of the work done by Applied  
8 Thermal Engineering, Inc., relates to expert testimony  
9 in lawsuits or other cases within the legal practice?

10 A. If you do the math, 82 in the 427 is about  
11 one-fifth numerically.

12 Q. Now, that's since the inception of Applied  
13 Thermal Engineering?

14 A. Yes, sir.

15 Q. Okay. Do you mind if I call it ATE just for  
16 short?

17 A. Please do.

18 Q. Okay. What about within the last year? In  
19 the last year, what percentage of your work has been in  
20 relation to expert --

21 A. Very little. Last year was one of the worst  
22 years I've had. I think I only had one case come in at  
23 the very beginning of the year. I doubt if it's going  
24 to go anywhere. I did a site visit in Fort Wayne and  
25 talked to the attorney sometime in the fall and she

CONFIDENTIAL

Page 20

1 doesn't think it's going to go anywhere, so that was  
2 it.

3 And now this year, though, the phone started  
4 ringing. I picked up this case obviously late last  
5 year. Well, I've signed the documents early this year.  
6 And I've got what? I've got two pending and then  
7 another one. So I think I've picked up like four,  
8 maybe five cases already this year.

9 So it's very, very sporadic. Some years,  
10 very, very little. Other years, a lot.

11 Q. Okay. So of your work this year, being 2017,  
12 what percentage of your work is relating to you giving  
13 expert testimony?

14 A. Right now I'd say it's in the three-quarters  
15 to 80 percent range right now.

16 Q. What percentage of your work is relating this  
17 year to boiler surveys?

18 A. Nothing yet.

19 Q. Okay. And what percentage of your work this  
20 year is assisting with design work for other  
21 engineering firms?

22 A. Most of the balance. I have an ongoing  
23 project in Texas, and there's another one coming up in  
24 Texas that will start later in the week, so that's most  
25 of the balance.

CONFIDENTIAL

Page 21

1 Q. Okay. And what about the percentage of your  
2 work this year that deals with P.E. certifications?

3 A. Oh, that now, let's see, I've done two this  
4 year, so I don't know what the percentage would be. I  
5 finished one. I've got one on my desk that I need to  
6 do tomorrow.

7 Q. What percentage of your income is derived  
8 from -- this year, from the work that you've done as an  
9 expert witness?

10 A. Well, I -- actually zero, because I haven't  
11 done any invoicing this year at all yet, so -- and that  
12 number, the income number is also as sporadic as the  
13 number of actual engagements.

14 Q. Is there a reason you haven't invoiced yet?

15 A. Just haven't gotten to it. I've been very,  
16 very busy.

17 Q. Doesn't your wife do those things for you?

18 A. No. I do the invoicing. She and I have  
19 different standards on math and things like that. I'm  
20 a little more punctilious about it than she is. Okay,  
21 a lot.

22 Q. We may have to remove that from the record.

23 Sir, have you been affiliated, prior to your  
24 engagement in this case, with any of the parties to  
25 this case?

CONFIDENTIAL

Page 22

1 A. No, sir.

2 Q. Who first contacted you with respect to this  
3 case?

4 A. Mr. Bell.

5 Q. And who is Mr. Bell?

6 A. Bernie Bell. He's now with Miller Friel. He  
7 was with Jones Day at the time he contacted me.

8 Q. And before we get into that, what is your job  
9 title and job duties at ATE?

10 A. I am the president and basically I run the  
11 company. I do all the engineering, all the technical  
12 work, I do the billing and the invoicing and paying the  
13 bills and such, so --

14 Q. Do you report to anyone?

15 A. No.

16 Q. Other than your wife?

17 A. No, sir.

18 Q. Does anyone report to you?

19 A. She does, in a manner of speaking.

20 Q. Now, when you're working on cases other than  
21 expert witness-type engagements such as the consulting  
22 you do with respect to design work, what do you charge  
23 your hourly rate at?

24 A. Normally I'm at 275 to -- 250 to 275 for  
25 discovery work. In this case, it's 275 portal to

CONFIDENTIAL

Page 23

1 portal. With depositions, it's 375 an hour with a  
2 four-hour minimum. \$5,000 retainer. And then expenses  
3 I just pass through.

4 Q. Okay. But my question was specifically other  
5 than expert --

6 A. Oh, I mis- --

7 Q. -- when you act, for example, to assist other  
8 engineers with design work.

9 A. Oh, my bad. I misunderstood your question.  
10 With -- with it being the utilities, I bill  
11 them at a hundred an hour.

12 Q. What about P.E. certifications?

13 A. That's a flat rate of a thousand dollars per  
14 certification.

15 Q. How long does a certification like that take?

16 A. I've got it to the point now where I can  
17 knock one out in a couple hours. I've automated it.

18 Q. What about for -- let me ask you, why such a  
19 difference between \$100 an hour that you charge for  
20 assisting in design work and the 250 to 275 you charge  
21 for discovery or 375 for testimony?

22 A. It's just a free market system. If attorneys  
23 are willing to pay that, I'm willing to charge it. If  
24 I could get more, I would.

25 Q. Have you ever accepted less?

CONFIDENTIAL

Page 24

1           A.    In the earlier years, yes.  You know, my  
2   rates have obviously moved up with time and inflation.

3           Q.    Do you have any document retention policies  
4   at ATE with respect to matters in litigation in which  
5   you've been approached as an expert witness?

6           A.    Typically, all -- all of my documents, after  
7   ten years, I discard them.

8           Q.    Okay.  Do you maintain the documents that you  
9   receive through the course of the litigation?

10          A.    No.  Again, after ten years, everything goes.

11          Q.    I'm asking you through the course of the  
12   litigation, while the litigation is pending, do you  
13   maintain all of the documents that you've received from  
14   other witnesses, counsel or otherwise?

15          A.    Oh, yes.

16          Q.    So you brought your entire file with you  
17   today?

18          A.    Yes.  Now, it's not the -- like the travel  
19   invoices and things like that that are not germane, and  
20   the technical issues, those are sitting at home in a  
21   file.  Other than that, everything should be here.

22          Q.    Sir, are you a member of any professional  
23   organizations?

24          A.    I am.

25          Q.    What organizations?



CONFIDENTIAL

Page 25

1           A.    ASME, American Society of Mechanical  
2           Engineers, and NFPA, National Fire Protection  
3           Association.

4           Q.    Okay. Now, as for the ASME, what do you need  
5           to do to become a member of that organization?

6           A.    I think they'll let, you know, a lot of  
7           people, almost anybody in as like an associate member.  
8           But to be a regular member, you have to be a mechanical  
9           engineer, which I am.

10          Q.    So as long as you're a mechanical engineer,  
11          you're given admittance as a member?

12          A.    As long as you pay the money, yes.

13          Q.    Of course. The world does not spin without  
14          money.

15                   What about the NFPA?

16          A.    I'm probably an affiliate member, because  
17          I -- and, again, I don't know the exact membership  
18          standards. I was in a while back and then I've been  
19          doing a lot of -- because of the design work, I decided  
20          to rejoin so I could get current on some of the codes  
21          that are applicable to what we're doing.

22                   But I think it's if you're even interested in  
23          fire safety, they'll let you join. So typically it's  
24          like firefighters, fire marshals, engineers, code  
25          officials, people that work in that -- and even

CONFIDENTIAL

Page 26

1 electricians. The National Electrical Code is an NFPA  
2 code.

3 So a long answer to a short question,  
4 probably about anyone.

5 Q. Okay. Are there any tests or exams that you  
6 have to undertake to become a member of either one of  
7 those organizations?

8 A. No, sir.

9 Q. Are there any continuing education  
10 requirements to be a member?

11 A. No.

12 Q. As long as you pay the fees, you're in good  
13 standing?

14 A. That would be correct.

15 Q. Sir, I'd like to ask you a little bit about  
16 your education starting with your undergraduate degree  
17 from, I believe, Purdue?

18 A. Correct.

19 Q. When did you begin your undergraduate degree  
20 at Purdue?

21 A. In 1972.

22 Q. And did you -- well, what was your major or  
23 area of concentration?

24 A. Mechanical engineering.

25 Q. Was that your major or concentration from the

CONFIDENTIAL

Page 27

1 very beginning?

2 A. Yes, sir.

3 Q. Did you ultimately receive a degree from  
4 Purdue?

5 A. I did.

6 Q. What degree was that?

7 A. BSME, Bachelor's of Science in mechanical  
8 engineering.

9 Q. Was there any area of specialization, or was  
10 that a general degree?

11 A. It was a general mechanical degree.

12 Q. Okay. As part of your coursework at Purdue,  
13 did you take any courses in thermodynamics?

14 A. I did.

15 Q. Okay. And what courses did you take?

16 A. Thermody- -- basic thermodynamics, one  
17 semester series.

18 Q. So just one semester worth?

19 A. Yes.

20 Q. Did you take any courses on nuclear  
21 engineering?

22 A. No.

23 Q. Did you take any courses on heat transfer for  
24 power plants?

25 A. Yes.

CONFIDENTIAL

Page 28

1 Q. For what courses?

2 A. I don't -- I don't remember the course  
3 number, but I did take a heat transfer course. And I  
4 believe as an elective, I took -- yeah, I did take a  
5 power plant course also.

6 Q. Okay. The heat transfer course, what areas  
7 did that course cover?

8 A. General heat transfer, convection,  
9 conduction, radiation, heat exchangers.

10 Q. In your undergrad, did you receive any  
11 honors, prizes or fellowships?

12 A. I did.

13 Q. Okay. What did you receive?

14 A. It's called Pi Tau Sigma, and it was based on  
15 grade point averages. For a couple semesters I did  
16 pretty well and became a member.

17 Q. Are you still a member of that organization?

18 A. As far as I know.

19 Q. And does that organization have any  
20 continuing education or do you have any continued  
21 involvement with that organization?

22 A. No, sir.

23 Q. Pi Tau Sigma, is that like a standard Greek  
24 organization?

25 A. Yeah. It's mechanical engineering honorary.

CONFIDENTIAL

Page 29

1 Q. Now, while you were in undergrad, did you do  
2 any teaching work or graduate -- or, I'm sorry,  
3 assistant work in undergrad? I'll ask also about  
4 graduate later, but --

5 A. No.

6 Q. Okay. So you graduated in 1976.  
7 What did you do then?

8 A. I went to work for -- if I can get my CV out,  
9 I can give it to you. In fact, would you like the CV  
10 now?

11 Q. Yes.

12 A. All righty.

13 Q. And, sir, if I can borrow your copy, we will  
14 mark it as Exhibit 4 to this deposition. Thank you.

15 - - -

16 (Deposition Exhibit 4 marked.)

17 - - -

18 A. Uh-huh. So your question again, please?

19 Q. After you graduated from Purdue undergrad  
20 with a BSME in 1976, what did you do after that?

21 A. I went to work for Armour-Dial in Montgomery,  
22 Illinois.

23 Q. What was Armour-Dial?

24 A. They made Dial soap.

25 Q. Okay. What did you do for that company?

CONFIDENTIAL

Page 30

1           A.    I was a project engineer and then a  
2 maintenance supervisor.

3           Q.    Okay. Did you do anything dealing with  
4 thermodynamics or heat transfer?

5           A.    Generally speaking, everything I have done  
6 relate -- boilers are heat exchangers, air conditioners  
7 are heat exchangers, you know, regular heat -- heat  
8 exchangers -- heat exchangers are heat exchangers.  
9 Forgive me for being redundant. So most every -- no, I  
10 shouldn't say everything I've done, but a large, large  
11 percentage that I've done does involve heat exchangers.  
12 That's just the nature of the business in utility work.

13          Q.    And specifically, what was your  
14 responsibility with respect to heat exchangers in that  
15 position?

16          A.    Again, it's been so long, I don't recall  
17 specifically, but, you know, working with plant  
18 equipment, which do involve heat exchange.

19                I do remember one project. I don't know if  
20 it was ever resolved. But we were trying to heat up  
21 soap with steam. And for some reason, the heat  
22 exchanger was plugging and fouling too much. And I got  
23 a little bit involved with that, and then it got moved  
24 over to another area. So I did -- that was  
25 specifically with a shell and tube heat exchanger.

CONFIDENTIAL

Page 31

1 Q. Was there anything during your course of  
2 employment at Armour-Dial that relates to or is similar  
3 to the matters at issue in this case?

4 A. Well, it was -- and, again, in the general  
5 area of heat exchange, yeah, because, you know, we're  
6 talking -- we're going to be talking about heat  
7 exchangers today. You know, boilers are -- again,  
8 boilers are heat exchangers, so yeah.

9 Q. So only to the extent that you consider them  
10 both heat exchangers, that you worked with heat  
11 exchangers in that position with Armour-Dial and you  
12 believe that the issues in this case pertain to a heat  
13 exchanger?

14 A. Heat -- did you say a or -- you know, you  
15 said a heat exchanger or not -- I guess I'm not -- help  
16 me out. I'm not following your question exactly.

17 Q. Well, let me -- let me make it very clear and  
18 simple for you.

19 I want to know whether you plan on testifying  
20 that any of your work at Armour-Dial directly pertained  
21 to the type of work that you were doing in this case.

22 A. I would say yes.

23 Q. Okay. And what specifically pertained --  
24 pertains to the work in this case that you've done?

25 A. Well, working with a heat exchanger at

CONFIDENTIAL

Page 32

1 Armour-Dial and working with their heat exchangers in  
2 the boilers, chillers, that type of equipment.

3 Q. What were your job duties and  
4 responsibilities with respect to working with the heat  
5 exchanger?

6 A. I thought I just told you.

7 Q. Well, you said that you had worked on one  
8 project where they were trying to heat up soap --

9 A. Uh-huh.

10 Q. -- and there was an issue with the heat  
11 exchanger?

12 A. Right.

13 Q. What was your specific job duty or  
14 responsibility with respect to that project?

15 A. I was doing the investigation.

16 Q. What did you do to perform that  
17 investigation?

18 A. It's been almost 40 years. I don't remember  
19 exactly.

20 Q. Okay. So you're not relying upon the work  
21 that you did in that position to formulate your  
22 opinions that you've given in this case?

23 A. Not true. That's part of my knowledge base.  
24 Even though I don't remember the specifics, it's part  
25 of my accumulating knowledge base. So, yeah, I do



CONFIDENTIAL

Page 33

1 consider it relevant.

2 Q. Okay. So my question is, what did you learn  
3 in that position or what did you do in that position  
4 that you have applied in this case?

5 MR. LOMAX: Objection to the form of the  
6 question.

7 Q. What -- what knowledge did you obtain there  
8 in that position that you have now used and applied to  
9 your opinions and findings in this case?

10 A. Well, on the -- on the basic design of a  
11 proper heat exchanger, the basic construction of a  
12 proper steam heat exchanger.

13 Q. But you can't give me specifics?

14 A. Isn't that specific enough?

15 Q. Not for me.

16 A. Sorry.

17 Q. Okay. Sir, after that, I believe your resume  
18 says that you left that position in July 1977?

19 A. Correct.

20 Q. What did you do next?

21 A. I went to work for -- went back to Purdue,  
22 worked for the planning and engineering department. I  
23 had worked there as a student, and then I went back as  
24 an engineer. And then I was a project engineer mostly  
25 working on, like it says, retrofit heating,

CONFIDENTIAL

Page 34

1 ventilating, air-conditioning systems on campus.

2 Q. Did that position involve working with any  
3 type of power generation plants?

4 A. I worked a little bit in the power plants.  
5 In fact, I was slotted to become the superintendent of  
6 the power plant.

7 Q. Did you ever become the superintendent of the  
8 power plant?

9 A. No, sir, I did not.

10 Q. Okay. And, sir, you said you worked a little  
11 bit with the power plant.

12 What kind of power plant was that?

13 A. It was a coal-fired heating power plant. I  
14 can't recall if we did any electricity generation, but  
15 it was definitely a heating plant for the -- most of  
16 the entire campus.

17 Q. What was your job duties and responsibilities  
18 with respect to that plant?

19 A. Pretty much just starting to learn since I  
20 hadn't been out of school that long, starting to, you  
21 know, work with them and, you know, get more into the  
22 details of it and understand how a power plant works.

23 Q. Let me skip ahead and then we're going to  
24 come back to the rest of your employment.

25 Did you ever go back to school for a

CONFIDENTIAL

Page 35

1 postgraduate degree?

2 A. I did.

3 Q. Okay. And where was that?

4 A. The Ohio State University.

5 Q. And what degree did you go back for?

6 A. It's called mechanical engineer.

7 Q. And, sir, it says here on your resume that

8 it's a mechanical engineering professional degree?

9 A. Correct.

10 Q. What does that mean?

11 A. It's basically a nonthesis master's. I did a  
12 project instead of writing a thesis. And it's more of  
13 a -- instead of being like an academic track degree,  
14 it's more of a working engineer track degree.

15 Q. Okay. And is that considered a master's  
16 degree?

17 A. They couldn't bring themselves to call it  
18 that, but yes, it is.

19 Q. Well, who couldn't bring themselves to call  
20 it that?

21 A. The Ohio State University.

22 Q. Do they recognize it, The Ohio State  
23 University, does The Ohio State University recognize  
24 that degree as a master's degree today?

25 A. I'm not sure they even award it. To the best

CONFIDENTIAL

Page 36

1 of my knowledge, there was only 17 people, including  
2 myself, that got that degree. I think they have gone  
3 back -- more back towards a traditional research  
4 oriented master's degree.

5 Q. But as far as you're aware, they do not  
6 recognize it as a master's degree?

7 A. Not per se or they'd call it a master's  
8 degree.

9 Q. And how long were you enrolled in that  
10 program?

11 A. I think it took three years, give or take,  
12 part time. I was working at the time.

13 Q. Was it like night school or --

14 A. No. Actually, since I was working on campus,  
15 I was working at the university, so I just made an  
16 arrangement I could go over -- the ME building was only  
17 a couple hundred yards from the power plant, so I'd  
18 just go take classes and then adjust my work hours  
19 accordingly.

20 Q. Okay. And when were you awarded your  
21 professional degree?

22 A. 1988.

23 Q. And for that degree, you did not have to  
24 write any thesis or dissertation?

25 A. Correct.

CONFIDENTIAL

Page 37

1 Q. In that degree, did you take any courses in  
2 thermodynamics?

3 A. I don't believe I did.

4 Q. Okay. Any courses in nuclear engineering in  
5 that degree?

6 A. No.

7 Q. Any courses in heat transfer?

8 A. I don't think so.

9 Q. What was your focus or what was the focus of  
10 your coursework for your professional degree?

11 A. It was to round out my -- my education. I  
12 knew that I was never going to become a professor, I  
13 was going to be a working engineer. So I tried to  
14 structure it to take the courses that I would like to  
15 have taken when I was getting my bachelor's and didn't  
16 have time. So refractories was one course, welding,  
17 you know, some of the more -- some of the other courses  
18 just to round out my knowledge base.

19 And then as part of that, instead of writing  
20 a thesis, we had to do a project write-up for a project  
21 we were doing at work, so I did -- that was kind of  
22 a -- what they would consider the equivalent of a  
23 thesis, we were doing a project and then writing it up.

24 Q. And what was your project?

25 A. I put in -- we put in a coal-fired boiler

CONFIDENTIAL

Page 38

1 when I was there. Excuse me. This was after the Arab  
2 oil embargo, so the university decided to put in a  
3 coal-fired boiler. And as part of that, we decided to  
4 have -- you know, we would upgrade the pressure level  
5 of the boiler at not a huge expense and be able to  
6 cogenerate.

7 So we actually put in a 3 megawatt  
8 back-pressure turbine to generate power coming off the  
9 boiler. I, in addition -- instead of just generating  
10 straight steam. So I was the one that did the  
11 feasibility study and then I was the project manager  
12 and the construction manager for that project.

13 Q. Okay. And during your coursework at Ohio  
14 State, did you receive any honors, prizes or  
15 fellowships?

16 A. No, sir.

17 Q. While you were taking your courses at Ohio  
18 State, did you also engage as a graduate instructor or  
19 take any teaching role on?

20 A. I did.

21 Q. Okay. In what capacity?

22 A. One of my professors, a fellow named Robert  
23 Essenhig, was typically -- he was the person that  
24 taught ME, I believe it was 625 if I've got the number  
25 right. It's somewhere in here. Maybe it's not. I

CONFIDENTIAL

Page 39

1 believe it was ME625, which is a dual level power plant  
2 course. And so I taught that course in his stead. He  
3 was obviously -- he was supervising it, but I taught  
4 the course, did the grading and so forth.

5 Q. Were you compensated for that?

6 A. I think a couple hundred bucks.

7 Q. Other than -- and how many semesters did you  
8 teach that course?

9 A. Just one. I believe it was -- I think OSU  
10 was on quarters and not semesters.

11 Q. Okay. So one quarter?

12 A. Correct.

13 Q. Had you taken his course prior to being a  
14 graduate assistant?

15 A. No.

16 Q. So how --

17 A. Now, I did take a -- when you say "his  
18 course," I did take a combustion course from him, but  
19 not the power plant course. I believe that was only  
20 offered every other year.

21 Q. Okay. So had you taken the power plant  
22 course that you ultimately were a graduate assistant  
23 for prior to --

24 A. I took the similar course when I was at  
25 Purdue. I believe that was ME425, if I recall. So it

CONFIDENTIAL

Page 40

1 was basically the same course at Purdue that I had  
2 taken several years earlier that I was then teaching at  
3 OSU.

4 Q. Do you know why you were selected as a  
5 graduate assistant by Mr. -- I'm sorry, I've lost his  
6 name.

7 A. Dr. Essenhight?

8 Q. Dr. Essenhight.

9 A. Yeah. Because he liked me and I was one of  
10 his -- he was one of my graduate -- what's the word I  
11 want -- advisors, and he knew I would do a good job  
12 teaching the course, and I did.

13 Q. Other than being a graduate assistant in that  
14 one quarter, have you taught any other professional  
15 courses or continuing education?

16 A. I have.

17 Q. And what courses have you taught?

18 A. The courses that I teach now are, I would  
19 call them boilers 101, air conditioning 101, pumps 101.  
20 They are courses -- I teach for several companies.  
21 It's listed in the back of my CV. American -- it's now  
22 TPC Trainco, National Technology Transfer, Lewellyn  
23 I've taught for, Versa-Tech, and then I teach my own  
24 courses.

25 So I looked the other day. You know, over



CONFIDENTIAL

Page 41

1 the last what, since 1995-ish, I've taught a little  
2 over 200 courses.

3 Q. What are the subject matter of those courses?

4 A. Basic -- now, are you referring to boilers?  
5 Do you want to stick to boilers, or the other stuff,  
6 too?

7 Q. Well, I'd like to know generally the subject  
8 matters.

9 A. Okay. Sure.

10 Q. I assume -- if you can give it to me  
11 generally, then there may be areas that I focus in on,  
12 will ask further questions. But if you can tell me  
13 generally what the courses have covered.

14 A. Sure. In the boiler course -- in both the  
15 boiler and the air-conditioning courses, we talk about  
16 some basic thermodynamics. In the air conditioning  
17 courses, I go into it very, very deeply.

18 In the boiler courses, not quite as much. We  
19 talk about safety in the boiler system. We talk about  
20 the burner management system. We talk about the fire  
21 side, we talk about the water side. We talk about  
22 superheat. I mentioned safety. That's it off the top  
23 of my head. If I think of anything else, I'll --

24 Q. Okay. Of the courses you've taught, are  
25 there any that you would -- that you would find to be

CONFIDENTIAL

Page 42

1 applicable to the matters and issues in this particular  
2 case?

3 A. Yes.

4 Q. Which courses are those?

5 A. All of them.

6 Q. Okay. Even the AC courses?

7 A. Oh, absolutely.

8 Q. Okay. Even the safety courses?

9 A. Absolutely.

10 Q. How are the safety courses relative to the  
11 matters at issue in this case?

12 A. Well, in the air-conditioning business,  
13 safety -- safety is always an issue in the industrial  
14 world. Okay. But a boiler of any kind is actually a  
15 ticking time bomb. And a boiler -- as anybody knows,  
16 with boilers, there's lots of hazards involved. All  
17 right. And so I am always cognizant when I'm working  
18 around boilers of boiler safety. And I'm kind of  
19 anticipating where you'll be going with questioning  
20 through the day. You know, the -- I will call it the  
21 E-Cat, the device, you know, however we agree to  
22 describe it, is, in one sense, a boiler.

23 And so boiler safety issues, in my  
24 professional opinion, are very, very relevant to the  
25 discussion.

CONFIDENTIAL

Page 43

1 Q. Do you -- do you have any printed materials  
2 from these courses that you've offered?

3 A. Not with me. You can -- you can find them.  
4 You can get a syllabus if you go to the appropriate  
5 websites. You can kind of get a --

6 Q. What websites?

7 A. Well, one would be like for -- I can give you  
8 the company name. TPC Trainco is one. NTT, National  
9 Technology Transfer. And they're both on the south  
10 side of Denver. I'm not so sure about Lewellyn. I  
11 haven't taught with them for a while. But they're --  
12 the general courses are quite similar because they're  
13 competing companies.

14 So basically, the boiler class is basically a  
15 two, two and a half day boilers 101. Okay. I teach  
16 courses on -- I teach for the State of Arkansas in  
17 preparation for their people taking the licensing exam.  
18 I've got a contract with Arkansas.

19 So, again, the subject matter, regardless of  
20 who's teaching it, is pretty much the same body of  
21 knowledge, just different slide shows, a little  
22 different arrangement, but the body of knowledge is  
23 virtually identical.

24 Q. Do you maintain any professional licenses?

25 A. Yes, sir, I do.

CONFIDENTIAL

Page 44

1 Q. What licenses?

2 A. All right. I have a P.E. from the State of  
3 Ohio. I have a P.E. from the State of Illinois. I  
4 have a P.E. from the State of Texas. And I have an  
5 Ohio 3rd class stationary engineer's license. I also  
6 have an EPA 608 universal technician certification.

7 Q. I'm sorry, the last two were Ohio 3rd  
8 class --

9 A. Stationary engineer.

10 Q. And then the last one?

11 A. EPA 608 universal technician.

12 Q. Okay. For your P.E. -- professional  
13 engineer; is that correct?

14 A. Yes.

15 Q. -- from Ohio, did you have to take an exam  
16 for that?

17 A. I did.

18 Q. Okay. How many times did you take that exam?

19 A. One. I crushed it.

20 Q. How about the P.E. from Illinois?

21 A. No exam. Once you have -- once you have a  
22 P.E. -- generally, in this country, once you have a  
23 P.E. by exam, then it's just a matter of money. You've  
24 got to provide the documentation of your experience,  
25 your degrees and so forth, but then it's always about

CONFIDENTIAL

Page 45

1 the money.

2 Q. Okay. So there was no further education or  
3 training or testing that you had to undergo through --  
4 to get your P.E. from Illinois?

5 A. No, sir.

6 Q. What about Texas?

7 A. Texas did have an ethics -- they do have an  
8 ethics exam.

9 Q. An ethics exam?

10 A. Yes, sir.

11 Q. Anything relating to the actual engineering  
12 work?

13 A. No. It was about engineering ethics,  
14 conflict of interest, things like that.

15 Q. Okay. The Ohio 3rd class stationary exam --

16 A. Yeah, correct.

17 Q. -- what is that?

18 A. That means I can legally operate any  
19 nonnuclear boiler in the State of Ohio.

20 Q. Nonnuclear boiler?

21 A. Yep.

22 Q. Is there such thing as a nuclear boiler?

23 A. I think there's a few units in Ohio, yes.

24 Q. And that's not the same as a power plant,  
25 correct?

CONFIDENTIAL

Page 46

1           A.    Oh, yeah, it is. Yeah. Now, maybe I'm --  
2           help me with your question. I'm sorry.

3           Q.    Okay. A boiler is the same thing as a power  
4           plant?

5           A.    A boiler is a component of a power plant.

6           Q.    Okay. So you can't operate a power plant,  
7           you can operate the boiler?

8           A.    I can operate the boilers and the turbines.

9           Q.    Have you ever done that?

10          A.    I have at Ohio State a little bit. Again, it  
11          was a union shop, so, you know, wink, wink, nod, nod.  
12          And I had to have some operating time to get that  
13          license, obviously.

14                And then I've operated boilers at Nestle's up  
15          in Marysville. I was a relief boiler and refrigeration  
16          operator up there as well.

17          Q.    Okay. Let me ask you first about Ohio State.

18          A.    Sure.

19          Q.    How much time did you have operating a power  
20          plant at Ohio State?

21          A.    I think the -- I think it's 900 hours. As I  
22          recall, it was 900 hours.

23          Q.    And is that between July 1977 and May 1979?

24          A.    No. No.

25          Q.    When did you --

CONFIDENTIAL

Page 47

1 A. That was --

2 Q. Okay. I'm sorry. Was that between 1983 and  
3 1988?

4 A. Correct.

5 Q. You said Nestle's?

6 A. Nestle's in Marysville, yes.

7 Q. How much time -- and what type of power plant  
8 did Nestle's have?

9 A. It's actually a heating and refrigeration  
10 plant. There's no power generation involved there, but  
11 it is a heating and refrigeration plant that I  
12 operated.

13 Q. Okay. Was there power generation at Ohio  
14 State?

15 A. Oh, yeah. I put in a back-pressure turbine,  
16 then we also had two condensing turbines.

17 Q. What fuel source?

18 A. Coal. I think they had oil and gas as a  
19 backup, but coal was the predominant on the one boiler,  
20 the newer boiler. Then the older boilers used gas and  
21 oil as a backup.

22 Q. Okay. The EPA 608 universal technician, what  
23 is that?

24 A. That means that I have passed a test and I  
25 can legally purchase refrigerants.

CONFIDENTIAL

Page 48

1 Q. Does that certification have anything to do  
2 with the work that you've done in this case?

3 A. No.

4 Q. The Ohio 3rd class stationary engineer  
5 certification, does that have any applicability to the  
6 work that you've done in this case?

7 A. It does have some general applicability, yes.

8 Q. What did you have to do to get that  
9 certification?

10 A. Well, I had to, again, demonstrate that I'd  
11 operated for, I think, 900 hours, again, if my hours  
12 are right, and I had to take a comprehensive exam.

13 Q. How long was the exam?

14 A. I don't think there was a time period. There  
15 was an essay question back when we actually had to  
16 set the slide valves on an old-fashioned pump, but I'd  
17 say it took about three hours, ballpark.

18 Q. And you maintain that certification in good  
19 standing?

20 A. Yes, sir.

21 Q. Do you have to do any continuing education to  
22 maintain that certification?

23 A. No.

24 Q. Do you have to do -- well, do you have to pay  
25 a yearly fee to maintain that certification?



CONFIDENTIAL

Page 49

1 A. Was that a rhetorical question? Yes, sir, I  
2 do.

3 Q. Who issues that certification?

4 A. The State of Ohio.

5 Q. Who issues the certification for the EPA 608  
6 universal tech?

7 A. The US EPA.

8 Q. You said there was an exam for that?

9 A. Yes.

10 Q. And how long was that exam?

11 A. Again, there's no time limit. It took me  
12 about an hour and a half.

13 Q. And you maintain that certification in good  
14 standing?

15 A. Yeah. That's a one-time license. Once you  
16 pass the test -- you know, at least for the last 20  
17 years, once you have it, you have it, and that's it.

18 Q. You don't have to do anything to renew it?

19 A. No, sir.

20 Q. Do you have to do anything to renew the 3rd  
21 class stationary engineering certification?

22 A. Pay them money.

23 Q. Now, when were you issued the Ohio 3rd class  
24 stationary engineer certificate?

25 A. I want to say 1988.

CONFIDENTIAL

Page 50

1 Q. Okay. What about the EPA 608?

2 A. That was about ten years ago; 2006, 2007 time  
3 frame.

4 Q. Now, going back, sir, to follow through on  
5 your employment, after working at Purdue University,  
6 which your time there ended, I believe, in May of 1979,  
7 what did you do after that?

8 A. Went to work for Alcoa. Purdue is in West  
9 Lafayette, Indiana. Alcoa is in Lafayette, across the  
10 river.

11 Q. Alcoa is Aluminum Company of America?

12 A. Yes, sir.

13 Q. And what was your job title at Alcoa?

14 A. Mechanical engineer.

15 Q. What were your job duties and  
16 responsibilities?

17 A. Well, as you can see, I was in charge of  
18 energy conservation for the plant. And then,  
19 basically, I was the utility engineer over the boiler  
20 house and some annealing furnaces.

21 Q. I'm sorry, you said utility engineer over a  
22 boiler house?

23 A. Yeah.

24 Q. What did you do in that role?

25 A. I worked with the superintendent of the

CONFIDENTIAL

Page 51

1 boiler plant. He did the operational end of it, I did  
2 the engineering end of it, so we worked together to run  
3 and operate the power plant, whether he -- it was  
4 really a heating plant and not a power plant.

5 Q. What's the difference?

6 A. Well, you get into semantics. A power plant  
7 specifically will generate electricity. A boiler plant  
8 or heating plant may just generate steam or hot water  
9 for either process or heating use. Sometimes people  
10 use the terms interchangeably.

11 Q. Was that a steam plant, sir?

12 A. Yes.

13 Q. What was the steam used for?

14 A. Building heat.

15 Q. I'm sorry?

16 A. Building heat. Heating the building.

17 Q. Okay. For a moment I thought you were saying  
18 building in the terms of constructing heat.

19 A. Oh, no, no.

20 Q. I was trying to figure that out. I  
21 apologize.

22 A. No. No. No. No. Heating the facilities.

23 Q. Okay. And I believe on your resume, it says,  
24 discovered and engineered a heat recovery project for  
25 an aluminum chip dryer.

CONFIDENTIAL

Page 52

1 A. That's correct.

2 Q. What was that?

3 A. There was a chip dryer that basically -- it's  
4 an old -- it was an old -- I'm trying to remember the  
5 details now. It was an old furnace that they had  
6 converted. They put some conveyors in it, because in  
7 that particular realm, in the aluminum extrusion  
8 business, at least then, they had large, round,  
9 cylindrical billets that they would machine down to a  
10 certain size before they would put that into the  
11 extrusion machine, kind of like plastic extrusion, and  
12 then a hydraulic ram would force that aluminum through  
13 a die to the desired shape.

14 So the chips that come off of that, there was  
15 cutting oil, and so you don't want to put water into  
16 molted aluminum, because you're going to have a very  
17 bad day if you do. So the purpose of the chip dryer  
18 was to heat these chips, dry the water and the cutting  
19 oil off so that they're fairly hot and dry when they go  
20 into the melter. We called it a toilet bowl melter.  
21 It was actually a -- almost like a toilet flushing, a  
22 circular motion with a molten aluminum in it. And then  
23 those chips would be fed in, they would be remelted and  
24 then realloyed.

25 So what I did is I discovered a way to put a

CONFIDENTIAL

Page 53

1 -- rather than -- it was a big open -- the furnace was  
2 actually about the size of this room with a couple  
3 conveyors. And I think I discovered a way to put a  
4 cover over the conveyors and then take that heat and  
5 use it to preheat the chips, as I recall.

6 Q. Now, the boiler in that plant, do you  
7 remember how much heat it would put up?

8 A. I do not. And actually, there were three  
9 boilers at that plant, not just one. They were large,  
10 though. I would say between the three of them, they  
11 were probably each 100,000 pounds an hour of steam.

12 Q. 100,000 pounds per hour. Wow. And there  
13 were three of them each at that level, so 300,000  
14 pounds per hour?

15 A. Yes, sir, total, yeah.

16 Now, typically we'd only run two. You have a  
17 backup so that if one goes down in the dead of winter,  
18 you've still got a backup running. So typically the  
19 steam loads -- maximum steam load would be 150,000,  
20 200,000 pounds an hour-ish. And then you've always got  
21 the other one either sitting there or on hot standby so  
22 that if one of the other boilers quits or has a  
23 problem, we can bring the hot one up and keep the plant  
24 warm.

25 Q. Okay. And how large was that facility?

CONFIDENTIAL

Page 54

1 A. I don't follow you.

2 Q. The building, how large was the building  
3 where these --

4 A. Which building?

5 Q. The building where these boilers were  
6 located.

7 A. The boiler house proper? It was a separate  
8 building from the factory. Probably 100 feet wide, 150  
9 feet long and probably four stories tall, ballpark.

10 Q. Do you know the amount of energy that was put  
11 out by these boilers at any given time?

12 A. Well, it would depend on the measured steam  
13 load and then what steam pressure was. And they were  
14 putting out saturated steam, not superheated.

15 Q. What does that mean?

16 A. Saturated steam can exist in a boiler proper.  
17 And, again, we'll probably get into the minutia of this  
18 later on. Saturated steam is the steam that exists at  
19 a given temperature and pressure within a pressure  
20 vessel. Okay. The concept also applies to air  
21 conditioning.

22 Superheating vapor, and I use the term vapor  
23 right now, superheated vapor is vapor that is heated  
24 over and above the saturation temperature for the  
25 temperature pressure conditions in the boiler.

CONFIDENTIAL

Page 55

1 Q. Okay. What was the temperature of the steam  
2 at the Alcoa plant?

3 A. I don't remember exactly, but if it was 150  
4 -- and I want to say they were 150 psi boilers. So I  
5 believe, if my memory serves, the saturation  
6 temperature is 366 Fahrenheit.

7 Q. I'm sorry, and what pressure was that?

8 A. 150 psi. Again, don't quote me on that  
9 because I don't have that memorized, but I think I'm  
10 right. Pretty close.

11 Q. Okay. After your time at Alcoa, your -- now,  
12 why did you leave Alcoa?

13 A. I -- a friend -- a friend who had -- I had  
14 worked with at Purdue had gone down to Cummins a couple  
15 years before that. And my wife's family only lives  
16 about an hour -- Cummins is in Columbus, Indiana. My  
17 wife's family lives about an hour from there. And so  
18 this other gentleman I worked with at Purdue said, hey,  
19 there's a job opening here. Do you want to come down  
20 and interview for it?

21 I said, sure, why not, because -- you know,  
22 Alcoa, I was learning, like I used the corporate nomad.  
23 You know, they transfer you every three or four years  
24 whether you wanted to or not. And I didn't really want  
25 to do that for the rest of my life, having lived out of

CONFIDENTIAL

Page 56

1 a seabag in the Marine Corps.

2 So went down to Cummins, interviewed, got the  
3 job.

4 Q. What was your job title at Cummins?

5 A. I was a facilities project manager.

6 Q. What were your duties and responsibilities in  
7 that position?

8 A. Again, as it says, maintenance and  
9 engineering for five large building [sic]. And then  
10 engineering services for an additional 25 buildings.

11 Q. Now, you state here, converted three boilers  
12 to dual fuel capacity to minimize fuel costs.

13 A. I believe that's capability, but --

14 Q. I'm sorry, you're right, I misread it.

15 A. No problem.

16 Q. Did you do the conversion yourself?

17 A. I did not physically do it. I did the  
18 engineering, wrote the purchase orders, wrote the  
19 construction contracts.

20 Q. Did anyone else look over the engineering  
21 prior to it being implemented?

22 A. No.

23 Q. Did you work on a day-to-day basis with those  
24 boilers?

25 A. Sporadically. You know, it -- you know, you



CONFIDENTIAL

Page 57

1 write a purchase order, wait three months for the stuff  
2 to come in, so it's like a lot of -- I understand you  
3 worked in construction, so you know the drill. You  
4 order something, you wait, it comes in and you work on  
5 it, you go back to it. So you bounce back and forth  
6 between different jobs, you know, to fill your day up,  
7 so --

8 Q. Did you have staff that worked under you?

9 A. I did.

10 Q. How many people?

11 A. Was it two or three? They were maintenance  
12 tech- -- or maintenance supervisors.

13 Q. So it's your testimony that you did the  
14 engineering to convert the boilers to dual fuel  
15 capability?

16 A. Well, we were actually converting the  
17 burners. All right. It wasn't the boilers, per se.  
18 We did a burner changeout.

19 Q. Now, looking on your resume to the next  
20 listed employment, and it's on the first page, it says,  
21 October 1983 to June of 1988, back to The Ohio State  
22 University.

23 A. You got it.

24 Q. First of all, why did you leave Cummins?

25 A. I got laid off in the bloodbath of 1983.

CONFIDENTIAL

Page 58

1 Q. Now, you returned to The Ohio State  
2 University.

3 What was your -- upon returning, what was  
4 your job duty -- or your job title? I'm sorry.

5 A. I started, I was an engineer. And after  
6 three or four years, I got promoted to senior  
7 mechanical engineer.

8 Q. Okay. So you were senior mechanical engineer  
9 for only a couple years while you were there?

10 A. That would be correct, yes.

11 Q. You say you successfully managed a \$7 million  
12 steam line expansion project.

13 Can you tell me about that, please?

14 A. I can. What we did is the -- back then  
15 McCracken Power Plant only served that part of the  
16 campus which was east of the river. I believe it's the  
17 Scioto. And the midwest campus and the west campus did  
18 not have steam feed. They all had remote boilers, a  
19 boiler per building or two boilers per building.

20 And then down in the hospital complex, that  
21 was -- even back then, it was growing, so we reinforced  
22 the steam feed.

23 So what we did is like we had an outside  
24 consulting engineering firm do the design to expand the  
25 steam line from McCracken Power Plant across the river

CONFIDENTIAL

Page 59

1 to the various buildings in the midwest campus, and  
2 then we reinforced the feed south from McCracken to the  
3 hospital complex.

4 Q. How was the steam moved in those --

5 A. Pressure differential.

6 Q. What does that mean?

7 A. You have to have a pressure difference for  
8 any fluid to flow.

9 Q. So how was that accomplished?

10 A. Pressure differential.

11 Q. Was there a vacuum on one side, or was there  
12 a forcing pressure on the other?

13 A. No. The steam -- the steam leaving the plant  
14 was at 200 psi, and was it 5 -- I believe it was 588  
15 degrees if my memory serves. So we had about 200  
16 degrees of superheat leaving McCracken Power Plant.

17 Q. Again, that's Fahrenheit, correct?

18 A. Yeah. I -- we probably will go back and  
19 forth on C and Fahrenheit. Normally I work in  
20 Fahrenheit, but I'll try to accommodate you working  
21 with centigrade and the metric system.

22 Q. I appreciate that.

23 And that was superheated steam?

24 A. Yes, sir.

25 Q. Now, you said it crossed a river --

CONFIDENTIAL

Page 60

1 A. Correct.

2 Q. -- or river bridge.

3 Was that aboveground, belowground, under the  
4 water?

5 A. A lot of -- the river crossing, per se?

6 Q. Yes.

7 A. Underneath -- we hung it underneath of a  
8 pedestrian bridge.

9 Q. Okay. And what type of piping was that --

10 A. It was --

11 Q. -- or what type of --

12 A. It was called -- the company was actually  
13 called at one point Nova. Yeah, it was Nova. I don't  
14 believe they're in business. But it was a pipe in a  
15 pipe structure. We had the steam -- the actual steam  
16 carrier as the inside pipe, insulation around it, and  
17 then there was an outer pipe that served as a barrier,  
18 and actually there was -- between the insulation and  
19 the air space to keep the heat in the steam and keep  
20 the heat losses to a minimum.

21 So it's called a pipe in a pipe or a direct  
22 bury system. So we actually dug up a lot of the campus  
23 and buried that pipe and then backfilled back over it  
24 and then ran the steam line underground.

25 So when we got to the bridge, we came up from

CONFIDENTIAL

Page 61

1 the ground, ran it underneath the bridge and then back  
2 down underground and wherever.

3 Q. Why did they have insulation between the  
4 pipes? I guess I don't understand.

5 A. Okay. The pipe, it's actually a concentric  
6 pipe, so the inner pipe would be the steam pipe  
7 carrier. And then it would be insulated to maintain  
8 the heat, because anything -- temperature flows from  
9 hot to cold. So if you have 588 degree steam, it's  
10 going to lose heat pretty rapidly, so you --

11 Q. Off the walls of the pipe, or where would it  
12 lose --

13 A. Yeah, from -- from the pipe wall itself. An  
14 outer pipe wall itself is going to -- the inner -- the  
15 steam carrying line would lose heat.

16 Q. Okay. How much heat loss did you have in  
17 that insulated piping per -- let's say, per foot?

18 A. Oh, I don't remember exactly. There's charts  
19 and tables that could do that. Again, I don't carry  
20 that knowledge around in my head. You can calculate  
21 it. The manufacturers have calculated it. So if you  
22 tell them what the steam conditions are, they'll say  
23 you will have, you know, X number of BTUs for heat loss  
24 per foot, per hundred foot, you know, whatever.

25 Q. Okay. And that heat that is lost through the

CONFIDENTIAL

Page 62

1 pipe walls, where does it go?

2 A. Out from the -- from the pipe.

3 Q. Okay. So into the external environment  
4 around where the pipe is?

5 A. Right, through the insulation. The heat goes  
6 through the insulation and then the air surrounding  
7 that, you know, that air will heat up, the exterior  
8 pipe will heat up some, and then, like you say, the  
9 surroundings will heat up until it reaches equilibrium.

10 Q. Sir, have you published any papers?

11 A. There are magazine articles, not print  
12 papers, per se.

13 Q. Okay. Were they peer reviewed?

14 A. No.

15 - - -

16 (Deposition Exhibit 5 marked.)

17 - - -

18 Q. Sir, I'm going to show you one that we will  
19 mark as Exhibit 5.

20 A. I have five of each for you.

21 Q. We'll use yours.

22 A. Do you want them both?

23 Q. Yes, please.

24 A. There you go.

25 Q. Thank you. We'll mark the first one, which

CONFIDENTIAL

Page 63

1 is titled Safety on Trial, 75-Ton Bottle Rocket Case  
2 Study.

3 Sir, this first document, which we've marked  
4 as Exhibit 5, what is this publication on?

5 A. The publication is the National Board. And  
6 it's technically the National Board of Boiler and  
7 Pressure Vessel Inspectors. They're located here in  
8 Columbus up on Crupper Avenue. And what I did is I  
9 wrote this article and another one on a couple of cases  
10 that I had worked on that related to boilers and  
11 pressure vessels.

12 So just giving kind of the basics of what  
13 happened and then how what happened might help boiler  
14 inspectors to look at, you know, other different  
15 things, maybe help them to do their job, you know, a  
16 little better.

17 Q. Was it -- was that particular case regarding  
18 a boiler malfunction or failure?

19 A. No. This was actually a pressure vessel  
20 failure.

21 Q. Does the information contained in this  
22 document pertain to or relate to the matters at issue  
23 in the instant case?

24 A. Very generally, yes, because it involves  
25 steam and, you know, boiler and pressure vessel

CONFIDENTIAL

Page 64

1 technology, but maybe specifically, not real directly.

2 Q. Was there any boiler or pressure vessel  
3 failure in the instant case? In the instant case, was  
4 there any failure?

5 A. Oh, the bottle rocket?

6 Q. Was there any failure of a pressure vessel or  
7 boiler in this case that you're here testifying on  
8 today?

9 A. Not that I'm aware of.

10 - - -

11 (Deposition Exhibit 6 marked.)

12 - - -

13 Q. Sir, I'm going to show you what I've marked  
14 as Exhibit 6, which is a publication called Winter  
15 Storm Warning, Elementary School Boiler Malfunctioned  
16 After Ice Storm.

17 A. Correct.

18 Q. And is this your second publication, sir?

19 A. Yes, sir, it is. I believe it's the second.  
20 Yeah, it was the second. You're right.

21 Q. Okay. Does the -- strike that.

22 This document, sir, pertains to a boiler  
23 failure as well?

24 A. It does.

25 Q. Was there any methodology or considerations



CONFIDENTIAL

Page 65

1 that you applied in this case that are also applicable  
2 to the instant case?

3 You know what, I'm sorry, let me rephrase  
4 that for the record.

5 Were there any methodology or considerations  
6 that you took into effect in examining this elementary  
7 school boiler malfunctioning that you believe also to  
8 be applicable in the instant case?

9 A. It may or it may not be. Based on the  
10 documentation I've seen so far, there may be some  
11 safety issues involved. As we both know, I have yet to  
12 do a site inspection at the Doral facility, so, you  
13 know, I do reserve the right to modify my answer based  
14 on what I may or may not see later in the week.

15 Q. Have you made any safety determinations as to  
16 the E-Cat or the Doral plant in this case?

17 A. Based upon -- again, based on not having  
18 physically seen it, but based on what I understand  
19 about the construction, I -- I have made a bit of a  
20 determination, yes.

21 Q. Okay. We're going to get to that in just a  
22 minute.

23 But just back to your publications real  
24 quick, so neither one of your publications have been  
25 peer reviewed?

CONFIDENTIAL

Page 66

1 A. No.

2 Q. Were you compensated for these publications?

3 A. No.

4 Q. Did you rely upon any other publications or  
5 any other methodologies in preparing these  
6 publications?

7 A. Well, the totality of my education and  
8 experience went into both of them. So, yeah, all of  
9 that went into it.

10 Q. Did you reference any documents specifically  
11 with respect to these publications other than your  
12 general knowledge?

13 A. I don't believe I did.

14 Q. Are there any methodology -- methodologies  
15 contained within this that could be contested?

16 MR. LOMAX: Objection to the form of the  
17 question.

18 A. I imagine they would have been contested by  
19 now, so I -- I would say no.

20 Q. Well, do you -- do you specifically refer to  
21 any methodologies in your examination, or is this more  
22 like a case study?

23 A. This is more like a case study. All right.  
24 You know, there was no litigation -- well, in -- in the  
25 winter storm warning, there was no litigation. In the

CONFIDENTIAL

Page 67

1 bottle rocket, there was litigation. There was no  
2 litigation in the school issue.

3 Q. Now, did you act as an expert in the bottle  
4 rocket case?

5 A. I did.

6 Q. And what was the name of that case?

7 A. It was in Danville, Virginia. I don't  
8 remember right now. It's been, golly, almost 20 years  
9 ago.

10 Q. Okay. Were you --

11 A. If I think of it, I'll pop it up.

12 Q. Did you provide any testimony in that case?

13 A. Did I do a deposition there? I was deposed  
14 in that one, yes.

15 Q. And when was that?

16 A. Oh, I want to say mid-'90s maybe, mid to late  
17 '90s.

18 Q. Are there any similarities between the  
19 factual circumstances of the bottle rocket case and the  
20 instant case?

21 A. Not that I can think of right now.

22 Q. Did you have any co-authors that assisted you  
23 in preparing those publications?

24 A. No.

25 Q. Did anyone ever suggest that you do

CONFIDENTIAL

Page 68

1 additional research into those matters?

2 A. No, sir.

3 Q. Has either one of these publications ever  
4 been cited, to your knowledge?

5 A. No, sir.

6 Q. Has anyone requested the right to reprint  
7 these publications from you?

8 A. Not that I'm aware of. Actually, the  
9 National Board holds the copyright and not me, so they  
10 would be the ones to do that.

11 Q. Do you know if anyone has requested to  
12 reprint them?

13 A. I do not know.

14 Q. Are you familiar with any literature  
15 expressing contrary views to the views that you've  
16 expressed in these two publications?

17 A. I am not familiar with any, no.

18 Q. Sir, looking back to your resume again --  
19 well, I'm sorry. Strike that. I'll have you look at  
20 something else.

21 Sir, you've rendered a report in this case,  
22 correct?

23 A. I did.

24 - - -

25 (Deposition Exhibit 7 marked.)

CONFIDENTIAL

Page 69

1 - - -

2 Q. I'm going to mark this document as Exhibit 7.  
3 Sir, is this a copy of the expert report that  
4 you have rendered in this case?

5 A. Yes.

6 Q. And if I can, could you please turn to page  
7 22 of your report, the section entitled Expert Witness  
8 Experience?

9 A. Okay.

10 Q. I believe you've listed four cases --

11 A. Yes.

12 Q. -- correct?

13 A. Correct, yes.

14 Q. Are those all of the cases in which you have  
15 testified at trial or deposition during the last seven  
16 years?

17 MR. LOMAX: Objection to the form of the  
18 question.

19 MR. ANNESSER: What's the objection?

20 MR. LOMAX: It's different from what has been  
21 stated in the document and what you've asked before,  
22 so --

23 MR. ANNESSER: And the grounds for the  
24 objection, though?

25 MR. LOMAX: Form of the question. It's

CONFIDENTIAL

Page 70

1 misleading based on what's in the document and what  
2 you've stated before.

3 BY MR. ANNESSER:

4 Q. Sir, these four cases that you've listed, are  
5 those all of the cases in which you've testified either  
6 at trial or in deposition during the last seven years?

7 A. No, sir. And the reason for that, I was -- I  
8 was under the impression, at the time I prepared the  
9 report, it was for the prior four years, which I  
10 understand is federal rules. So my under- -- you know,  
11 my understanding may have been complete [sic], that's  
12 why I brought in the extra documentation to supplement  
13 so that I would be -- you know, give you what you were  
14 asking for.

15 Q. How many additional cases have you testified  
16 in within the last seven years --

17 A. I think --

18 Q. -- that are not listed here?

19 A. I think it was -- now, my understanding, it  
20 was six years. All right.

21 Q. I'm asking you, sir, within the last seven  
22 years.

23 A. In looking -- I brought in documentations for  
24 six cases. So I -- as I recall now, I think I went  
25 back ten years.

CONFIDENTIAL

Page 71

1 Q. So six cases within the last ten years total?

2 A. I -- I believe that's correct.

3 Q. And would that include the four that are  
4 listed here?

5 A. Yes, sir, that's correct.

6 Q. And you said you brought that documentation?

7 A. Well, it's -- what it is -- where is it now?  
8 I put it down here. Yeah, here it is.

9 What these are is Microsoft Access, like all  
10 Microsoft products, has a mind of its own and it's hard  
11 to write reports. So what these are is these are  
12 screenshots from my own internal database just to --  
13 you know, to document my jobs, you know, and just kind  
14 of the basics of the jobs.

15 So these are screenshots from the -- I  
16 believe it's that ten-year time window, yes.

17 Q. Okay. So what are the two additional cases  
18 that are not listed on your report that you have  
19 testified in within the last ten years?

20 A. Okay. That would be -- the case -- let's  
21 see, the case would be -- the older one was E3 v.  
22 Biothane, et al.

23 Q. E3?

24 A. Yeah, E3, echo three, versus Biothane,  
25 B-I-O-T-H-A-N-E, et al. And the second one is Young

CONFIDENTIAL

Page 72

1       versus FirstEnergy.

2               Q.     Okay. Starting with the first one on your  
3       list, Jerew versus Rhodes Heating --

4               A.     Okay.

5               Q.     -- what was the nature of your testimony in  
6       that case?

7               A.     All right. The case -- this was a pretty  
8       simple one. It was a mobile home furnace fire. A  
9       technician had serviced the furnace. And then the  
10      question I was called to answer, did the technician  
11      make the furnace as safe as possible after he had  
12      worked on it after the owner wanted it shut down to  
13      replace it.

14              Q.     Okay. Were the issues in that case at all  
15      related to -- I'm sorry, not related to, but were the  
16      issues in that case at all similar to the issues in the  
17      instant case?

18              A.     No.

19              Q.     The second case you have listed, Akron  
20      Fairlawn Properties versus Edgell Plumbing?

21              A.     Correct.

22              Q.     What was the nature of your testimony in that  
23      case?

24              A.     Okay. This one was a premature boiler  
25      failure. And the alleged cause of the failure was



CONFIDENTIAL

Page 73

1 running a boiler with incoming water below 140, which  
2 can cause corrosion and other issues inside a hot water  
3 heater boiler.

4 Q. Now, let me ask you, on Jerew versus Rhodes,  
5 did you testify for the plaintiff or the defendant in  
6 that case?

7 A. Plaintiff.

8 Q. Okay. What about in Akron Fairlawn?

9 A. That would be plaintiff also.

10 Q. Okay. Now, the issues in the Akron Fairlawn  
11 Properties case, were they in any way similar to the  
12 issues in this case?

13 MR. LOMAX: Objection to the form of the  
14 question.

15 A. Not really.

16 Q. Did you prepare a report in either one of  
17 those cases?

18 A. Let's see here, verbal and in -- yeah. Let's  
19 see, the boiler failure at a Holiday Inn, I did prepare  
20 a written report.

21 Q. I'm sorry, that was the Akron Fairlawn case?

22 A. Yeah. Yeah, I'm sorry, Akron Fairlawn,  
23 you're correct.

24 Q. Did you ever testify at trial in that case?

25 A. I did.

CONFIDENTIAL

Page 74

1 Q. And did the court find you to be an expert?

2 A. As far as I know, they did.

3 Q. You don't know either way or --

4 A. Well, I testified, so I'm assuming that they  
5 recognized me as an expert.

6 Q. What about the Jerew versus Rhodes Heating  
7 case?

8 A. I did testify in that one also.

9 Q. Do you know if you were found to be an expert  
10 in that case?

11 A. Again, as far as I know, I was.

12 Q. Were those jury cases or were those bench  
13 trials?

14 A. Let's see, jury -- the Akron Fairlawn was  
15 jury. And Jerew versus Rhodes, I believe that was a  
16 bench trial.

17 Q. Now, the next one you have listed is Richmond  
18 versus Sears Roebuck.

19 A. Yes.

20 Q. What was the nature of your testimony in that  
21 case?

22 A. That was a carbon monoxide poisoning case.

23 Q. And what was the nature of your testimony?

24 A. It was a deposition and I was testifying to  
25 the fact, you know, how carbon monoxide is formed, the

CONFIDENTIAL

Page 75

1 influence of drafts and so forth on water heaters and  
2 their combustion systems and how carbon -- carbon  
3 monoxide is formed. I didn't -- I did not testify as a  
4 medical expert, even though I understand what carbon  
5 monoxide does to people. I was looking at their  
6 mechanics of the formation of carbon monoxide.

7 Q. Was your test- -- well, was the subject  
8 matter of your testimony in that case at all similar to  
9 the facts and circumstances that you've considered in  
10 the instant case?

11 A. No.

12 Q. Did you apply any similar methodology between  
13 any of these three cases and the instant case?

14 A. Well, I -- there's a certain engineering  
15 methodology that we use. It's not necessarily written.  
16 It's just the way we're trained to approach problems,  
17 look at things, analyze things. So -- so that's -- I  
18 have used that general approach in almost all of my  
19 work.

20 Q. So you look at the facts, you analyze them  
21 and come to a conclusion based on your analysis?

22 A. Generally, yeah.

23 Q. Okay.

24 A. And, again, now, if I'm just doing an  
25 analysis of something, I'm looking at numbers and so

CONFIDENTIAL

Page 76

1       forth, but it's the same kind of general orderly  
2       thought process, yes.

3               Q.     Okay. And did you testify on behalf of the  
4       plaintiff or defendant in that case, in Richmond versus  
5       Sears Roebuck?

6               A.     Plaintiff.

7               Q.     Next you have listed the Young versus  
8       FirstEnergy case?

9               A.     Correct.

10              Q.     What was the nature of your testimony in that  
11       case?

12              A.     That was -- again, we discussed it a little  
13       bit earlier. A gentleman was working inside a very,  
14       very large deaerator and some hot water, I would say  
15       burped would be the appropriate word, back into it  
16       causing him some severe anxiety.

17              And so the issue was, was this vessel in  
18       which they were working, was it properly isolated from  
19       the rest of the plant so that they could safely work in  
20       that vessel.

21              Q.     Okay. Were the issues that you testified to  
22       in that case at all similar in any manner to the facts  
23       and circumstances that you've considered in our case  
24       today?

25              A.     "In any manner" is a little broad. Can you

CONFIDENTIAL

Page 77

1 tighten that up a little for me?

2 Q. Yes. Is there anything in the testimony that  
3 you gave in that case that may be similar to the  
4 testimony that you are providing with respect to the  
5 case that we're here on today?

6 A. Nothing I can think of right now.

7 Q. Did you apply any similar calculations or  
8 methodology?

9 A. I didn't do calculations, but I did look at  
10 drawings and do a lot of analysis on valving and flow  
11 and so forth. So from that standpoint, yes, there is a  
12 correlation.

13 Q. Okay. Flow of what?

14 A. In this case, it was steam and then  
15 potentially some water.

16 Q. Okay. And in that case, in the Young versus  
17 FirstEnergy case?

18 A. Yes. Yeah.

19 Q. Okay. That was steam and water?

20 A. Steam and water, yeah.

21 Q. Okay. And what about the instant case?

22 A. Well, in the instant case, there's allegedly  
23 steam and there's definitely water flowing.

24 Q. Okay. And what type of flow analysis did you  
25 do with respect to the Young versus FirstEnergy case?

CONFIDENTIAL

Page 78

1           A.     Okay. Now, it was not a pressure drop  
2     analysis, it was looking at flow routing and paths  
3     through valving to see could fluid get from point A to  
4     point B.

5           Q.     Okay. And have you done that type of  
6     analysis in the Rossi v. Darden case?

7           A.     In a manner of speaking, yes, I've looked at  
8     the flow paths of which I'm aware and -- yeah, I've  
9     looked at the flow paths.

10          Q.     Okay. For what purpose?

11          A.     Well, to understand -- try to understand what  
12     was going on.

13          Q.     Did that -- did the Young versus FirstEnergy  
14     case deal with heat dissipation at all?

15          A.     When you're working with boilers and hot  
16     fluids, there's always heat dissipation because --  
17     because -- and, again, let me give you an example.  
18     You've got a cup of coffee there or had a cup of  
19     coffee. All right. And let's say it's 160, 180  
20     degrees. As it sits in this room, it's going to cool  
21     down. All right. And when it heats -- reaches room  
22     temperature, the heat transfer will stop.

23                 So anytime -- again, in my -- my business, in  
24     the world in which I work, heat dissipation is pretty  
25     much always occurring in some way, shape or form.

CONFIDENTIAL

Page 79

1 Q. Okay. My question was not whether heat  
2 dissipation or heat transfer was occurring.

3 My question was whether your testimony in  
4 that case pertained to any heat transfer or whether you  
5 did any heat transfer analysis in that case.

6 A. Now, in that, no. No. The way you phrased  
7 the question now, no.

8 Q. You also mentioned another case, E3 v.  
9 Biothane.

10 A. Correct.

11 Q. What was the nature of your testimony in that  
12 case?

13 A. This was an ethanol plant out in eastern  
14 Nebraska. And it went bankrupt and there were the two  
15 large boilers that failed. And so at issue was, did  
16 the failure -- were the boilers the cause of the  
17 failure or were they the victims, if you will, of other  
18 circumstances that caused them to fail.

19 Q. Did your testimony in that case -- first of  
20 all, did you testify at trial in that case?

21 A. I did not.

22 Q. I'm sorry, I want to take a step back to the  
23 Young versus FirstEnergy case.

24 Did you testify for the plaintiff or the  
25 defendant?

CONFIDENTIAL

Page 80

1 A. I was for the plaintiff.

2 Q. And in the E3V [sic] versus Biothane case,  
3 were you plaintiff or defendant?

4 A. Defense.

5 Q. Now, in the E3V versus Biothane case, did you  
6 do any type of heat transfer analysis in that case?

7 A. No, sir.

8 Q. Did you apply any of the same methodology  
9 that you've applied in this case in that case?

10 A. Again, with the general methodology that I  
11 previously described, yes.

12 Q. And by "general methodology," just your --  
13 your knowledge of boilers?

14 A. Well, my knowledge of boilers and the way  
15 engineers approach issues.

16 Q. Okay. Were there any calculations that you  
17 performed in that case regarding heat transfer or heat  
18 flow or heat dissipation?

19 A. No.

20 Q. Have you ever -- okay.

21 Now, you said there was one more case in  
22 addition to those five that we've discussed within the  
23 last ten years.

24 What was that last one?

25 A. No. I think we've got all -- all six of them



CONFIDENTIAL

Page 81

1 now. The last two were the -- well, the E3 versus  
2 Biothane and then Young versus FirstEnergy were the two  
3 that I believe I left off of my report.

4 Q. Okay. Young versus FirstEnergy is actually  
5 in your report --

6 A. Oh, is it?

7 Q. -- as number four. Yeah.

8 A. Oh, hold that thought. Okay. Oh, I did.  
9 All right. I might have said six instead of five.  
10 It's five and not six. My bad. I apologize.

11 Q. Okay. During the last ten years, have you  
12 been retained by or worked with the Jones Day law firm?

13 A. This is the first time.

14 Q. First time. Do you know how you were found  
15 in this case?

16 A. I asked Mr. Bell when he was still working  
17 for Jones Day, and I believe he said to me they had --  
18 knew -- somebody in Boston knew of me because I'm  
19 working on some steam litigation in Boston. And the  
20 person in Boston recommended me to Mr. Bell.

21 Q. Okay. You said you're working on steam  
22 litigation in Boston.

23 Is that ongoing?

24 A. It is.

25 Q. Okay. Have you provided any expert report or

CONFIDENTIAL

Page 82

1 testimony in that case?

2 A. I have.

3 Q. Okay. What is the name of that case?

4 A. That is -- did I do a report in that case? I  
5 need to make some notes.

6 Can I get something to make some notes, notes  
7 to self?

8 Q. Sure.

9 A. Yeah, that one --

10 Q. Do you need a piece of paper?

11 A. Yeah. That one -- oh, yeah, that one --  
12 yeah, that one's -- that one's ongoing. Yes, that is E  
13 -- no, Level 3 versus Veolia. I do need to -- my  
14 apologies. Yeah, that one completely -- completely  
15 slipped through the crack.

16 Q. Are there any other cases that you are  
17 currently working on in which you have provided either  
18 a report or expert testimony?

19 A. Right now, I believe that's it. But let me  
20 -- let me reserve the right to check again and  
21 supplement because I don't want to leave anything out.  
22 So my apologies.

23 Q. With respect to the Level 3 versus Veolia,  
24 who is -- I'm sorry. Where is that case pending?

25 A. It's in Boston.

CONFIDENTIAL

Page 83

1 Q. State or federal court?

2 A. State.

3 Q. Do you know which court?

4 A. No, I don't.

5 Q. What is the subject matter of your testimony  
6 in that case?

7 A. Okay. In this particular case, there are  
8 steam lines running under the streets of Boston like  
9 there are in Ohio state. A lot of large northern  
10 cities have central steam plants with steam lines  
11 running underground.

12 And the issue at hand is there is heat damage  
13 to fiberoptic cables in -- hold on a second here --  
14 fiberoptic cables and other telecom cables that have  
15 been damaged by the heat.

16 So the litigation is/was -- was/is Veolia the  
17 cause of the damage or are there other issues.

18 Q. Okay. And what analysis have you performed  
19 in that case with respect to your engagement there?

20 A. I am basically -- I'm saying that, yes, level  
21 -- or Veolia is responsible for the heat that's  
22 damaging Level 3's cables.

23 Q. Based on what?

24 A. My analysis of the system, looking at  
25 drawings, physically looking at the system, going into

CONFIDENTIAL

Page 84

1 manholes.

2 Q. Okay. Have you performed any calculations to  
3 arrive at that conclusion?

4 A. Did I do calculations? I don't think I've  
5 done any calculations in that one.

6 Q. How much heat is being transferred from the  
7 steam lines to the fiberoptic cables?

8 A. That's very, very difficult to determine and  
9 that's one of the issues, because their expert says it  
10 can be calculated and I have a different opinion  
11 because there are so many variables involved, it's  
12 virtually impossible to tell in that case, because  
13 they're buried underground, they've been there a long  
14 -- "they" being the steam lines, they're buried  
15 underground, they've been there a long time, it's in a  
16 big city, construction traffic, very congested  
17 underground utility area.

18 So there are so many assumptions that have to  
19 be made that an accurate calculation, in my opinion, is  
20 virtually impossible.

21 Q. Okay. So what are you basing your opinion  
22 that the steam line was the cause of the damage to the  
23 fiberoptic cables? What are you basing that on?

24 A. There's nothing else underground that  
25 produces heat. There are some infrared surveys that

CONFIDENTIAL

Page 85

1       tend to buttress what I'm saying, and then the  
2       construction of the system and my knowledge of steam  
3       systems.

4           Q.     Okay. The construction of the system, what  
5       about the construction of the system lends to your  
6       testimony in that case?

7           A.     Say it again, please.

8           Q.     Well, you said you were basing your opinion  
9       on the construction of the system in part?

10          A.     Yes.

11          Q.     What about the construction of the system  
12       have you relied upon in forming your opinion in that  
13       case?

14          A.     The system there is predominantly a box  
15       trench where you have a steam line in a concrete trench  
16       underground. And if steam -- steam leaks into the box  
17       trench, that steam over time, it will -- it will  
18       condense. But as the box trench heats up, the heat  
19       will dissipate further and further away from the source  
20       of the leak. And the steam -- steam actually will  
21       travel along that box trench until it reaches an  
22       obstruction so that -- the underground area is going to  
23       get heated up, and then, again, that heat will  
24       dissipate from the box trench to the surrounding  
25       structures underground.

CONFIDENTIAL

Page 86

1 Q. Okay. And do you know how much is -- how  
2 much heat has been dissipated by that box trench?

3 A. I cannot cal- -- I mean, again, there are so  
4 many variables, it's impossible to determine.

5 Q. Is it heat or steam that is being shed into  
6 this box trench?

7 A. Yes.

8 Q. Both heat and steam?

9 A. Yes, sir.

10 Q. Okay. Is there a leak in the -- in the  
11 piping system that allows the steam to come out?

12 A. There was.

13 Q. Have you applied any formula, analysis or  
14 methodology in that case that you have similarly  
15 applied in this case? And by "this case," I mean Rossi  
16 versus Darden, et al.

17 A. Again, the same general methodology of  
18 looking at steam systems, engineering systems and  
19 analyzing the issues.

20 Q. So you've looked at the facts, you've  
21 considered the variables at play and then come to  
22 conclusions?

23 A. To the best of my ability, yes, sir.

24 Q. But in that case, in the --

25 A. Level 3 versus --

1 Q. -- level 3 versus Veolia case, you did not  
2 perform any type of calculation or any type of analysis  
3 applying principles or methodology to come to your  
4 conclusions?

5 A. I've done a qualitative analysis, not a  
6 quantitative analysis.

7 Q. And in this case, would you consider your  
8 analysis qualitative or quantitative?

9 A. Both. "This" being Rossi?

10 Q. Yes. Correct.

11 A. Both.

12 Q. Do you know who the attorney on the other  
13 side of the Level 3 versus Veolia case is?

14 A. No, I don't.

15 Q. When were you deposed in that case?

16 A. They're upcoming. I have not -- I provided a  
17 written report. I've not been deposed yet. And maybe  
18 that's the confusion. Maybe there was a understanding  
19 [sic]. I'm going to be deposed shortly in that case.  
20 But I have provided a written report, without a doubt.  
21 So maybe that was the source of my confusion.

22 Q. Did you bring a copy of that report with you  
23 today?

24 A. No.

25 MR. ANNESSER: Would you agree to supply us a

CONFIDENTIAL

Page 88

1 supplement with that copy of the report? It should  
2 have been brought today.

3 MR. LOMAX: Under what request number?

4 MR. ANNESSER: I'm not going to take the  
5 time. We'll go through it when we get off the record.

6 MR. LOMAX: I'm not familiar with it.

7 MR. ANNESSER: I'll -- we'll find it at the  
8 next break.

9 BY MR. ANNESSER:

10 Q. Okay. Now, the case of Bowe versus  
11 Conrail --

12 A. Yes.

13 Q. -- what was the subject matter of your  
14 testimony in that case?

15 A. A gentleman was -- I believe he was a janitor  
16 or custodian was stripping some floors in the Conrail  
17 facility and apparently some of the fumes from the  
18 chemicals he was using caused him some health issues.

19 Q. And your testimony was to -- was regarding  
20 the alleged improper ventilation of those materials?

21 A. That's -- yeah. That's my understanding,  
22 yeah.

23 Q. And you said you just learned for the first  
24 time today that you were refused as an expert pursuant  
25 to Daubert?



CONFIDENTIAL

Page 89

1           A.    I knew there was a Daubert challenge.  I  
2    found out from an attorney a while back.  I did not  
3    know I had been refused.  So Hackman screwed me yet  
4    today.

5           Q.    Who's Hackman?

6           A.    The attorney I was working for.  He died.

7           Q.    You say he screwed you yet again.

8                   What was the first time?

9           A.    He never paid me.

10          Q.    Are there any other cases in the last four  
11    years where you prepared an expert report but did not  
12    end up testifying?

13          A.    Again, let me -- let me look again, because I  
14    think there was some confusion on my part in the  
15    present time with the attorneys, so -- again, based on  
16    counsel.  But let me look again.  And if you'll tell me  
17    exactly what you want and the exact time frame --  
18    again, I'm an engineer.  I can read through these.  I  
19    was kind of depending on them to help me.  Again, not  
20    an excuse, but I will go through my records again,  
21    subject to counsel's approval, and we'll get this  
22    straightened out, if you don't mind.

23          Q.    Well, I'm asking just from your memory right  
24    now.

25          A.    I think -- I think that's it.  Okay.  Again,

CONFIDENTIAL

Page 90

1 I can't be a hundred percent certain, but I think  
2 that's it.

3 Q. So there's -- there's not been other cases  
4 where you prepared a report but did not testify?

5 A. Well, there's been quite a few of those, but  
6 not in the last four years. Over the years there's  
7 been several of those, yes, sir.

8 MR. ANNESSER: Okay. If we can, we'll take a  
9 short break at this point.

10 THE VIDEOGRAPHER: We're off the record. The  
11 time is 10:34.

12 (Recess taken.)

13 THE VIDEOGRAPHER: We are on the record. The  
14 time is 10:49.

15 BY MR. ANNESSER:

16 Q. Sir, before we took a break, we had touched  
17 briefly on your retention in this case.

18 And I believe you stated that you were first  
19 contacted by Mr. Bell.

20 A. Yes, that's correct.

21 Q. What did Mr. Bell -- well, strike that.

22 What was your understanding of what Mr. Bell  
23 was asking you to do in this case?

24 A. My understanding at the time was that there  
25 was a steam boiler-related case in Miami area, and he

CONFIDENTIAL

Page 91

1 had -- I had been recommended highly to him, and would  
2 I be interested in helping him with the litigation.

3 Q. What did you say?

4 A. Yes. Thank you.

5 Q. Okay. And what -- what did he tell you about  
6 the case? Did he --

7 A. It was just -- at the beginning, it was just  
8 very, very bare bones. And now I know, because of the  
9 confidentiality agreement and the intellectual property  
10 and so forth, he could not and did not say much, just  
11 kind of as generic as he could make it -- at least as  
12 generic as I think he could make it, let me say it that  
13 way.

14 Q. So what did he tell you?

15 A. You know, again, basically, you know, what I  
16 just told you.

17 Q. That there was a boiler-related case and --

18 A. Boiler and steam-related case, yeah.

19 Q. Did he tell you if there were any injuries  
20 relating to it?

21 A. No.

22 Q. Did he tell you what the subject matter of  
23 your expert opinion was going to pertain to?

24 A. Not at that time, no.

25 Q. But you told him, hey, sounds good, let's do

CONFIDENTIAL

Page 92

1 it?

2 A. Yes, sir, that's what I said. Well, words to  
3 those effect, yeah.

4 Q. What was your next contact with anyone  
5 regarding this case?

6 A. I believe it was -- and that was -- again, my  
7 chronologies are always a little rough, but I believe  
8 he -- he contacted me, I think it was around  
9 mid-December of last year. And then, oh, within a few  
10 days of the end of the year, he said, hey, I'm going to  
11 be transferring over, leaving JD, going to Miller  
12 Friel. I'll contact you after the turn of the year  
13 after I get settled into the new firm.

14 Q. Okay. So when did he next contact you?

15 A. Oh, then it was sometime in early January,  
16 and then we started the discussions in earnest.

17 Q. Okay. What were those discussions in early  
18 January?

19 A. Then he started getting into a little more  
20 specifics of the case, you know, a little more -- a  
21 little more detail.

22 Q. What detail did he provide you?

23 Now, "early January," do you know  
24 approximately the date?

25 A. I'd say early/mid, 13th/15th, depending on

CONFIDENTIAL

Page 93

1 how you want to call it early or mid.

2 Q. Okay. So around the 13th/15th he contacted  
3 you regarding this case --

4 A. Right.

5 Q. -- and provided you a little bit more detail?

6 A. Right.

7 Q. What detail did he provide you at that time?

8 A. Just the fact that there was a -- now, he  
9 said that there was a device that it was allegedly  
10 producing more energy than it's consuming. And there  
11 are some issues about is this really -- you know, did  
12 it really do that, can it really happen.

13 Q. Okay. And what did he tell you he wanted you  
14 to do?

15 A. What he -- excuse me a second.

16 MR. LOMAX: I'm going to object to the extent  
17 you're seeking attorney work product.

18 MR. ANNESSER: Are you going to allow him to  
19 answer?

20 MR. LOMAX: Uh-huh.

21 A. He just said, we'll send you some  
22 documentation, take a look at it, see what you think.  
23 He did not -- he -- actually, he was pretty -- more  
24 specific than most attorneys about not saying, here's  
25 kind of what we want you to do. Take a look at this

CONFIDENTIAL

Page 94

1 stuff, let us know what you think, what your opinions  
2 are.

3 Q. What did he send you?

4 A. Actually, it was Mr. Lomax that then sent me  
5 a couple of flash drives with pretty -- a lot of the  
6 information that you have there in that whatever  
7 appendix it is, those -- those types of documents.

8 Q. Okay. Looking at Exhibit 7, which I believe  
9 you have somewhere here.

10 A. Oh, it's in my -- yeah, you were looking  
11 for -- I think you were probably looking for 4. Yeah,  
12 there's 4.

13 Are we still -- are we going to come back to  
14 4?

15 Q. We may.

16 A. Okay.

17 Q. But looking at Exhibit 7 --

18 A. Yes, sir.

19 Q. -- take a look at the last two pages, which  
20 are marked as Exhibit B, and this document is your  
21 expert report in this case?

22 A. Yes. Okay.

23 Q. Is this a list of all of the information and  
24 documents provided to you in relation to your work with  
25 this case?

CONFIDENTIAL

Page 95

1 A. It looks like it, yes.

2 Q. Now, when were you formally retained in this  
3 case?

4 A. Okay. I'm having a hard time finding that  
5 document right now. I know it's in this stack of stuff  
6 somewhere. And I'm -- I guess for lack of a better  
7 date, I'm going -- for right now I'm going to say 20  
8 January of this year-ish plus or minus a couple days.  
9 I know it's in here, but it's probably stuck between a  
10 couple of things.

11 Q. Okay. All right. I'm going to ask you to  
12 find that if you would.

13 A. Sure.

14 MR. ANNESSER: Why don't we go off the record  
15 for a moment to allow you to look for that.

16 THE VIDEOGRAPHER: We're off the record. The  
17 time is 10:56.

18 (Recess taken.)

19 THE VIDEOGRAPHER: We're on the record. The  
20 time is 10:57.

21 BY MR. ANNESSER:

22 Q. Sir, you found the document?

23 A. I did. My apologies. Yeah. Here's --  
24 here's the signed retainer agreement.

25 Q. Do you have multiple copies, sir?

CONFIDENTIAL

Page 96

1 A. I do. How many do you need?

2 Q. I'm going to ask you for the copy you're  
3 referring to so I can mark it as Exhibit 8.

4 A. I think you've got the top one, but they're  
5 all the same, so you can mark whichever one you want.

6 - - -

7 (Deposition Exhibit 8 marked.)

8 - - -

9 Q. I'll tell you what, I will mark this one as  
10 Exhibit 8 and ask you to give me a copy of that.

11 A. Sure.

12 Q. Thank you. And I'll ask you to refer to this  
13 one specifically.

14 Now, this is a document that purports to have  
15 been signed January 25, 2017 by Mr. Pace?

16 A. That's correct.

17 Q. Prior to your retention in this case, did you  
18 do any work in the case?

19 A. No.

20 Q. So you didn't do any work before January  
21 25th?

22 A. Okay. If you want to call a phone call work,  
23 yeah, I did a phone call.

24 Q. Other than the phone call?

25 A. No. As far as analysis and so forth, no, I



CONFIDENTIAL

Page 97

1 didn't do that.

2 Q. Okay. So were any of the documents listed in  
3 Exhibit B to Exhibit Number 7, your report, were those  
4 provided to you before or after your retention?

5 A. These two flash drives that I got from  
6 Mr. Lomax, I dated them. This one is dated -- they're  
7 both dated 24 January 2017. I wrote the date down of  
8 when I got them.

9 Q. Okay. So you received those prior to being  
10 retained in this case?

11 A. What's the date on that, the 25th?

12 Q. It purports to be January 25, 2017 --

13 A. Correct. I received them, I did not look at  
14 them. I probably loaded them on my computer, but I  
15 didn't really look at them.

16 Q. Okay. So you didn't review them prior to  
17 January 25th, 2017?

18 A. No. No. No.

19 Q. Is this fee schedule and conditions a  
20 standard form that you use?

21 A. It is. There was a little modification.  
22 It's my general form that I use. They wanted a little  
23 bit on paragraph 4 about the fee cap of \$25,000. And  
24 then up in number 1, usually we don't add the case  
25 caption; in number 1, they added the case caption. So

CONFIDENTIAL

Page 98

1 there were a couple of changes like that.

2 And then also about the confidentiality, they  
3 wanted to include that to make sure the confidential-  
4 -- "they" being JD and Miller Friel, so that I was tied  
5 into the confidential- -- confidentiality umbrella.  
6 There we go. And then other than that, it's my  
7 standard form.

8 Q. Okay. Did you sign a nondisclosure or  
9 confidentiality agreement in addition to this document?

10 A. I did.

11 Q. Do you have that with you today?

12 A. It's probably down in the Miami office of  
13 Jones Day. I signed it down there last week.

14 Q. So you signed it last week after you received  
15 all the documents that are contained on Exhibit B?

16 A. Wait a minute. Let me -- let me think about  
17 it here. I'm not sure if it was a confidentiality --  
18 maybe it was a nondisclosure agreement. I did sign  
19 something last week with the anticipation of going on a  
20 site visit, so I did sign -- it was a -- I don't know.  
21 It appeared to be some kind of a legal protective  
22 document.

23 Q. Do you know what day last week it was?

24 A. I think it was Tuesday.

25 Q. Tuesday, February 21st, does that sound

CONFIDENTIAL

Page 99

1 right?

2 A. Sounds about right.

3 Q. So all these documents had been provided to  
4 you prior to that, prior to you executing that  
5 confidentiality agreement?

6 A. Whatever -- yeah, whatever that document was,  
7 that's correct.

8 Q. Other than the document you signed on  
9 February 21st, did you sign any other confidentiality  
10 agreements?

11 A. I don't believe I did. I don't think I did.

12 Q. So as of the time you entered into this fee  
13 schedule and conditions, that was accepted January 25,  
14 2017; is that correct?

15 A. It is.

16 Q. The document that we've marked as Exhibit  
17 Number 8; is that correct?

18 A. It is 8, yes, sir.

19 Q. Okay. At the time that Mr. Pace executed  
20 this agreement, you had not begun any of the  
21 substantive work with respect to this case?

22 A. That is correct.

23 Q. Did you know at the time of entering into  
24 this agreement approximately what the subject matter of  
25 your testimony would be?

CONFIDENTIAL

Page 100

1           A.    Very roughly. I knew it would be about the  
2           general area of boilers, steam, heat transfer. Very  
3           generally, yes.

4                   And then also they had mentioned that the  
5           device claimed to have put out more energy than it  
6           consumed, so obviously that's -- that's going to be a  
7           matter of discussion, too.

8           Q.    Now, looking back, sir, to Exhibit Number 7,  
9           which you've identified as your report in this case,  
10          did you prepare this report?

11          A.    I did not. I prepared -- excuse me. I  
12          prepared a Word document report that is the bulk of  
13          this. All right. As far as putting it in the proper  
14          legal format, somebody at Jones Day did that. I gave  
15          them my report and then they put the -- you know, put  
16          it into proper format for the court.

17          Q.    Okay. Is there any portion of the contents  
18          in here that you did not write?

19          A.    Well, the cover page, obviously. Let's see  
20          here. On the first page, it would be like the top  
21          paragraph, the introduction.

22          Q.    You did not write the introduction?

23          A.    Actually, I did. Yeah, I wrote the backbone  
24          of that, yeah. And then --

25          Q.    I'm sorry, you said you wrote the backbone of

CONFIDENTIAL

Page 101

1 that?

2 A. Well, you know, we -- obviously we've done a  
3 little bit of wordsmithing to get it in the proper  
4 legal -- you know, I'm an engineer, not an attorney,  
5 so, you know, it had to be gotten into the proper legal  
6 phraseology.

7 Q. You say "we" did some wordsmithing.

8 Who's "we"?

9 A. Well, you know, whenever -- as you well know,  
10 whenever an expert does a report, we'll go back and  
11 forth to try to get the wording in the proper legal  
12 phraseology.

13 Q. But my question was, who is "we"? Who did  
14 you work with to modify what you had written into --

15 A. Predominantly Mr. Bell.

16 Q. Mr. Bell?

17 A. Yes, sir.

18 Q. Was there anyone else?

19 A. I think Ms. Handelman was helping out a  
20 little bit.

21 Q. Okay. What about the Statement of Opinions,  
22 Equipment Description?

23 A. Okay, now, on page 1, I can cut to the chase  
24 here and save you some time here, through page number  
25 23, that's all me.

CONFIDENTIAL

Page 102

1 Q. Were any alterations or changes requested by  
2 anyone in relation to any of the matters discussed in  
3 page 1 through 23 of this report?

4 A. We did some wordsmithing, yes.

5 MR. LOMAX: I'm going to object to any  
6 questions that are seeking attorney work product on  
7 this issue.

8 MR. ANNESSER: Okay.

9 BY MR. ANNESSER:

10 Q. You did some wordsmithing?

11 A. Yes.

12 Q. Okay. Do you know what areas were changed or  
13 altered?

14 A. Several.

15 Q. Do you know what those areas would be?

16 A. I don't remember exactly right now.

17 Q. Okay. We will go through this --

18 A. No. Again, to -- let me help you finish your  
19 question. Obviously page 24 I didn't do, because  
20 that's the attorneys and the service and so forth. The  
21 exhibits, you know, my CV, obviously, I did.

22 And then on the evidence reviewed, I think I  
23 told the people at Jone- -- yeah, Jones Day, because I  
24 think Ms. Handelman was doing a lot of this, I said,  
25 I'm -- I don't have time to write all of this down,

CONFIDENTIAL

Page 103

1 what was on the two flash drives that Mr. Lomax  
2 provided. So they basically --

3 MR. LOMAX: I'm going to instruct you not to  
4 get into the conversations --

5 MR. ANNESSER: Well, he doesn't. He said  
6 documents that were provided by you, but --

7 MR. LOMAX: I'm just instructing the witness  
8 to not get into conversations with his attorney.

9 MR. ANNESSER: Okay. That's fine.

10 BY MR. ANNESSER:

11 Q. You can -- you can continue. I don't want to  
12 know what the attorneys have told you with respect  
13 to -- well, at this point in time.

14 A. Okay. What happened, instead of me typing  
15 out everything that was on those flash drives, somebody  
16 else did it, I checked it. It was just for purely  
17 clerical convenience on Exhibit B.

18 Q. Are there any documents that you reviewed or  
19 information that you received that is not listed within  
20 Exhibit B to Exhibit Number 7 that's been marked in  
21 this deposition?

22 A. Not that I can think of.

23 Q. Okay. In reviewing the documents that you  
24 were provided -- well, let me take a step back.

25 What was your understanding, at the time that

CONFIDENTIAL

Page 104

1 you were retained, so as of January 25, 2017, what was  
2 your understanding of your assignment?

3 A. To look at the information that was provided  
4 and provide an independent analysis of were the claims  
5 being made for the device true or not, was the data --  
6 did the data appear to be valid and -- let me get -- I  
7 got a little balled up there.

8 Would you mind asking your question again? I  
9 apologize.

10 Q. What did you understand your assignment to  
11 be?

12 A. Well, to look at, and again, is the  
13 coefficient of performance a proper term to use. Did  
14 the machine, the E-Cat, develop the COP that it was  
15 intended to do, did it produce more energy than it was  
16 consumed. And then also to kind of look at just the  
17 gen- -- the data that was -- that were -- data that  
18 were provided and to, again, try to make a general  
19 analysis of -- based on what I was provided.

20 Q. Now, sir, you said, I believe, that you had  
21 been retained 427 times -- or your company, ATE, has  
22 been retained 427 times of which 82 of those were in  
23 relation to cases pending before the courts; is that  
24 correct?

25 A. Not necessarily cases, expert witness. So a



CONFIDENTIAL

Page 105

1 lot of them did not -- you know, a lot of them -- I  
2 shouldn't say a lot. Several of them have not gone to  
3 litigation. So I was involved early on with the  
4 anticipation of litigation and then they either  
5 settled, litigation was not pursued.

6 So those 82 that you're referring to are in  
7 the general legal purview as opposed to, say, doing  
8 design work or teaching work.

9 Q. Have you ever been fired by a client with  
10 respect to cases that you've been involved in --

11 A. Yes.

12 Q. -- as an expert witness?

13 A. Yes.

14 Q. How many clients?

15 A. One that I recall for sure.

16 Q. Okay. Who was that?

17 A. A long time ago, I think it was called Miller  
18 versus Dacor.

19 Q. Why were you fired?

20 A. Because I wouldn't rollover and tell him what  
21 he wanted instead of what I found.

22 Q. Okay. Any others?

23 A. That's the only one I can think of right now.

24 Q. So out of the 82 cases, there's only been one  
25 case where you have found contrary to the party that

CONFIDENTIAL

Page 106

1 retained you?

2 A. That's the only one I can think of right now,  
3 yeah.

4 Q. Okay. So we're talking about your  
5 understanding of the assignment. And they asked you to  
6 evaluate a number of things, so -- and provided you  
7 information. Let's -- let's first review on Exhibit B  
8 to Exhibit 7 the documents that you've been provided.

9 You were provided a copy of the complaint  
10 filed in this action, correct?

11 A. Yes.

12 Q. Okay. That's number 1. Is there anything  
13 within the complaint that affected your evaluation in  
14 this case, that you relied upon in forming your  
15 opinions?

16 A. Let me take a minute and go through it.  
17 Okay. In looking at the -- what I have done -- at  
18 least -- I think that was a very long document, Article  
19 71 of the complaint on page 13, by all accounts, the  
20 amount of energy produced by the E-Cat during the  
21 guaranteed performance was substantially greater than  
22 50 times the amount of energy consumed, that was  
23 definitely part of it.

24 Q. Okay.

25 A. Next, 72, the ERV publishing his final

CONFIDENTIAL

Page 107

1 report, yes. 73, yes. And then on validation of the  
2 plant on -- this is -- I'm not sure what -- this might  
3 be an addendum, but this was paragraph 4, validation of  
4 the plant. It looks like it's an attachment to the  
5 complaint.

6 Q. And what effect did those allegations have on  
7 your opinions in this case?

8 A. Well, those were -- those were the things  
9 that -- you know, a lot of the other issues were  
10 commercial and -- and so forth that did not concern my  
11 part of the work. Those appeared to be the -- the  
12 technical issues at hand that I could address.

13 Q. Now, number 3 on your list is the E-Cat MW1  
14 Energy Plant in Miami Tests Plan.

15 Did you review that document, sir?

16 A. I did.

17 Q. Okay. And are you offering an opinion as to  
18 the propriety of that test plan?

19 A. I am.

20 Q. Okay. What have you been informed regarding  
21 that test plan?

22 A. Well, I was provided -- I've got a copy  
23 somewhere in here. I'm not sure I was informed much of  
24 anything.

25 I believe in discussions with Mr. Murray, he

1 felt it was very, very deficient as far as testing and  
2 advice of this type.

3 Q. I'm going to stop you for a moment. You said  
4 in discussions with Mr. Murray, he felt it was  
5 deficient.

6 Did you do your own evaluation of the test  
7 plan?

8 A. Oh, yeah. Oh, yeah.

9 Q. And that evaluation was done for what  
10 purpose?

11 A. To determine if it was a proper way to test a  
12 device of this sort.

13 Q. Okay. And did anyone ever tell you in this  
14 case that the defendants, Ms. -- I'm sorry, Industrial  
15 Heat and IPH International B.V. agreed to that test  
16 plan?

17 A. They have, yes.

18 Q. They did tell you that?

19 A. They did, yes.

20 Q. Okay. So you were aware that that was an  
21 agreed-to test plan?

22 A. I am aware of that.

23 Q. And your opinion is that it is somehow  
24 deficient?

25 A. Correct, it is deficient, yes, sir.

CONFIDENTIAL

Page 109

1 Q. But you don't plan on testifying that it  
2 wasn't agreed to, right?

3 A. No. No. That's a nontechnical issue as far  
4 as I'm concerned.

5 Q. Okay. The fourth item on your list is  
6 initial queries for Mr. Engineer Fabio Penon -- or  
7 M. Engineer Fabio Penon as to measurements of the 1  
8 megawatt plant.

9 Did you review that document?

10 A. I did.

11 Q. What was the purpose of your reviewing that  
12 document?

13 A. That was -- if my memory serves, that was  
14 Mr. Murray, Joe -- yeah, Joe Murray, his questions  
15 after his visit to the plant, his questions to  
16 Mr. Penon about things that were happening and -- and  
17 issues that they had -- Mr. Murray had questions or  
18 concerns with.

19 Q. Okay. And what was the -- well, did that  
20 affect your opinions in any manner?

21 A. I'd have to read it. Maybe if I can dig that  
22 out. It did to a point. I will say yes for now.

23 Q. Okay. And what effect did it have?

24 A. It just -- it gave me a little different  
25 perspective, a little more information to -- to

1 consider.

2 Q. Did anyone tell you that they wanted you to  
3 testify in accordance with those queries?

4 A. No. Actually, they were -- they were quite  
5 specific that they -- at that time they known -- they  
6 knew that Mr. Murray had some -- done some analysis of  
7 his own. And they were very, very specific about not  
8 making me privy to those. They wanted me to come to my  
9 totally independent conclusions based on Mr. Murray --

10 Q. Then why did they --

11 A. -- or other than Mr. Murray.

12 Q. Then why did they disclose them to you at the  
13 same time as all the other documents?

14 A. You'd have to ask them that. I don't know.

15 Q. Okay. You just testified that they were very  
16 specific about not wanting you to --

17 A. That was at the initial -- at the onset of  
18 our -- my engagement. I should -- maybe I didn't  
19 clarify that one. It was the onset of the engagement.

20 Q. Well, I think we've established, sir, that  
21 you received these documents on January 24th and you  
22 were engaged on January 25th of 2017?

23 A. Right. But I also said that I did not do any  
24 work until after -- a day or so afterward.

25 Q. Okay. So approximately the 26th?

1 A. Ish.

2 Q. The documents produced in response to a  
3 subpoena served on Florida Power & Light --

4 A. Yes.

5 Q. -- did you do any analysis of those  
6 documents?

7 A. I looked at them. I don't believe I did a  
8 lot of analysis on them.

9 Q. Do you base any of your opinions on those  
10 documents?

11 A. Not right now, but I may, because I  
12 understand there's some more information coming from  
13 FP&L, so I do reserve the right to look at that again  
14 and supplement this if need be.

15 Q. You understand, sir, that your opinions have  
16 been submitted in this case and we're entitled to know  
17 what the opinions are prior to your deposition.

18 So are you inferring that you are going to be  
19 changing or altering your opinions after this  
20 deposition?

21 MR. LOMAX: Objection to the form of the  
22 question.

23 A. I may. Based -- as discovery continues, as I  
24 see other depositions and so forth, I fully reserve the  
25 right to amend or adjust my opinions based on that

1 information provided, yes, sir, I do.

2 Q. Do you plan on rendering any further  
3 opinions?

4 MR. LOMAX: Objection to the form of the  
5 question.

6 A. Again, I reserve the right to if need be.

7 Q. Okay. Currently, do you know of any  
8 additional opinions that you plan on rendering that are  
9 not reflected in your report?

10 A. Not right now.

11 Q. Documents produced in response to subpoena  
12 served on Miami-Dade Water and Sewer.

13 Did you review those documents?

14 A. I did.

15 Q. Did you review all the documents on this  
16 list, sir?

17 A. I did, yes, sir.

18 Q. Number 11 is a video and photo of the flow  
19 meter time lapse conducted by Joseph Murray.

20 Did you review that, sir?

21 A. I looked at it, yes.

22 Q. What is that?

23 A. There's some pictures that he took of the  
24 flow meter of the water coming back into the E-Cat.  
25 And he did a time lapse -- apparently did a time lapse



CONFIDENTIAL

Page 113

1 photo of the register dial indicating the amount of  
2 water passing through that meter.

3 Q. Okay. Do you know how much water was  
4 actually put through the meter in that test?

5 A. I don't remember off the top of my head.

6 Q. Do you know the methodology used by  
7 Mr. Murray in conducting that time lapse test?

8 A. Again, I don't remember right off the top of  
9 my head now.

10 Q. Did you rely upon that video and photo for  
11 any portion of your opinion in this case?

12 A. Very little.

13 Q. Okay. To what extent did you rely on it?

14 A. Again, very little.

15 Q. Well, I understand it's very little, but I  
16 want to know what that little amount is.

17 A. I can't give you a percentage.

18 Q. Okay. But it did affect your opinion in this  
19 case?

20 A. A little bit, yeah.

21 Q. Okay. The number 12, videos of heat  
22 simulation conducted by Joe Murray.

23 A. Yes.

24 Q. Did those videos affect your opinion in this  
25 case?

CONFIDENTIAL

Page 114

1 A. They did.

2 Q. Okay. More than just a little?

3 A. Yes.

4 Q. Okay. Do you know what criteria was used to  
5 perform those heat simulations?

6 A. No, I did not. I did not dig into his  
7 underlying methodology. I looked at them and that  
8 might be -- if I have time to look into it more, that  
9 be -- may be an area where I amend my opinion. If I  
10 have time to dig into Mr. Murray's analysis, I may  
11 agree or disagree with him.

12 I am not an expert on finite el- -- finite  
13 element analysis, all right, as Mr. Murray appears to  
14 be.

15 So, you know, I looked at it. It -- it  
16 appeared to be legit. But further examination, you  
17 know, there may be some -- some wrinkles in his  
18 analysis that I disagree with.

19 Q. Okay. So when you say "finite element  
20 analysis," what does that mean?

21 A. What -- in large scale analyses like that,  
22 what -- what an an- -- I can't even talk -- an analyst  
23 will do is to break a large system down into smaller  
24 chunks and then analyze each chunk and then anal- --  
25 and then work that to analyze the aggregate. Some --

CONFIDENTIAL

Page 115

1 some problems are -- are very difficult to solve  
2 otherwise.

3 Q. So if the data under- -- underlying  
4 Mr. Murray's heat simulations was inaccurate, would  
5 that affect the opinion that you've rendered as part of  
6 this report?

7 A. If it was inaccurate, it might.

8 Q. What do you mean "it might"?

9 A. Well, you're assuming it's inaccurate. I  
10 don't know that -- you know, again, I --

11 Q. I'm asking you, if it's found that his  
12 simulations were, in fact, inaccurate, would that  
13 affect your opinions in this case?

14 A. I guess I'd have to ask you back, whose --  
15 whose standard -- whose proof that it's inaccurate? I  
16 need to know, you know, who's saying -- who's saying  
17 it's inaccurate.

18 Q. Sir, it's not who said. I'm asking you, if  
19 you look at his underlying data and say, wait a second,  
20 this is all wrong, would that affect your opinion as  
21 it's been rendered in this report?

22 A. Would you help me out when you say  
23 "underlying data"? Can you be a little more specific,  
24 please?

25 Q. Well, the criteria that he used to perform

CONFIDENTIAL

Page 116

1 these simulations.

2 A. Okay.

3 Q. Do you know how these simulations are  
4 conducted?

5 A. I'm not -- like I said, I'm not an expert on  
6 finite element analysis.

7 Q. Okay. So you've relied upon his simulations  
8 in forming your opinions?

9 A. Yes, I have.

10 Q. Okay. Number 14, Joseph Murray's October 31,  
11 2016 power analysis.

12 What was that?

13 A. He -- my understanding is what he did was to  
14 look at the -- the numbers generated by Mr. Penon and I  
15 believe Mr. Fabiani to compare those numbers with the  
16 FP&L meter data, that's my -- that's my understanding.

17 Q. Okay. Did you rely upon those comparisons in  
18 formulating your opinions?

19 A. Very little.

20 Q. But did you rely upon them to any degree?

21 A. A little. Like I said, a little bit. I'm  
22 not going to give you a percentage. A little bit.

23 Q. If that data were found to be incorrect,  
24 would it affect your opinion in this case?

25 A. No.

CONFIDENTIAL

Page 117

1 Q. Okay. Did you at all -- okay.

2 In your reliance upon Mr. Murray's October  
3 31, 2016 power analysis, what relevance did that have  
4 to your opinions in this case?

5 A. Actually, not a lot.

6 Q. Number 15, photos taken at the Triangle Drive  
7 facility.

8 Did those photos have any effect on your  
9 analysis in this case?

10 A. Obviously, they had an effect. They were --  
11 you know, there's no data there. It's information  
12 only. So, yeah, it did have an effect, qualitative  
13 more than quantitative.

14 Q. Okay. On the second page of Exhibit B,  
15 number 18, it says, Industrial Heat spreadsheets  
16 summarizing data collected from Florida Power & Light.

17 Who prepared those spreadsheets?

18 A. It says Industrial Heat, so it would -- you  
19 know, my understanding would be that they prepared the  
20 spreadsheets.

21 Q. Did you ever analyze the data to make sure  
22 that it was accurate and complete?

23 A. I did not analyze that electrical data at  
24 all.

25 Q. Did you rely upon that electric- --

CONFIDENTIAL

Page 118

1 electrical data in formulating your opinion in this  
2 case?

3 A. Virtually none.

4 Q. Number 19, Industrial Heat spreadsheet  
5 summarizing the data from Penon's final report.

6 What was that?

7 A. They -- they apparently -- what they did was  
8 they took his data and tried to translate it from  
9 Italian into English and make it so that it was usable  
10 for people who use English as their native language as  
11 opposed to Italian. That's my understanding of it.

12 Q. Did you rely upon that spreadsheet  
13 summarizing the data from Penon's final report?

14 A. I did to a point.

15 Q. How so?

16 A. I -- initially I thought that spreadsheet had  
17 been produced by Penon proper. And then it turned out  
18 that that was Industrial Heat's translation of it, if  
19 you will.

20 So I thought, now, rather than rely on this  
21 from Industrial Heat, I'll try to stick with the  
22 original data as much as I can.

23 So I looked at it initially, but then I don't  
24 want to say totally ruled it out, because, you know,  
25 it's already in my mind, but as far as a substantive

CONFIDENTIAL

Page 119

1 basis for my opinions, not very much.

2 Q. Okay. Now, Mr. Penon's final report, was  
3 that in Italian or was it in English?

4 A. It was in English.

5 Q. Okay. So what was the summary that  
6 Industrial Heat had provided?

7 A. This one? As best I could tell, it was a --  
8 it was a rollup of the data, kind of a summarization of  
9 the data.

10 Q. Okay. Were they --

11 A. Go ahead. I'm sorry.

12 Q. Do you know if the -- the information input  
13 into that data was true and correct? Did you do an  
14 analysis to verify those --

15 A. Now, when you say "that data," help me out.

16 Q. The data input into the Industrial Heat  
17 spreadsheet summarizing the data from Penon's final  
18 report, do you know who put that in specifically into  
19 their summarization?

20 A. Into Industrial Heat's?

21 Q. Uh-huh.

22 A. I believe it was Mr. Murray. That's --  
23 that's my understanding.

24 Q. Do you know --

25 A. But it might -- it might have been one of his

CONFIDENTIAL

Page 120

1 employees. That, I don't know for 100 percent.

2 Q. Did you cross-check and verify that it's  
3 accurate and correct?

4 A. That's why -- that's one of the reasons why I  
5 did not use it, because it was based on, what I  
6 understand -- because Penon's data was in a PDF as  
7 opposed to a spreadsheet, PDF is numbers on a paper,  
8 there are no underlying formulas that you can see on a  
9 PDF, at least not that I'm aware of. So my  
10 understanding is what Industrial Heat did was took  
11 Penon's data, replicated the spreadsheet and then input  
12 his data.

13 That's why I did not use Industrial Heat's,  
14 because it's a tran- -- okay, maybe not from Italian to  
15 English, but a translation from his PDF numbers into a  
16 spreadsheet.

17 Q. But the numbers should be the same, correct?

18 A. They should be, but they might not have been.  
19 You know, I think -- my understanding is Industrial  
20 Heat did try very, very hard. I understand Mr. Murray  
21 cross-checked almost all of them. But still, that --  
22 that raises a question in my mind, so I didn't use  
23 them.

24 Q. Now, you say you --

25 A. I shouldn't say didn't, I used them very



CONFIDENTIAL

Page 121

1 little.

2 Q. You said it's your understanding that  
3 Mr. Murray cross-checked all of them.

4 What gives you that understanding?

5 A. I believe that's what he said or I read it  
6 someplace.

7 Q. Now, on number 20, telephone interviews with  
8 Mr. Murray --

9 A. Uh-huh.

10 Q. -- when did you first speak with Mr. Murray?

11 A. Okay. That would be January 20th of this  
12 year.

13 Q. And what was the purpose of that call?

14 A. That was an introductory call where  
15 Mr. Murray, Erika Handelson and Chris Pace brought me  
16 up to speed on what the -- what the substance of the  
17 case was.

18 Q. I thought you didn't know the true substance  
19 of the case until you were retained.

20 A. They got into more detail after I was  
21 retained. This was just kind of the basics, and then I  
22 got -- this is kind of the 30,000 foot, if you will.  
23 And then I got -- later on I got the -- from Mr. Lomax,  
24 all the nitty-gritty stuff, if you will.

25 Q. Other than the documents listed in Exhibit B

CONFIDENTIAL

Page 122

1 to Exhibit 7, which is your report, did you receive any  
2 other information, whether orally or in writing, email  
3 or otherwise that you relied upon in formulating your  
4 report?

5 A. Again, you have to include my education,  
6 experience and so forth. But as far as directly  
7 provided information, to the best of my knowledge,  
8 everything -- that's it.

9 Q. Sir, have you formulated any opinions in this  
10 case?

11 A. I have.

12 Q. I imagine you would have.

13 Are those the opinions that are summarized in  
14 your report on page 21, Conclusions?

15 A. Yes, it is, correct.

16 Q. In addition to those three listed opinions,  
17 have you formulated any other opinions in this case?

18 A. I think that's it as I sit here. I think  
19 we're pretty well good to go here.

20 Q. Other than the documents that we've discussed  
21 as part of Exhibit B to your report, are there any  
22 other documents that you have received but elected not  
23 to rely upon?

24 A. When you say "received" --

25 Q. That you were provided by anyone in relation

CONFIDENTIAL

Page 123

1 to this case that you did not rely upon.

2 A. Well, we talked about the Industrial Heat  
3 spreadsheet, all right, that I, you know, gave a little  
4 bit of -- you know, a little bit of credibility to, but  
5 no.

6 Q. Sir, going back to page 1 of your report --

7 A. Is that -- okay.

8 Q. -- under Statement of Opinions, Equipment  
9 Description, you state that you have not been able to  
10 inspect the E-Cat site in Florida?

11 A. Correct.

12 Q. Okay. But you state that based on the  
13 information provided to you, you believe the equipment  
14 is the E-Cat device invented by plaintiff, Andrea  
15 Rossi, a purported chemical processing/production  
16 facility run by J.M. Chemical Products or J.M. Products  
17 and related piping, electrical and -- equipment,  
18 utilities, et cetera, to support the two ventures. The  
19 author believes that the purpose of the E-Cat was to  
20 sell steam via Mr. Rossi's company, Leonardo Corp., to  
21 J.M.

22 A. Yes.

23 Q. Where did you get that information from?

24 A. It was provided by counsel.

25 Q. In what form?

1           A.    Electronic and conversations and -- and  
2 documents.

3           Q.    Would that be -- would the documents be  
4 contained in -- in the list attached as Exhibit B to  
5 your report?

6           A.    Yes.

7           Q.    What were you told in conversation regarding  
8 the two entities?

9           MR. LOMAX:  Objection.

10                  Are you seeking conversation with counsel?

11           MR. ANNESSER:  I'm seeking anything that he  
12 was told.

13           MR. LOMAX:  I object.

14           MR. ANNESSER:  Any -- any information  
15 provided by counsel is not privileged to the extent  
16 that it had any relation to something in the report.

17           MR. LOMAX:  If you're asking specifically  
18 about that, okay.  Otherwise, I would object.

19 BY MR. ANNESSER:

20           Q.    I'm asking what information you were provided  
21 with respect to the paragraph that we just went through  
22 by counsel.

23           A.    One more time, please.  I got lost in the  
24 back and forth.

25           Q.    What information were you provided orally

CONFIDENTIAL

Page 125

1 with respect to your statements made in the first  
2 paragraph starting on page 1 and carrying over to page  
3 2 of your report?

4 A. Obviously, we've had a lot of discussions. I  
5 don't remember most of the conversation verbatim. But  
6 they provided some of the fill-in data as opposed --  
7 about, you know, who did what to who, who J.M. was, who  
8 some of the players were, just, you know, kind of  
9 filling in some of the blanks, if you will, to give me  
10 a little more understanding or kind of the overview of  
11 the case.

12 Q. Now, sir, in the Background, Observations and  
13 Narrative, you say it's -- that it's the author's  
14 understanding is that the plaintiffs contend that the  
15 report dated 3-28-2016 by Dr. Engineer Fabio Penon is  
16 validation of the E-Cat's performance.

17 The purpose of the author's investigation --  
18 that would be you, correct?

19 A. Yes.

20 Q. -- is to determine if the E-Cat data, in  
21 fact, produced more energy than it consumed as  
22 Mr. Penon reported.

23 Was that the purpose of your evaluation, sir?

24 A. Consistent with paragraph 1 and 2, or, yeah,  
25 under Introduction, again, looking at the document as a

CONFIDENTIAL

Page 126

1 whole, yes.

2 And I would -- if you will indulge me, you  
3 asked me about my conclusions. I would add that there  
4 is another opinion that I have formed. Again, it was  
5 not included in my report. But based upon the ongoing  
6 work that I've done, I would add a conclusion number 4  
7 that the E-Cat never produced superheated steam. And  
8 the E-Cat probably did not produce much steam, if any  
9 at all.

10 Q. Okay. We will come back to that.

11 A. I'm sure we will.

12 Q. Okay. The -- jumping ahead to the next  
13 section entitled Basic Thermodynamics, you go  
14 through -- well, let me ask you this: There's a lot of  
15 information that appears to be very generic in there.

16 A. Yes.

17 Q. Okay. Did you write that yourself, or did  
18 you --

19 A. You mean this section here? Absolutely, I  
20 wrote it.

21 Q. Did you borrow any of the language from any  
22 other source?

23 A. Well, the photographs or the illustrations,  
24 those come out of the slides I use for teaching. And  
25 then I reference Dr. Wark's book on thermal also.

CONFIDENTIAL

Page 127

1 Q. Now, you reference Dr. Wark.

2 Who is Dr. Wark?

3 A. Dr. Kenneth Wark, he was my thermodynamics  
4 professor at Purdue.

5 Q. What was the purpose to this generic again?

6 A. The purpose was is that if this is -- if this  
7 is indeed a jury trial or if it's a bench trial,  
8 regardless, the triers of fact are going to need to  
9 understand some basic thermodynamics to have an  
10 understanding of the real issues involved and the  
11 points I'm making.

12 Without that understanding, they are likely  
13 to be overwhelmed or confused with the issues, because  
14 engineering is somewhat like medical, you know, we have  
15 our own jargon and our own way of doing things and our  
16 own expert -- area of expertise that a normal person  
17 doesn't have.

18 Q. Well, let me ask you a couple things.  
19 Starting first with the first law of thermodynamics --

20 A. Uh-huh.

21 Q. -- what is the first law of thermodynamics?

22 A. The first law of thermodynamics, and this is  
23 quoting Wark and, you know, that's -- he writes very  
24 badly --

25 Q. I'm not asking you to read your report, I'm

CONFIDENTIAL

Page 128

1 asking you to tell me.

2 A. Oh, sure, certainly. The first -- the first  
3 law of thermodynamics is generally that energy can  
4 neither be created nor destroyed, it only changes form.  
5 And -- and also -- well, yeah, that's it.

6 Q. And there are many forms of energy, correct?

7 A. There are, yes, sir.

8 Q. Would you state that there are chemical,  
9 electrical, mechanical, nuclear, thermal,  
10 electromagnetic and so on?

11 A. And so on, correct.

12 Q. Now, on page 3 of your report, you go on to  
13 discuss and state that the energy forms are all  
14 interchangeable?

15 A. Theoretically, but go ahead.

16 Q. Okay. And you can convert one form of energy  
17 into another?

18 A. Theoretically.

19 Q. Okay. But then you state that nuclear energy  
20 is generally a one-way street?

21 A. Yes, it is.

22 Q. Why is that?

23 A. It's because -- again, I'm not a nuclear  
24 engineer, understand that. But to go from, say,  
25 mechanical energy to nuclear energy is typically not



CONFIDENTIAL

Page 129

1 possible. And I cited a nuclear weapon and a nuclear  
2 power plant. And usually with -- with nuclear energy,  
3 it's a one-way street outbound.

4 Q. What were you told of the E-Cat process?

5 A. That it is a -- not a nuclear reaction.

6 Q. Who told you that?

7 A. I read Mr. Stokes' report in which Mr. Rossi  
8 said that there's not a nuclear reaction involved.

9 Q. I'm sorry, Mr. Stokes' report?

10 A. The Florida radiological guy.

11 Q. That wasn't listed on the documents that  
12 you -- that are included in your report.

13 A. I believe it's in the -- I believe portions  
14 are in that 277-page response, and I'm not -- I can't  
15 look, I don't have all 277 pages of the third amended  
16 answer.

17 Q. Do you know what the nature of the reaction  
18 underlying the E-Cat is?

19 A. I do not.

20 Q. So as far as you know, it may be nuclear?

21 MR. LOMAX: Objection to the form of the  
22 question.

23 A. Again, based on Mr. Stokes' report, it does  
24 not appear to be nuclear.

25 Q. Okay. But, again, you're saying based on

CONFIDENTIAL

Page 130

1 Mr. Stokes' report.

2 What in Mr. Stokes' report indicates to you  
3 that it is not nuclear?

4 A. Okay. This is the 15 February '16 report of  
5 his, on the last line of item 20, Description of  
6 Investigation, he uses no process that generates  
7 ionizing radiation and uses no radioactive materials in  
8 the construction.

9 Q. Have you ever heard the term LENR, L-E-N-R,  
10 before?

11 A. I have.

12 Q. Okay. What does that stand for?

13 A. It purportedly stands for low energy nuclear  
14 reaction.

15 Q. Have you done any research on that subject  
16 matter?

17 A. Prior to this case, not much. I was -- I was  
18 vaguely familiar with Pons and Fleischmann when it  
19 happened, but I, you know, quit following it after the  
20 controversy.

21 Q. What about as part of this case?

22 A. Well, it -- Mr. -- what I do understand is  
23 that what Mr. Rossi is claiming kind of falls under the  
24 general rubric of LENR. But I believe that LENR is now  
25 a generic term as opposed to a specific term describing

CONFIDENTIAL

Page 131

1 a specific phenomenon.

2 Q. Okay. And so other than Mr. Stokes' report  
3 which states that it does not use -- or does not emit  
4 ionizing radiation or use radioactive materials, do you  
5 have anything other than that to base your statement  
6 that it is not a nuclear reaction?

7 A. I believe that Mr. Rossi has stated that  
8 maybe in one of his depositions.

9 Q. Okay. Do you, sir, have any independent  
10 knowledge other than what you believe other people have  
11 said?

12 A. Well, when you say "independent knowledge,"  
13 help me out here because this is an official report  
14 from the State of Florida, it's an official document.

15 Q. And it's somebody's interpretation. In our  
16 profession, we call it hearsay. Okay.

17 So what I'm asking you is, is there anything  
18 that you know that does not rely upon what somebody  
19 else says?

20 A. Well, I've not -- I've not been allowed to  
21 look at anything inside the facility. All right. I've  
22 not had a description of what is purported to happen,  
23 so I have not been allowed to get that far to make an  
24 independent determination yet.

25 Q. Would that be within your field of expertise

CONFIDENTIAL

Page 132

1 is to make a determination?

2 A. I believe I said already, I'm not a nuclear  
3 engineer, but I believe this is a non-nuclear device.

4 Q. Okay. Then what type of reaction may be  
5 occurring?

6 A. I have no idea. It looks like just a heat --  
7 a thermal heat reaction on a glorified electric heater.  
8 I'm not sure that there's any reaction going on.

9 Q. Has anyone ever told you that samples of the  
10 catalyst had been taken were transmutation of the  
11 materials used appear to be indicated?

12 A. Appear to be? That's a little nebulous --

13 Q. What have you been told, sir?

14 A. I've not -- I've not been told anything in  
15 that regard.

16 Q. So you don't know whether there's been any  
17 transmutation or not? You don't know the nature of its  
18 reaction, correct?

19 MR. LOMAX: Object to the form of the  
20 question.

21 Q. And other than what you've read, you have no  
22 knowledge whatsoever or opinion with respect to whether  
23 it's nuclear or any other type of reaction?

24 MR. LOMAX: Objection to the form of the  
25 question.

CONFIDENTIAL

Page 133

1           A.    Again, I'm not going -- I'm not going to  
2   agree to your assertion because Mr. Stokes was a Navy  
3   nukie, he's an official with the State of Florida, he  
4   is stating that there's no ionizing radiation, there  
5   was not a nuclear reaction.

6           And I read some other -- maybe it was him --  
7   nuclear analysis that said if there were a nuclear  
8   reaction going on in there, it would be a very  
9   dangerous place for people to work.

10          Q.    Okay. And what was that that you read?

11          A.    Again, I read -- I've done a lot of Internet  
12   research, but I take that with a huge dose of  
13   scepticism.

14          Q.    But you rely on it? But you still rely on  
15   it?

16          A.    If I can -- if I can independently confirm  
17   it. You know, and just because it's -- oh, wait, no, I  
18   forgot, if it's on the Internet, it must be true,  
19   right?

20          No, I take -- I take a lot, particularly in  
21   areas like that, alternative in energy so for, there's  
22   a lot of quackery going on. I take all that with a  
23   huge, huge grain of salt, sir.

24          Q.    What is Mr. Stokes -- what is the basis for  
25   his statement? Was there a methodology that he

CONFIDENTIAL

Page 134

1 applied?

2 A. He describes it in his report.

3 Q. Other than his description, do you know what  
4 he did or did not do to come to that conclusion?

5 A. How would I know if it's not in his report  
6 and I wasn't there?

7 Q. But I'm asking you.

8 A. I've answered.

9 Q. To the extent that you rely upon something, I  
10 want to know if you know what basis he had for his  
11 opinion.

12 A. What he put in his report, his experience as  
13 a Navy nukie and being a radiation safety officer for  
14 the State of Florida.

15 Q. Okay. So your -- your opinion with respect  
16 to whether it's nuclear or not is based solely upon the  
17 opinion that he's stated in that report?

18 A. And Mr. Rossi's statements, if I understand  
19 them correctly.

20 Q. Where are those statements?

21 A. I believe they're in one of his depositions.

22 Q. Okay.

23 A. And I -- and I believe he stated on the  
24 Internet that this is not a nuclear reaction. Again,  
25 there's so much stuff out there, it's hard to find it

CONFIDENTIAL

Page 135

1 all.

2 Q. Why isn't the deposition of Mr. Rossi  
3 contained within --

4 A. Well, because it wasn't taken until Friday.  
5 So, again, that's why, if you will notice in my  
6 report -- let me finish, please.

7 Q. Sir, there's no question pending. In fact --

8 A. Oh, I'm sorry. My bad. My bad. I stepped  
9 on you then. My bad. I apologize. I thought there  
10 was.

11 Q. My question to you, sir, was this: Your  
12 report was generated prior to Mr. Rossi's deposition,  
13 correct?

14 A. I believe, yeah, at least -- at least the one  
15 last Friday, obviously.

16 Q. So you would not have relied upon a statement  
17 by Mr. Rossi that was made allegedly after your report  
18 was?

19 A. Well, not at that time; I couldn't,  
20 obviously. All right.

21 Q. Now, sir, going through looking at page 4 of  
22 your report, which appears to be an image British  
23 thermal unit, did you create that image?

24 A. I did.

25 Q. Okay. And was it created specifically for

CONFIDENTIAL

Page 136

1 this or something --

2 A. No, as part of my training classes.

3 Q. Okay. This is just a generic image that  
4 you've created but doesn't particularly apply to this  
5 case, does it?

6 A. Well, yeah, it does particularly apply,  
7 because you're putting heat into fluids. So anytime  
8 you're putting a BTU in or out, yeah, it does apply.

9 Q. Okay. So was Dr. Penon's measurements in  
10 BTUs?

11 A. They were in watts and joules, I believe.  
12 It's an easiest enough conversion. Same stuff, just a  
13 different way to talk about it.

14 Q. Okay. But, again, this slide is particularly  
15 generic. It does not -- it's not an analysis that you  
16 performed on the E-Cat plant or the J.M. plant or that  
17 facility, correct?

18 A. But this is -- yeah, this is generic to any  
19 thermal system, so, yeah, it does apply to the E-Cat  
20 plant.

21 Q. Well, I understand. This is comprised of  
22 your experience and knowledge, is that fair to state,  
23 in terms of that's what this is? This is not any  
24 analysis that you've performed specifically for this  
25 case?



CONFIDENTIAL

Page 137

1           A.    Well, yeah. Well, let me back up. This is  
2    -- this analysis is generic in that it applies to all  
3    thermodynamic systems. The E-Cat, regardless of  
4    whether we agree or disagree on most -- we're probably  
5    going to disagree on most everything, but I think we  
6    can agree that it is a thermal system of some type. So  
7    thermodynamics and these concepts do apply to it.

8           Q.    Looking at page 5, sir, the first paragraph  
9    says, a conventional steam power plant might have steam  
10   leaving the boiler at a pressure of 2485.

11          A.    Uh-huh. Yes.

12          Q.    Is the E-Cat plant a conventional steam power  
13   plant?

14          A.    It's not a power plant. All right. It  
15   allegedly produces steam. And, again, the purpose of  
16   this was not to talk -- this slide was not to talk  
17   about the E-Cat, per se, it was to talk about the more  
18   generally accepted way of producing power now.

19          Q.    Where did you get this statistic that a  
20   conventional steam power plant might have steam leaving  
21   the boiler at a pressure of 2485?

22          A.    My power plant experience. That's a typical  
23   number.

24          Q.    Okay. Is that something I could look up  
25   online?

CONFIDENTIAL

Page 138

1           A.    Sure.  You know, if it's on the Internet, it  
2   must be true.

3           Q.    And you talk about the gauge pressure has a  
4   local atmospheric pressure of normally 14.696 PSIA at  
5   sea level.

6                   Is that something similarly that is widely  
7   known, or is that specific to this?

8           A.    Yes.  It's widely known, yes, sir.  And it is  
9   specific to this case also.

10          Q.    How is it specific to this case?

11          A.    Well, it's in -- my next sentence says Think  
12   Miami.  Doral, Miami, what, 41 feet above sea level,  
13   give or take, it definitely applies.

14          Q.    Okay.  You said 41 feet above sea level.  
15                   Where did you get that information?

16          A.    That might be the elevation.  I don't exactly  
17   what the elevation is.  I used it as a number.  It  
18   could be determined what the exact elevation is.

19          Q.    Looking, sir, at pages 6, 7, 8 and 9 up until  
20   the point where it says E-Cat MW1 Energy Plant Final  
21   Report --

22          A.    Yes, sir.

23          Q.    -- would you consider that all generic as  
24   well?  There's nothing specific to the facts in this  
25   case?  Is that generic background?

CONFIDENTIAL

Page 139

1           A.    It is generic and it is specific to the facts  
2           in this case in that thermodynamics applies to the  
3           facts in this case.

4           Q.    Other than thermodynamics applying to the  
5           facts in the case, you go through a number of different  
6           examples. For example, on page 8, you have a place  
7           where it says at Leadville, Colorado, which is an  
8           elevation just over 10,000 feet.

9                     We're not in Leadville, Colorado, are we?

10          A.    No, we're not.

11          Q.    That's just an example?

12          A.    Correct, to illustrate a point.

13          Q.    And where did you come up with that  
14          information, sir?

15          A.    Well, I haven't been to Leadville, but I've  
16          been close. And so it's just -- it's an understanding  
17          that as you go up in altitude, the pressure drops. So  
18          I know, you know, Leadville, it's just a little over  
19          10,000, so you can calculate the pressure and then the  
20          boiling point.

21          Q.    Why did you choose Leadville?

22          A.    Because it's, I think, the highest elevation  
23          airport in the country. I think it's one of the  
24          highest places that people want to live, just as an  
25          example.

CONFIDENTIAL

Page 140

1 Q. And this graph is predicated upon the  
2 information that you have above in the paragraph  
3 relating to Leadville, Colorado; is that correct?

4 A. Actually, it applies to the whole thing about  
5 boiling, saturated water, saturated steam, so it  
6 applies to that whole area.

7 Q. Who prepared this graph, sir?

8 A. I pulled it off the Internet.

9 Q. Okay. So you don't know who prepared it?

10 A. I have no idea.

11 Q. Do you know what website you got it from?

12 A. I don't remember. And the reason I picked it  
13 is it looked about like the best one that would rep- --  
14 to illustrate what I was trying to -- to -- to talk  
15 about.

16 This is a very, very generic slide. There's  
17 dozens and dozens of different variations out there. I  
18 just happened to pick this one because it seemed to  
19 help my illustration the best.

20 Q. Sir, turning to page 9 at the bottom -- well,  
21 let me -- before I -- before I start into the report,  
22 let me ask you just generically, did anyone assist you  
23 in preparing this report other than counsel?

24 A. No.

25 Q. Did Mr. Murray assist you in preparing the

CONFIDENTIAL

Page 141

1 report?

2 A. He did not assist me.

3 Q. Did he request any changes be made to the  
4 report?

5 A. No.

6 Q. Did you make any changes predicated upon his  
7 advice?

8 A. No, definitely not.

9 Q. Did you make any changes predicated upon  
10 anyone's advice?

11 A. Other than wording changes and, again, in  
12 working with counsel to wordsmith the report, no.

13 Q. How did you decide on what data to review in  
14 this case?

15 A. Some of it's relevant, some of it's not. I  
16 looked at all of it. And let's use an example of  
17 Mr. Fabiani's electric data. All right. I looked at  
18 those computer files. Those looked like comma  
19 delimited files. I thought, okay, this might be nice  
20 to do at some later date, but I don't need it right  
21 now. So that -- that's one example of many decisions I  
22 made.

23 Q. Did you request any additional documents  
24 other than what was provided to you before rendering  
25 your report?

CONFIDENTIAL

Page 142

1 A. Request from counsel?

2 Q. From anyone.

3 A. I don't believe I did.

4 Q. Is there any additional information that you  
5 would have liked to have before rendering your report?

6 A. Not that I can presently think of.

7 Q. So sitting here today, there's no additional  
8 data that may have any effect on the opinions that  
9 you've rendered in this case?

10 A. I'm not going to consent to that at all.  
11 There may be a lot of data that I may need to look at  
12 and re-evaluate.

13 Q. Such as?

14 A. Well, again, I haven't been to the site,  
15 okay, so that's one thing. You know, there's  
16 potentially a lot of data there.

17 I have not been given, or at least I've not  
18 seen, the originals of Mr. Penon's data. All I've seen  
19 is a PDF representation of that. That could be quite  
20 useful. Those are two that I can think of off the top  
21 of my head. And, again, that is not an exhaustive list  
22 that I've given you, those are two examples of maybe a  
23 much larger list, sir.

24 Q. Tell me, sitting here, is there anything else  
25 that you would have liked to have reviewed prior to

CONFIDENTIAL

Page 143

1 rendering your report other than a site inspection and  
2 seeing Mr. Penon's original --

3 A. Again, not that I can think of now. But I'm  
4 not going to -- I'm not going to consent that that's my  
5 -- a limiting answer on my part.

6 Q. Did you ever request an original of  
7 Mr. Penon's data?

8 A. I believe I did.

9 Q. Who did you make that request to?

10 A. Either Mr. Lomax -- you know, one of the --  
11 one of the attorneys that I'm working with, I don't  
12 remember who.

13 Q. Do you know if that was ever requested of  
14 Mr. Penon?

15 A. I don't know.

16 Q. What about the site inspection, when did you  
17 first request a site inspection?

18 A. I don't remember a date, but typically I like  
19 to do a site inspection, so I'm sure I mentioned it  
20 early on.

21 And let me -- let me go back, if I may go  
22 back. Going back to Mr. Penon's dep last week, as you  
23 well know, the record is going to be far from clear  
24 because of the issues involved, Mr. Pace may have  
25 requested that data during the deposition. I don't

CONFIDENTIAL

Page 144

1 remember for 100 percent. He may have. I'll have to  
2 -- we'll have to look at the record to sort that out.  
3 But Mr. Pace may have brought that up during his  
4 portion of the dep.

5 Q. Did you request Mr. Penon's data prior to  
6 rendering your report in this case?

7 A. I'm sure I did.

8 Q. Did you review any data that was provided to  
9 you by anyone other than counsel?

10 A. I don't believe I did.

11 Q. Did you review any literature or other  
12 publications that you used in rendering your opinion in  
13 this case?

14 A. Again, I can't give you a specific list.  
15 But, yeah, going back to my background, you know, the  
16 thermodynamics textbooks, things like that, yeah,  
17 generically, yes.

18 Can I give you specifics? Not right now,  
19 because -- like my steam tables, all right, I used  
20 those, okay, that's one example, Keenan and Keyes steam  
21 tables is one example. You know, my thermodynamics  
22 textbooks, those are a couple examples, but it's not  
23 exhaustive. So whatever I needed at the time, I  
24 grabbed, looked it up, put it back, went on.

25 Q. But you don't have a list today other than



CONFIDENTIAL

Page 145

1 the steam tables?

2 A. No, but that -- no, but I'm not going to say  
3 that's a limiting list. Those are two I can think of  
4 off the top of my head right now.

5 Q. What did you use the textbook for?

6 A. The textbook?

7 Q. Yes.

8 A. Did I say thermal textbook? We'll just talk  
9 -- we'll just say Mr. Wark's book. You know, to make  
10 sure I'm clear on the -- on the first and the second  
11 law. And then to look up perpetual motion machines and  
12 see what he had to say about that.

13 Q. Perpetual motion machines?

14 A. Yes, sir.

15 Q. Is there a perpetual motion machine that you  
16 know of in relation to this case?

17 A. The E-Cat is alleged to be one. But in my  
18 opinion, it is absolutely not one.

19 Q. What is a perpetual motion machine?

20 A. One of the -- in reference to the subject at  
21 hand, a device that creates energy from nothing or  
22 creates more energy than it use- -- consumes or  
23 produces more energy than it consumes.

24 Q. So you have Mr. Wark's book.

25 A. Uh-huh.

CONFIDENTIAL

Page 146

1 Q. How did you rely upon the steam tables?

2 A. Well, that's -- that's where all of the  
3 specific numbers for steam properties are. Commander  
4 Data could memorize that, but I unfortunately cannot.

5 Q. Who published those steam tables?

6 A. Keenan and Keyes.

7 Q. When was that published?

8 A. I have no idea. I think it was the early  
9 '60s, my edition.

10 Q. Can you summarize the pertinent information  
11 theory or methodology from that publication that you  
12 used?

13 A. I don't follow your question.

14 Q. Can you summarize the pertinent information  
15 that you used from that document, from that -- the  
16 steam tables by Keenan and Keyes?

17 A. The properties of steam and the properties of  
18 saturated water and the properties of superheated  
19 steam.

20 Q. And what are those properties?

21 A. I can't give you numbers, that's why I have  
22 the book.

23 Q. Are those -- are all the numbers that you  
24 relied upon for -- contained within your report?

25 A. I use -- yeah, when I do steam calculations,

1 I use those steam tables, yes.

2 Q. What about the textbook by Mr. -- your prior  
3 professor, Mr. --

4 A. Wark?

5 Q. Wark.

6 A. Well, predominant -- again, looking at the  
7 definitions of first and second and then perpetual  
8 motion machines like we talked about.

9 Q. Okay. What about perpetual motion machines  
10 did you rely upon out of that textbook?

11 A. I can show you exactly what I looked at if  
12 you'd like.

13 Q. Sure.

14 A. Are -- are we done with the fee schedule and  
15 stuff so I can get this paper off of my stack?

16 Q. You can put it here for now.

17 A. Okay. Let me give you the -- do you have the  
18 -- okay, that's the exhibit, so all these other copies,  
19 I can -- I can get those off the table --

20 Q. Yes, sir.

21 A. -- and clean this mess up. Okay.

22 All right. Here are some extracts from  
23 Professor -- is that one or two copies? It doesn't  
24 make a difference. All right. And you can mark that  
25 one if you want because they're all the same.

CONFIDENTIAL

Page 148

1 - - -

2 (Deposition Exhibit 9 marked.)

3 - - -

4 Q. We will mark this document as Exhibit 9. And  
5 I'll have you refer to the marked document. If I  
6 may --

7 A. Sure. Absolutely.

8 Q. -- have a copy of this. Thank you.

9 So you referred, sir, to the provisions  
10 contained in Mr. Wark's book.

11 And Mr. Wark was the author of this?

12 A. Correct, he is.

13 Q. And you don't know when this was published?

14 A. I want to say late '60s, early '70s. I took  
15 thermo in, what was it, '73 or '74.

16 Q. Do you know if there are any publications  
17 that disagree with Mr. Wark's rules or information that  
18 he's provided?

19 A. There may be some publications out there that  
20 disagree with it. I'm not aware of them. But I know  
21 Dr. Wong fully agrees with him.

22 Q. Did you at all look for any information that  
23 disagrees with --

24 A. No, because I believe the laws of  
25 thermodynamics are inviable and there's no reason to

1 look.

2 Q. So you don't -- you don't know, sitting here  
3 today, whether anybody has challenged this publication?

4 A. I don't know for a fact. I'd be really  
5 surprised if somebody did.

6 Q. And specifically, sir, with respect to -- I  
7 know you said you looked at perpetual motion machines.

8 A. Correct.

9 Q. Can you summarize what information contained  
10 within this document you relied upon?

11 A. Yeah.

12 Q. I'm going to ask you -- I don't want you --  
13 you can look at it. I don't want you to read it word  
14 for word.

15 A. Well, I won't read it. No, no, I won't do  
16 that to you. It's on page 213, 6-10. This is Wark's  
17 book. And then -- and then 214 describes -- yeah, page  
18 213 and 214, Sections 6-10, perpetual motion machines,  
19 he gives me a general description of them.

20 Q. Okay. And did you find that -- did you use  
21 that description in any way in formulating your  
22 opinions in this case?

23 A. I did.

24 Q. Okay. How so?

25 A. If you go to page 214, middle of the page

CONFIDENTIAL

Page 150

1 just above Heat Reservoir, the next -- the second  
2 sentence up, a perpetual motion machine, excuse me, of  
3 the kind -- first kind, a PMM1, in parenthesis, is a  
4 device which creates energy and thus violates the first  
5 law of thermodynamics. Any process which creates a  
6 PMM1 or a PMM2 is impossible.

7 Q. What is a PMM1 or PMM2?

8 A. Perpetual motion machine.

9 Q. What is the difference between 1 --

10 A. Okay. The difference, the first one is it  
11 violates the first law in that it creates energy. And  
12 then the second one violates the second law in that you  
13 can have a machine that basically keeps on running of  
14 its own accord.

15 Q. Now, we'll -- we'll get into the laws of  
16 thermodynamics shortly, but are you familiar with the  
17 author's reputation?

18 A. Dr. Wark? He was a good professor. I've  
19 never -- I've not heard anything negative about him. I  
20 mean, there may be negative stuff about him, but I have  
21 not followed his career, so I don't know good, bad or  
22 indifferent.

23 Q. Do you know if he maintains good standing in  
24 his field?

25 A. I don't know if he's even alive.

CONFIDENTIAL

Page 151

1 Q. Okay. What about Joe Murray, are you  
2 familiar with his reputation or experience?

3 A. No. I've never met the man.

4 Q. Do you know if this publication, specifically  
5 the Thermodynamics book written by Kenneth Wark, was  
6 peer reviewed?

7 A. I don't know that textbooks are peer  
8 reviewed.

9 Q. Now, with respect to your opinions in this  
10 case, can you state every methodology that you've  
11 relied upon in forming your opinions?

12 A. No, because -- and the reason for that is not  
13 that I don't have them, it's just that it's a thought  
14 process that I've developed over 40 years of being an  
15 engineer, four years undergrad, graduate degree, and  
16 everything that I've done. So it's just an ongoing  
17 process that it would take weeks to try to even sort it  
18 out.

19 I have one, but I can't give you --  
20 unfortunately, I can't give you the specific answer  
21 that you're looking for. It's just it's in there and  
22 that's how I think and that's how I work.

23 Q. Okay. So there's no direct methodology you  
24 can point me to that, for example, Dr. Wong, our  
25 expert, can look at and say, yes, that methodology is

CONFIDENTIAL

Page 152

1 correct, or, no, that methodology is incorrect based  
2 on --

3 A. Well, you know, when you say a methodology,  
4 you know, we can wrangle some words here if you'd like,  
5 but, you know, methodology seems to be more like in  
6 devising an experiment to figure out A, B or C. Okay.  
7 You know, here's the methodology, we're going to do  
8 this. All right.

9 My methodology is just a way of thinking that  
10 engineers typically use. I would imagine -- again,  
11 never met Dr. Wong either. I would imagine his thought  
12 processes along these regards and mine are probably  
13 quite similar, same for Mr. Wark, same for Mr. Murray.  
14 Okay. I should say Dr. Wark. My bad. You know what I  
15 mean.

16 Q. Is there -- so there's no defined, for  
17 example, formula that you have applied in formulating  
18 -- in formulating your opinions in this case? It's a  
19 culmination of your years of experience that you've  
20 relied upon in forming your opinions?

21 A. All of the above. I've used some formulas in  
22 talking about, you know, the heat rejected by a power  
23 plant, okay, that's a calculation. You know, the  
24 definition of COP, that's a calculation. All right.  
25 So there are formulas I used.



CONFIDENTIAL

Page 153

1 But, you know, your -- the answer to your  
2 question is yes. And not to be a wise guy, but it's a  
3 combination of both.

4 Q. And just to follow back through, the  
5 methodology that you have used in this case, have you  
6 ever -- or theories that you've applied in this case,  
7 have you ever published any material with respect to  
8 that methodology and these -- those theories?

9 A. No. The two articles that we talked about  
10 earlier, the only -- I shouldn't say that. I did write  
11 another article, I think, for a trade magazine about  
12 using contract engineers, but it has nothing to do with  
13 this case. Those are the only technical articles that  
14 I've written.

15 Q. Can you identify any literature that would  
16 support the theory or methodology that you've applied  
17 in this case?

18 A. The whole body of mechanical engineering work  
19 related to thermodynamics.

20 Q. But there's no specific literature that you  
21 would point me to?

22 A. I'm going to reiterate my answer, sir.

23 Q. Can you summarize, by any chance, that  
24 methodology or theory that you've applied?

25 A. I thought I just did.

CONFIDENTIAL

Page 154

1 Q. Well --

2 A. Forgive me, but I -- I thought I just did.

3 Q. Just that it is the -- the experience and  
4 knowledge that you've acquired over your --

5 A. And the training.

6 Q. And the training.

7 A. All of the above, yeah. I mean, it's -- you  
8 know, engineers think in a certain way. All right.  
9 You can ask -- again, to be a little wise guy, you can  
10 ask my wife, sometimes I drive her nuts because I'm so  
11 logical. All right. So engineers think in a -- you  
12 know, kind of an orderly -- what's the word? I don't  
13 want to say constrained, but, you know, a methodical,  
14 orderly manner.

15 You know, other people are more -- like  
16 artists are more free-form thinkers. All right.

17 Engineers and scientists and technical types  
18 tend to be more linear, step-by-step-type thinkers.

19 And, again, I know that's grossly general,  
20 but that's about the best I can do to give you a good  
21 answer to your question, sir.

22 Q. Can -- can your methodology or theory be --  
23 is it possible that that methodology or theory could be  
24 falsified?

25 MR. LOMAX: Objection to the form of the

CONFIDENTIAL

Page 155

1 question.

2 A. No. The methodology, if it's blatantly  
3 fraudulent, it could be falsified. But, you know,  
4 we've all done litigation here in the room. All right.  
5 Experts can come to -- we all -- you know, the  
6 plaintiff's and defendant's experts come to different  
7 conclusions, generally speaking.

8 You know, if they came to the same  
9 conclusion, then the case settles. So, you know,  
10 people of equal training and so forth and integrity can  
11 come to quite different conclusions about the same  
12 facts of a case.

13 So I can't answer your question because, you  
14 know, honest people can differ on things.

15 Q. Does your methodology or theory have a known  
16 error rate?

17 A. How could it? It's qualitative, not -- it's  
18 quantitative in some regards, qualitative in another.

19 Q. Are you familiar with any dissenting views to  
20 the methods and theories that you've applied in this  
21 case?

22 A. Not that I'm aware of now.

23 Q. Are there certain types of questions that  
24 your methodology can't answer? For example, the  
25 causation of any of the facts that have been reported

CONFIDENTIAL

Page 156

1 or testified to in this case or -- well, let me -- let  
2 me restate this.

3 Is there any type of question in this case  
4 that you do not believe your methodology can answer  
5 with respect to the operation of the E-Cat or the use  
6 of the steam, such as why certain measurements resulted  
7 in the way that they did?

8 MR. LOMAX: Objection to the form of the  
9 question.

10 A. Could you break -- break -- that's a little  
11 -- could you break that down step-wise for me, please?

12 Q. Okay. I understand that you believe that the  
13 E-Cat did not produce much, if any, steam?

14 A. Correct. Your understanding is correct.

15 Q. Does your methodology allow you to opine as  
16 to why the recorded results by various different  
17 equipment indicate that steam was created?

18 A. I would -- I would disagree with your  
19 contention that there may be recorded results. I'm  
20 starting to become of the opinion that the numbers were  
21 manufactured and not necessarily genuinely and  
22 legitimately recorded.

23 Q. Okay. We'll -- we'll go through that.

24 A. I'm sure we will.

25 Q. Do not worry.

CONFIDENTIAL

Page 157

1 Have you ever worked with LENR projects prior  
2 to this case?

3 A. No, sir.

4 Q. Have you ever reviewed test plans prior to  
5 this case for LENR technologies?

6 A. Not for LENR, no.

7 Q. What about other power plants, power  
8 producing plants?

9 A. Yes, I have.

10 Q. Okay. In what context?

11 A. When we put the coal-fired boiler in at Ohio  
12 State University, I was -- I was the backup engineer on  
13 that. There was an older engineer. He was the prime  
14 on that one. I was the prime engineer on the steam  
15 line that we talked about earlier.

16 So as a part of that closeout process after  
17 the boiler was built and up and running, we used the --  
18 and, again, this is an old version of it, but we  
19 modified an ASME, American Society of Mechanical  
20 Engineers, they call them performance test codes now,  
21 but we took this, modified it to our own use to  
22 actually determine what was the boiler doing. And we  
23 did a similar thing for the generator. We measured the  
24 steam input, the temperature, all that other stuff,  
25 measured the electrical output so that we'd have an

CONFIDENTIAL

Page 158

1 accurate determination of the efficiency of the boiler  
2 and the efficiency of the turbine generator.

3 Q. Okay. So -- and let me kind of circle back  
4 around because maybe I don't understand how boilers  
5 work.

6 But from the 10,000 foot level with a boiler  
7 --

8 A. Sure.

9 Q. -- is it generating energy?

10 A. It's -- a boiler -- all right. A boiler is  
11 kind of like an automobile. All right. Our car --  
12 because everybody is familiar with a car, that's why I  
13 often use automotive analogies when I'm teaching. A  
14 car has got a motor, it's got doors, a hood, seat, a  
15 fuel tank, drivetrain, tires, brakes, all that stuff.  
16 All right. Collectively we call that a car or an  
17 automobile or truck, whatever vehicle. All right.

18 A boiler is the same in that semantic regard.  
19 A boiler has lots of different components. It's got a  
20 burner, it's got a control system, it may have an ash  
21 removal system, it's got a draft system, fans, all  
22 those other systems that we collectively call a boiler.  
23 Okay.

24 So the burner itself, the burner is the, what  
25 I call the front end of the boiler. The burner

CONFIDENTIAL

Page 159

1 converts -- and, again, let's just use a gas-fired  
2 boiler. All right. A burner is the energy conversion  
3 device that takes the chemical energy in the fuel,  
4 converts that to heat energy in the form of a flame,  
5 and then hot gas when the flame burns out, and then  
6 that hot gas passes through the boiler.

7 What we call the boiler proper is actually a  
8 heater exchange then that extracts heat from that gas,  
9 puts it into the water.

10 That's why my answer early in the deposition  
11 about heat exchangers, a boiler, technically, is a heat  
12 exchanger. Okay.

13 And then in the case of like the boiler here  
14 at OSU or big utility units where we need superheat,  
15 then the steam will actually leave the boiler itself,  
16 the boiler steam drum, and go to a separate set of  
17 tubes called a superheater, which then adds heat over  
18 and above the saturation temperature of the steam to  
19 put hot dry steam into the turbine.

20 Sorry about the long answer, but that was  
21 about as short as I could make it, sir.

22 Q. So in summary, a boiler does not generate  
23 energy, it -- it consumes it and transfers energy from  
24 one point to another?

25 A. Right. But the boiler -- and let me -- let

CONFIDENTIAL

Page 160

1 me break your question down, if I may, to help you.

2 The boiler proper is the heat exchanger. It absorbs  
3 heat and then transfers it from the gas to the water.  
4 The burner is actually the energy conversion device.

5 So if you take the two as a whole, you are  
6 correct. We're bringing in chemical energy, whether  
7 it's coal, gas, oil, whatever it might be, converting  
8 that energy into heat and then putting in the water to  
9 do something useful with it someplace else.

10 Q. Now, have you ever worked with an energy  
11 generation plant, a plant that generates energy as  
12 opposed to transfers energy from one form to another?

13 A. When you say --

14 Q. Well, let me --

15 A. Help me out, please.

16 Q. Have you ever worked in a nuclear power  
17 plant?

18 A. No, I've not.

19 Q. Okay. To your understanding, sir, how  
20 does -- understanding the first law of thermodynamics  
21 that energy can neither be created nor destroyed --

22 A. Right.

23 Q. -- how does that work with a nuclear power  
24 plant?

25 A. Again, I'm not a nuclear engineer, but my --



CONFIDENTIAL

Page 161

1 and, again, this is where I believe Dr. Wong is at  
2 variance with Dr. Wark, but I think -- I believe even  
3 Dr. Wong thinks that nuclear plants do not necessarily  
4 obey the first law. Okay.

5 Having said that, my understanding is you  
6 take a more fissile form of -- it's usually uranium,  
7 like 235 typically, and then that energy that's in the  
8 atomic structure as opposed to the molecular structure  
9 breaks down into heat as it decays, and then that heat  
10 is used as the heat source for the boiler. So we're  
11 going from a more concentrated energy source and then  
12 into a lower energy source.

13 I believe -- and, again, not being a nuclear  
14 engineer, but I believe that there's still -- you know,  
15 instead of using -- let's just say to generate a  
16 certain amount of power, instead of using a gazillion  
17 tons of coal, a nuke plant might use a hundred pounds  
18 of uranium fuel or a ton of -- you know, whatever.  
19 Okay.

20 So the energy form is much more concentrated,  
21 but I don't believe that nuclear plants are capable --  
22 and I could be wrong, but I don't believe nuke plants  
23 are capable -- I don't believe they violate either the  
24 first or the second law.

25 Q. What about -- what about chemical energy, how

CONFIDENTIAL

Page 162

1 -- how does chemical energy -- chemical energy plants,  
2 either coal or otherwise, how does that work?

3 A. Again, you're just taking the chemical energy  
4 that's combined in the fuel -- that's contained in the  
5 fuel and then releasing that in a combustion process to  
6 reduce -- release that chemical energy that's within  
7 the molecular bonds.

8 Q. Okay. So when you're considering the  
9 efficiency of whether it be a chemical plant or a  
10 nuclear plant, you consider the amount of energy it  
11 takes to enable this reaction to occur, correct?

12 A. Yeah. I think if I'm understanding you  
13 correctly, yeah.

14 Q. And you compare that with the amount of  
15 energy that is released either by the chemical process,  
16 or in the case of a nuclear plant, by the decay of the  
17 atomic matter?

18 A. Help me. Could you break that down? I'm --

19 Q. Well, considering the first law of  
20 thermodynamics --

21 A. Okay.

22 Q. -- I mean, it can never be created or  
23 destroyed?

24 A. "It" being?

25 Q. "It" being energy.

CONFIDENTIAL

Page 163

1 A. Correct.

2 Q. Okay.

3 A. And matter and energy can neither be created  
4 or destroyed, they only change form.

5 But go ahead, my apologies.

6 Q. In a nuclear power plant, you would agree  
7 that the energy required in a plant to operate, turn  
8 the lights on, turn the machines on, put the control  
9 rods in, et cetera, is less than the amount of energy  
10 that is put out by that plant, correct?

11 A. Oh, yeah, yeah.

12 Q. Substantially less?

13 A. Oh, yes. Yeah. It's called parasitic power,  
14 but yeah. And that's true -- that's true of any power  
15 plant. You need a certain amount of power to run the  
16 fans. Like you say, all that power that's required to  
17 run the plant is subtract- -- again, depending on where  
18 you want to draw the boundary of where -- how you  
19 define the efficiency, and that could be a long  
20 discussion, too, but, yeah, that -- that energy is --  
21 has to be consumed to run the plant, you are correct.

22 Q. Okay. So in that case, for example, a  
23 nuclear power plant, the amount of energy input into  
24 this facility, I'll call it Turkey Point down in  
25 Miami --

CONFIDENTIAL

Page 164

1 A. Okay. Sure.

2 Q. -- or otherwise --

3 A. Yeah.

4 Q. -- the energy going into the facility is  
5 substantially less than the energy coming out of the  
6 facility, correct?

7 A. When you say the energy coming in, meaning  
8 the energy released by the reaction? Help me out here.

9 Q. That's the energy going out.

10 A. So are you -- when you say the energy coming  
11 -- the energy coming in, the energy is contained in the  
12 fuel rods.

13 Q. Okay.

14 A. In the fuel. Okay.

15 Q. Okay. Go ahead.

16 A. Please run that by me again one more time. I  
17 apologize.

18 Q. I tell you what, we'll come back to it.

19 A. I apologize.

20 Q. We will come back to it. I'll tell you what,  
21 I don't want to spend too much time.

22 A. I apologize.

23 Q. Did you perform any tests or simulations of  
24 your own with respect to any of the facts or opinions  
25 that you've rendered in this case?

CONFIDENTIAL

Page 165

1           A.    You mean in tests as in physical -- like  
2   metallurgical or anything like that, no, sir, I did  
3   not, although I do -- do reserve the right if, you  
4   know, if need be.

5           Q.    Okay. Does your report contain the complete  
6   basis of and reasons for your opinions stated therein?

7           A.    It does at the time of the report. Other  
8   information has since come in. And, again, that's part  
9   of why I keep making this caveat about, you know,  
10   information coming in and me possibly modifying my  
11   report.

12                   But at -- at the time it was written with the  
13   information I had, I stand by it.

14           Q.    Okay. Is there anything that you would  
15   change sitting here today regarding your report?

16           A.    Well, again, you know, I did not add that I  
17   don't believe -- in the report I didn't say that I  
18   don't believe that it was producing -- not producing  
19   steam.

20                   Did I say that clearly?

21                   I did not opine that the E- -- I don't  
22   believe the E-Cat is not -- the E-Cat is not producing  
23   steam, in my opinion. There we go. All right.

24           Q.    Were you aware that Mr -- Mr. Stokes, who  
25   testified in this case, testified -- in fact, you've

CONFIDENTIAL

Page 166

1       relied upon his testimony, that he testified that he  
2       was there when there was a minor steam leak?

3           A.    Well, I read that.  And the thing is, even  
4       200 degree water will vapor and produce vapor.  And so  
5       if he saw a steam leak -- and, again, he was a nukie in  
6       the Navy.  He understands steam reasonably well, I  
7       would understand, there may have been very, very hot  
8       water that when it leaks out, it's going to give the  
9       appearance of a steam leak, and that's what he may have  
10      thought was going on.

11           Again, you know, he was there to do a  
12      radiological study, not necessarily a steam system  
13      survey like I do on a semi-regular basis.

14           Q.    So he couldn't tell the difference between  
15      water in a gaseous form as opposed to water in a liquid  
16      form?

17           MR. LOMAX:  Objection to the form of the  
18      question.

19           A.    I -- run that by me again.

20           Q.    Well, you said the water could have been  
21      releasing in a man- -- in a manner that appeared to be  
22      steam?

23           A.    Well, steam is invisible.  You can't see it.  
24      Water vapor, condensed steam you can't see.  You cannot  
25      see steam.  And not only you, nothing personal, nobody

1 can see steam. So he may have very well seen vapor,  
2 which he called steam.

3 Q. Within your report of the opinions that  
4 you've expressed, are there any that you would change  
5 or retract from?

6 A. Nothing I would retract. I would amend it as  
7 we've talked about, but nothing I would retract right  
8 now, no, sir.

9 Q. Other than Dr. Penon's original form -- I'm  
10 sorry, original spreadsheet and the site inspection, is  
11 there any further research that you would find  
12 desirable?

13 A. At this time, no. But, again, if it needs  
14 be -- if -- if based on other -- those issues, yeah, I  
15 reserve the right to -- to do more, if need be.

16 MR. ANNESSER: It's 12:30. We've reached a  
17 good stopping point for the moment.

18 THE VIDEOGRAPHER: Off the record. The time  
19 is 12:26.

20 - - -

21 Thereupon, the luncheon recess  
22 was taken at 12:26 p.m.

23 - - -

24

25

February 27, 2017

Monday Morning Session

1:13 p.m.

- - -

THE VIDEOGRAPHER: We are on the record. The time is 1313.

BY MR. ANNESSER:

Q. Sir, before we took a lunch break, we were going through your report.

And do you still have that in front of you?

A. I do, yes, sir.

Q. Okay. If I could ask you to turn to page 9.

A. I'm there.

Q. Okay. Looking at the first paragraph on page 9 of the section entitled E-Cat MW1 Energy Plant Final Report --

A. Yes.

Q. -- the last sentence in that paragraph I believe states that Penon is referred to as the expert responsible for validation in various documents, and will be referred to as such, although the author expresses no opinion on whether Engineer Penon was the ERV as specified in the parties' contractual documents.

Do you see that?

A. I do.



CONFIDENTIAL

Page 169

1 Q. What was the purpose of that statement?

2 A. Let's see, looking at various documents --  
3 yeah, at that time, I had not -- and I don't think I've  
4 seen -- whatever contract documents I had seen were in  
5 the complaint and the third supplemental. So I didn't  
6 know for a fact that, you know, in the documents  
7 themselves whether Penon was specifically designated.

8 So I -- I didn't know, so I just kind of put  
9 that in as a cover-my-backside statement so that if he  
10 was, in fact, I was -- you know, I was okay. If he  
11 wasn't, I was okay. I just want to kind of preserve  
12 that.

13 Q. Did anyone tell you that that was an issue in  
14 this case?

15 A. I -- I think they mentioned it in passing,  
16 but they didn't -- you know, they didn't make a big  
17 deal of it, so I -- you know, I just kind of didn't pay  
18 a lot of attention to it.

19 Q. Turning to the next page, page 10, sir --

20 A. Yes.

21 Q. -- you state on the beginning, this author's  
22 search of the Internet reveals a prior relationship  
23 between Dr. Penon and Mr. Rossi. If true, this author  
24 wonders how Dr. Penon could have been an objective,  
25 dispassionate third-party verifier.

CONFIDENTIAL

Page 170

1 A. Correct.

2 Q. What is the relationship that you have  
3 uncovered on the Internet?

4 A. Well, again, there's a lot of stuff in the  
5 LENR world about them. And then, you know, on the  
6 Internet, I had observed that they had done some work  
7 together, I don't remember the date, prior to this  
8 particular project. Okay.

9 Q. Do you know if Industrial Heat or IPH  
10 International B.V. were aware of the prior  
11 relationship?

12 A. I do not know that. And, actually -- and,  
13 again, it was after the fact of my report, obviously,  
14 but last week, Dr. Penon pretty much admitted to that,  
15 too, under questioning.

16 Q. Okay. Does that affect your -- did that  
17 information or your belief that there was a prior  
18 relationship affect your report in any manner or your  
19 opinions?

20 A. It -- it would -- it would make me tend to  
21 look at his data more skeptically than if he had just  
22 been, I say -- forgive the phrase -- some guy off the  
23 street. But an independent party that had no prior  
24 relationship with either Mr. Rossi or anybody, he was  
25 just a totally independent expert that had come in to

CONFIDENTIAL

Page 171

1 do the numbers and runs the tests and so forth.

2 Q. Is it your opinion that the prior  
3 relationship between Dr. Rossi and Dr. Penon, if any,  
4 has somehow caused there to be -- well, somehow  
5 affected Dr. Penon's reporting in this case?

6 MR. LOMAX: Objection to the form of the  
7 question.

8 A. Obviously I cannot speak to that because I  
9 don't know the relationship and so forth. But for my  
10 -- my perspective, it -- it casts a bit of a shadow on  
11 the results, if you will.

12 And, again, you know, everything may be on  
13 the up and up. I'm not willing to concede that. But  
14 the fact of a prior relationship, in -- in my opinion,  
15 tends to lessen my belief in Dr. Penon's total  
16 objectivity.

17 Q. Have you ever worked with any attorneys in  
18 the capacity of an expert witness more than once?

19 A. Oh, yes. You know that, yeah, I have. Oh,  
20 wait. I'm sorry. You mean with the same attorney?

21 Q. Yes.

22 A. Yeah, Mr. McLaughlin. The guy that Dauberted  
23 me, yeah. Yeah, I worked for him twice and then he ran  
24 the Daubert challenge on me.

25 Q. Is -- is the work that you've done for him

CONFIDENTIAL

Page 172

1 more than once suspect because of your prior  
2 relationship?

3 MR. LOMAX: Objection to the form of the  
4 question.

5 A. I don't think it is. But, again, somebody in  
6 your position may -- may -- you know, may want to  
7 question that.

8 Q. Do you have any other repeat clients?

9 A. I think he's the first one, the first and  
10 only, I believe.

11 Q. So you've got no other clients who have used  
12 you and then used you again for another project?

13 A. Now you're talking expert witness clients or  
14 --

15 Q. Either.

16 A. -- engineering?

17 Q. Either.

18 A. Oh, yeah, I have a lot of expert repeat  
19 business, yes. Volcanic has used me a lot, Damon  
20 Engineering has used me a lot. Yeah, so I have lots of  
21 repeat business, yes.

22 Q. Is your work for repeat clients any different  
23 than your work for new clients in terms of the accuracy  
24 of your reports?

25 A. No. No. I try to be, you know, down the

CONFIDENTIAL

Page 173

1 line and objective and correct as I can, and accurate.

2 Q. So the fact that Dr. Penon had previously  
3 tested the E-Cat device does not invalidate his final  
4 report in this matter in and of itself?

5 A. In and of itself, maybe, maybe not. I'm just  
6 saying it raises a question in my mind.

7 Q. Well, maybe, maybe not.

8 How would it invalidate the test that he had  
9 done a prior test on the --

10 A. I don't know the nature of their  
11 relationship. That's the point. You know, my  
12 relationship with my clients was purely business.  
13 Okay. I do not know the nature of their relationship.  
14 So depending on what it was, it could or could not have  
15 an effect on it.

16 Q. What methodology or theory did you use to  
17 come to that conclusion?

18 A. Well, there's no methodology or theory, just  
19 does it pass the smell test or not.

20 Q. Now, I'd like to ask you for a minute about  
21 what you're not opining to. Okay.

22 Are you opining to issues regarding the test  
23 protocol, whether the test protocol was proper?

24 A. I am opining to that, yes.

25 Q. Are you opining to any issues regarding the

CONFIDENTIAL

Page 174

1 adherence to the test plan?

2 A. I am.

3 Q. Adherence?

4 A. Yes.

5 Q. Okay. And what is your opinion as it  
6 pertains to adherence to the test plan?

7 A. I'm not -- depending on some words and so  
8 forth, I'm not sure that Mr. Penon totally adhered to  
9 it.

10 Q. You're not sure?

11 A. Correct.

12 Q. Are you offering an opinion as to whether he  
13 did or did not?

14 A. Well, let me elaborate a little if I may.  
15 There's some -- and I didn't -- I did not delve into  
16 this, again, because of time constraints.

17 My understanding was at the beginning of the  
18 test, that this test was to be run with all of the  
19 units or modules running. At some times throughout the  
20 test, various modules were shut off. That would appear  
21 to us on the surface to be a violation of the -- of the  
22 protocol.

23 Q. Sir, looking at page 10 of your report, it  
24 states, defendants' third amended answer, additional  
25 defenses, counterclaims and third-party claims

CONFIDENTIAL

Page 175

1 identifies many issues regarding the test protocol,  
2 adherence to the original test plan, number of cells in  
3 service, related issues. Due to time constraints, the  
4 author will not address these issues in this report --

5 A. Continue, please.

6 Q. -- but reserves the right to address them in  
7 the future.

8 A. Yes, sir.

9 Q. So do you believe it fair to tell us that you  
10 will opine to this later, but cannot tell me right now  
11 or could not tell us at the time of --

12 A. It is fair, yeah, because like I said, I did  
13 not and I still have not had time to opine to that.

14 Q. Okay. And you can't tell me what your  
15 opinion is at this point in time?

16 A. Not with any specificity, no, so I will not  
17 opine.

18 Q. Okay.

19 A. But I still reserve the right to.

20 Q. The court determines what you are permitted  
21 to opine to within its realm, but you're certainly  
22 entitled to any opinion you may have outside of the  
23 court.

24 MR. LOMAX: Objection.

25 Q. Are you opining as to how LENR works?

CONFIDENTIAL

Page 176

1           A.    No, I'm not. But let me, if I may, get back  
2           to a question you asked before lunch. And while I was  
3           trying to take a nap, your question was rattling around  
4           in my brain.

5                   And your question was to the effect, does a  
6           conventional nuclear plant produce more energy than it  
7           uses. And I hope I'm not misstating your question. If  
8           I am, please stop me now.

9           Q.    Well, there's no pending question, but --

10          A.    Okay. If I'm assuming -- if I heard your  
11          question properly, the answer to that -- that narrowly  
12          -- and it appears -- and, again, no offense intended,  
13          that you might have been conflating terms. And let  
14          me -- let me use a quick numerical example, if I may.

15                   Let's say a conventional nuke plant produces  
16          1050 megawatts. That would be its gross electric --  
17          and when I say -- I'm talking electric megawatts,  
18          not thermal, okay. It may have an internal usage of  
19          50 electric megawatts, again, for pumps, fans,  
20          controls, rods, blah, blah, blah, so it has a plant  
21          net output of a thousand megawatts electrical.  
22          Okay.

23                   Now, the reac- -- and, again, not being a  
24          nuclear engineer, but the reaction that is going on  
25          inside the reactor may be -- and, again, this is



CONFIDENTIAL

Page 177

1 just an example for illustration -- may be producing  
2 2500, 3000 thermal megawatts to generate one hundred  
3 -- or 1050 megawatts of electrical power. The  
4 balance of that thermal energy generated is going to  
5 the cooling tower.

6 So the efficiency, if you will, of a  
7 conventional nuclear plant is still going to be on  
8 the order of 35 to 40 percent because it is using  
9 more thermal energy from the nuclear reaction than  
10 it is producing, if I'm making sense.

11 If the nuclear reaction generates, let's  
12 just say 3000 megawatts of thermal heat, the plant  
13 is producing a thousand megawatts of electrical,  
14 then the rest of that heat has to go to the cooling  
15 tower. And every conventional nuclear plant has a  
16 cooling tower to get rid of that waste heat. So the  
17 conventional efficiency of a nuclear power -- or  
18 conventional nuclear power plant is always less than  
19 unity.

20 Q. Okay. How much energy is generated by the  
21 reaction taking place in the E-Cat?

22 A. You mean how much energy -- are you asking me  
23 how much energy is the E-Cat putting out? Is that --  
24 is that your question?

25 Q. No. I'm asking you, how much is generated?

CONFIDENTIAL

Page 178

1 So, for example, in the example that we were just  
2 discussing where the plant put out 10,050 megawatts --

3 A. Right.

4 Q. -- and it consumed 50, correct?

5 A. Well, when you say "consumed," yeah,  
6 parasitic power. I call it parasitic, but, yeah.

7 Q. Parasitic power of 50?

8 A. Uh-huh.

9 Q. Okay. What would the numbers be for the  
10 E-Cat?

11 A. I don't know.

12 Q. Do you know what type of reaction is taking  
13 place there? I believe I asked you that before.

14 A. Uh-huh. And, again, I do not know. What I  
15 believe it to be is just a conventional electric --  
16 electric resistor reaction.

17 Q. Have you seen any plans for the E-Cat?

18 A. I've got a drawing I pulled off the Internet.  
19 I don't know if they're plans, but I've seen something  
20 that appears to show what the E-Cat looks like.

21 Q. Where did you get that drawing? Do you have  
22 it with you?

23 A. I certainly do.

24 Q. While you look at that, have you reviewed  
25 Dr. Rossi's patent?

CONFIDENTIAL

Page 179

1 A. His?

2 Q. Patent.

3 MR. LOMAX: Objection to the form of the  
4 question.

5 A. I looked through it. I did not study it. I  
6 scanned it. Thank you.

7 Q. All right. You know what, I'll move on.

8 A. I know it's in here, yeah. It's in the  
9 stack.

10 Q. Something you pulled off the Internet,  
11 though?

12 A. I did. And it purports to show a cutaway of  
13 the E-Cat. And I think the fellow's name that did it  
14 was Bob Higgins, who I understand to be -- that have  
15 worked with Dr. Rossi on other projects. Again, that  
16 may not be true, but right now I believe that to be the  
17 case.

18 Q. Did you -- did you rely upon that information  
19 in formulating --

20 A. No. I just -- I just found that out  
21 recently.

22 Q. Okay. So you're not going to be testifying  
23 as to the nature of the reaction that's taken place?

24 A. Other than the fact that I don't believe it  
25 can produce more energy than it consumed, I will --

CONFIDENTIAL

Page 180

1 that I'm not going to back off from, sir. Okay.

2 Q. We'll come back to that.

3 You're not also testifying regarding the fact  
4 that a heat exchanger would have on heat transfer at  
5 the Doral facility; is that correct?

6 A. Say again, please.

7 Q. Are you aware, sir, that there was a heat  
8 exchanger at the Doral facility?

9 A. Where?

10 Q. Are you aware of that? Did anyone tell you  
11 that, sir?

12 A. I've been told there have -- there's multiple  
13 heat exchangers, so that's why I'm saying where. I'm  
14 not trying to be difficult. I need to know which one.

15 Q. Okay. What have you been told?

16 A. Well, I've been told that there was one in  
17 the black box, I've been told there was one in the mezz  
18 and --

19 Q. And the mezz, what's the mezz?

20 A. Mezzanine, the area over the office.

21 Q. The second floor?

22 A. In the front of the -- and, yeah, second  
23 floor in the front of the building.

24 Q. Okay.

25 A. And actually, the E-Cat itself is a bit of a

CONFIDENTIAL

Page 181

1 heat exchanger, because you -- again, regardless of the  
2 technology, putting the technology aside, the E-Cat is  
3 giving off heat. We will agree to disagree of the  
4 manner thereof. Okay. But then that heat-by-heat  
5 exchange process goes into the water to heat it up.

6 Q. Okay. Are you opining as to the dissipation  
7 of the heat being generated by this system and where  
8 that heat could have gone?

9 A. Or not gone, yes.

10 Q. Or not gone. Okay. Did you perform any  
11 calculations to determine how much heat could have been  
12 dissipated by the heat exchanger in what you called the  
13 mezzanine, the second floor?

14 A. Well, A, I'm not sure that that heat  
15 exchanger ever existed because I have no pictures of  
16 it, I have no drawings of it, I have no calcu- --  
17 calculations prior to Dr. Wong's report.

18 Two people claim to have seen it, so I'm not  
19 sure that it even exists, so it's going to be hard for  
20 me to answer your questions with any specificity on a  
21 device that may or may not have existed.

22 Q. Okay. So you said you haven't seen any  
23 pictures of it.

24 Did you ask for pictures of it?

25 A. Who would I ask, Counsel?

CONFIDENTIAL

Page 182

1 Q. Anyone.

2 A. I probably did. You know, I can't say for  
3 sure, but I said, well, show me something.

4 Q. Okay. Did you ask for any drawings of it?

5 A. Again, something would incorporate everything  
6 that I've referenced here, sir.

7 Q. Did you ask whether there was a heat  
8 exchanger on the site at all?

9 A. Who would I ask?

10 Q. Counsel, anybody, Mr. Murray.

11 A. I believe -- I probably -- I think I did ask  
12 Mr. Murray. But, again, nobody on our side has been  
13 allowed into -- into the gray wall, so we wouldn't --  
14 our side -- I say our side -- how would we know,  
15 because we've not been allowed access to it, if it  
16 existed.

17 Q. So your assumptions are all based on the  
18 fact -- your opinion is entirely based on the  
19 assumption that there was no heat exchanger; is that  
20 correct?

21 MR. LOMAX: Objection to the form of the  
22 question.

23 A. It's not an assumption that there was no heat  
24 exchanger. There's never -- there was no heat  
25 exchanger mentioned until after my report came out,

CONFIDENTIAL

Page 183

1 which I find a little suspicious, quite frankly, sir.

2 Q. There was no heat exchanger mentioned to you?

3 A. Correct.

4 Q. Okay. But you don't know whether there was  
5 one there or not?

6 A. I'm going to assume there was not until I see  
7 some hard evidence of it.

8 Q. Okay. And the testimony of witnesses isn't  
9 sufficient for you?

10 A. Let's see, considering that one of them is  
11 Mr. Rossi and one was Mr. Bass, yeah, I'm a little  
12 skeptical of that, sir, with all due respect.

13 Q. Okay. So you're basing your opinion on that  
14 matter, the fact that there was no heat exchanger,  
15 on -- on your evaluation of their testimony?

16 A. I'm not saying there was no heat exchanger at  
17 this point. I'm saying I'm from Missouri, show me,  
18 please.

19 Q. Okay. Have you been selected as a juror in  
20 this case?

21 MR. LOMAX: Objection to the form of the  
22 question.

23 A. What's your question mean?

24 Q. Well, I'll retract it.

25 Would you agree that if there was a heat

CONFIDENTIAL

Page 184

1 exchanger, sir, that it would, in fact, negate some of  
2 your opinions as set forth in your report?

3 MR. LOMAX: Objection to the form of the  
4 question.

5 A. Absolutely not.

6 Q. Your -- your report was predicated upon the  
7 assumption that there was no heat exchanger, correct?

8 A. Correct.

9 Q. Okay. So if there was a heat exchanger,  
10 there would be different variables that you had not  
11 accounted for in this report, correct?

12 A. I -- I can't answer that. Knowing nothing  
13 about it and -- and a heat exchanger, even if it's  
14 installed, may not work. There may have been a heat  
15 exchanger there; it may not have functioned.

16 Q. But you don't know one way or another. If  
17 there was a functioning heat exchanger there, sir,  
18 would that change the findings in your report?

19 A. It may, it may not. It probably will not.

20 Q. Why is that?

21 A. Because, again, I don't believe it was there,  
22 based on my understanding of thermodynamics and what I  
23 have -- what pictures I have seen of the facility, I  
24 have no reason to believe that it was there.

25 Q. Well, I'm asking you to assume, sir, that it



1 was.

2 A. I'm not taking that assumption. Sorry.

3 Q. Okay. Are you making or giving any opinion  
4 as to whether this was the guaranteed performance test  
5 required under the parties' contract in this case?

6 MR. LOMAX: Objection to the form of the  
7 question.

8 A. I'm not speaking specific to the contractual  
9 obligations. What I'm basing mine on is the test plan  
10 report and then Dr. Penon's final report.

11 Q. Did anyone from Industrial Heat or counsel  
12 inform you that they had never objected to Penon's test  
13 plan?

14 MR. LOMAX: Objection to the form of the  
15 question.

16 A. I believe I've heard that, yes.

17 Q. Okay.

18 A. In fact -- well, even last week during -- you  
19 questioned Dr. Penon quite extensively on that.

20 Q. Did anyone ever tell you why they had not  
21 objected?

22 MR. LOMAX: Objection to the form of the  
23 question.

24 A. No, that, I'm not privy to that, no, sir.

25 Q. How long did it take you to evaluate the

CONFIDENTIAL

Page 186

1 Penon test plan?

2 A. I don't recall.

3 Q. An hour?

4 A. I just said I don't recall.

5 Q. Can you tell me roughly, was it more than ten  
6 hours?

7 A. Less than ten hours.

8 Q. Less than ten hours.

9 Had you been asked prior to this litigation  
10 to review the test plan, could you have done so?

11 A. Oh, sure. Yes. Yes.

12 Q. And you -- it's your belief that you would  
13 have looked at the same plan and said this isn't  
14 sufficient, something has to change?

15 A. More than likely, yes.

16 Q. Did you review the Lugano test reports? Do  
17 you know what I'm talking about there?

18 A. I looked at them. I did not study them in  
19 depth.

20 Q. Okay. Are you aware that a test was  
21 performed in Lugano by a number of Swedish and/or  
22 Italian professors?

23 A. I'm vaguely aware, yes.

24 Q. Okay. Are you opining at all as to the  
25 validity of the Lugano test reports?

1           A.    No.  The Lugano test did not -- it did not  
2   play into my opinions, sir.

3           Q.    Okay.  Are you aware of what test plan was  
4   used in Lugano?

5           A.    No.

6           Q.    What about the validation test that was  
7   performed as part of this, as part of the parties'  
8   contract?

9                   MR. LOMAX:  Objection to the form of the  
10   question.

11          Q.    Are you familiar with what I'm talking about?

12          A.    Now, are you talking -- are you Lugano or  
13   back to U.S.?

14          Q.    I'm asking about a validation test.  Are you  
15   aware that a test was performed in -- in Italy, in  
16   Ferrara, Italy called the validation test?

17          A.    I am aware, yes, sir.

18          Q.    Okay.  Did you review the test protocol used  
19   for that test?

20          A.    I'm not sure I reviewed it prior to my  
21   report.  I know I reviewed it afterward.

22          Q.    Are you --

23          A.    I'm pretty sure.

24          Q.    Are you opining as to the sufficiency of that  
25   test?

CONFIDENTIAL

Page 188

1 A. If it is -- if it's substantially similar to  
2 the U.S. test, my opinion will be pretty much the same.

3 Q. Do you know if it is or isn't?

4 A. I'll have to look and study it line by line.  
5 I haven't dug into that. I haven't drilled down into  
6 it that deeply.

7 Q. You don't plan on testifying, do you, sir,  
8 that the validation test performed in Ferrara, Italy  
9 was improper, do you?

10 A. Again, I haven't -- I've looked at it. I've  
11 not studied it in depth. I can't answer your question  
12 right now.

13 Q. Okay. But sitting here today, that's not an  
14 opinion that you've formed?

15 A. Not right now, no.

16 Q. Now, in your report, specifically the third  
17 report on page 10, you state that you have not -- that  
18 you have seen no documentation of the machine itself,  
19 is that correct, regarding the E-Cat?

20 A. Correct.

21 Q. Have you seen any as of this date?

22 A. Other than the -- you know, I mentioned that  
23 picture I saw on the Internet that I couldn't find.  
24 And, again, I'm -- I'm talking the machine proper, not  
25 necessarily Dr. Penon's report. So with that caveat,

CONFIDENTIAL

Page 189

1 no, I have not seen documentation of the machine  
2 itself.

3 Q. Okay. So are you opining as to the operation  
4 of the machine itself, or just simply Dr. Penon's  
5 report?

6 A. Both.

7 Q. Even though you've seen no test plan of the  
8 machine -- or, I'm sorry, no documentation of the  
9 machine?

10 A. Correct, because I'm a boiler expert, I  
11 understand boilers. The machine in question is a  
12 boiler, so I can make -- and I understand  
13 thermodynamics, so, yes, I can opine.

14 Q. As to whether the E-Cat works?

15 MR. LOMAX: Objection to the form of the  
16 question.

17 A. Could you be more specific on "works"?

18 Q. Are you opining as to whether the E-Cat is  
19 capable of generating 1 megawatt worth of power?

20 A. I am opining on that, yes, sir.

21 Q. Even though you have not seen any  
22 documentation on the machine itself?

23 A. The documentation on the machine may be  
24 fraudulent. The other information I've seen and the  
25 analysis I've done leads me to believe that it does not

1 work.

2 Q. Okay. Let me ask you, you said it may be  
3 fraudulent.

4 What facts or evidence have you been shown to  
5 that effect or what do you base that opinion on?

6 A. In looking at some of the data and so forth,  
7 it looks very, very suspicious, the fact that I've  
8 been -- I'm asked to opine on a heat exchanger that  
9 there's -- I've seen nothing on.

10 In actuality, in looking at a lot of  
11 Fabiani's data and looking in some of the things I've  
12 seen, it appears a lot of this data were made up.

13 Q. Okay. We're -- we're going to get to that.  
14 But you said you were asked to opinion on a heat  
15 exchanger that you've seen nothing on.

16 Did you request any information on the E-Cat  
17 unit from counsel?

18 A. I believe I did.

19 Q. Did you receive it?

20 A. No.

21 Q. Okay.

22 A. Now, I take that back. I take that back. I  
23 did get some pictures recently -- a picture.

24 Q. Of?

25 A. Not the machine itself, but the window on the

1 front of the building.

2 Q. Okay. And what did that picture show you?

3 A. Sir, I don't --

4 - - -

5 (Deposition Exhibit 10 marked.)

6 - - -

7 Q. Who took this photo, sir? And we're going to  
8 mark this, I'm sorry, as Exhibit 10.

9 Do you have a copy in front of you?

10 A. I do.

11 Q. May I borrow it, please?

12 A. Oh, yeah. I'm sorry. My bad.

13 Q. I'll mark that as Exhibit 10.

14 Who took this photo?

15 A. I believe Joe Murray.

16 Q. You believe or you know?

17 A. Actually, I know, because Mr. Murray gave it  
18 to counsel and counsel gave it to me.

19 Q. How do you know that?

20 A. I was told that by counsel.

21 Q. You were told that by counsel.

22 Do you know who took this screenshot or who  
23 superimposed this --

24 A. I know exactly -- I know exactly who did it.

25 Q. Who?

CONFIDENTIAL

Page 192

1 A. Me.

2 Q. Okay. Now, it doesn't state on here who took  
3 the photograph.

4 A. Correct.

5 Q. Is there a reason --

6 A. Because anybody could use any camera. Unless  
7 somebody puts a name in their camera, somebody else  
8 could use it.

9 Q. Do you know when it was taken?

10 A. I do. I do.

11 Q. How do you know when it was taken?

12 A. Because there's a date taken right up there  
13 in the property on the right-hand side of the page.

14 Q. Other than what's reflected here --

15 A. That's the metadata off the JPEG.

16 Q. Now, if I change the date on my camera and I  
17 take a photograph, wouldn't it reflect the date that my  
18 camera records onto that image?

19 MR. LOMAX: Objection to the form of the  
20 question.

21 A. Oh, yeah. But this was taken -- I believe it  
22 was taken with an iPhone. So if it was taken with an  
23 iPhone, it is going to have the date and time that's --  
24 that the cell phone system is producing.

25 Now, with my stand-alone camera, any little



CONFIDENTIAL

Page 193

1 stand-alone camera, yeah, you can change the date and  
2 time. A cell phone camera, that's the date and time  
3 that's on the cell phone.

4 Q. Okay. Looking at this, sir, what does this  
5 depict?

6 A. All right. That is the front of the -- the  
7 sign on the door says J.M., and that is the front of  
8 the Doral -- I say front, the main street facing side,  
9 not the loading dock side, of the Doral test facility.

10 Q. And how many photographs -- or, I'm sorry,  
11 how many windows are there at the J.M. facility?

12 A. Now, I -- you say "windows." Help me out  
13 here. I see -- I see some in the front downstairs,  
14 obviously the office area, I see six here, and I  
15 believe that's all there are, because there are no  
16 windows in the backside of the facility.

17 Q. Now, looking over directly above that appears  
18 to be a Cadillac, you see another set of four windows?

19 A. To the left?

20 Q. Yes.

21 A. Correct.

22 Q. And do you know if that column is blocking  
23 the view of any other additional windows?

24 A. It may be. I'm not sure.

25 Q. Do you know if those go to the Doral facility

1 or not?

2 A. Help -- can you be more specific?

3 Q. Do you know if those are windows that are  
4 part of the Doral location, specifically the -- the  
5 facility used by Leonardo Corporation and J.M.?

6 A. As it stands now, I'm reasonably certain of  
7 that. Again, a site visit will confirm or deny.

8 Q. Whether -- whether those belong to that  
9 facility or not?

10 A. Correct.

11 Q. Okay.

12 A. Assuming we're allowed unfettered access to  
13 the facility.

14 Q. Okay. But you don't know sitting here today?

15 A. I have -- I'm fairly confident, because when  
16 I had looked at the outside the other day, it looked  
17 like that was the only set of windows specific to that  
18 address.

19 Q. Did you rely upon this in formulating your  
20 opinion?

21 A. No, I did not, because I just got it  
22 recently.

23 Q. And what have you relied upon this photograph  
24 for?

25 A. Well, this -- you know, again, there was --

CONFIDENTIAL

Page 195

1 Dr. Wong was saying that the heat was discharged  
2 through this particular window. And, you know, if it  
3 was, in fact, this particular window, it's got some  
4 kind of glass or plexiglass -- plexiglass covering on  
5 it that would preclude airflow through it.

6 Q. Now, was the test still ongoing as of  
7 February 17, 2016?

8 A. To my understanding, it had stopped the day  
9 before.

10 Q. Sir, looking at the bottom of page 10, the  
11 last paragraph on the page, it states, the Penon  
12 reports generally (with some variation) contain certain  
13 data. The author understands that these data were  
14 provided to Industrial Heat as PDF files and not Excel  
15 spreadsheets. The columns are not labeled as in an  
16 Excel spreadsheet.

17 What do you mean by that?

18 A. Well, an Excel spreadsheet has, you know, A,  
19 B, C, D and so forth over to -- as far to the right as  
20 it goes, and we call them labels.

21 Q. Can -- can you convert an Excel spreadsheet  
22 to PDF?

23 A. You can.

24 Q. Okay. Why would someone do that?

25 A. If they didn't -- if they wanted to, say,

CONFIDENTIAL

Page 196

1 send it out to somebody and they didn't want the  
2 contents changed, they would convert it to a PDF for  
3 display purposes and then send it off.

4 Q. Okay. Do you know if that's what was done  
5 here?

6 A. I do not know.

7 Q. Okay. So if Mr. Penon did not want anyone  
8 altering his data, he may have sent it in a PDF,  
9 correct?

10 A. Yes. That would be -- that would be a good  
11 reason to do so.

12 Q. Okay. So the fact that Dr. Penon sent the  
13 file in a PDF is not indicative as to whether the  
14 results are accurate or not, correct?

15 MR. LOMAX: Objection to the form of the  
16 question.

17 Q. There's nothing untoward about sending a  
18 report in PDF, is there, sir?

19 A. No. No.

20 Q. Now, in PDFs, can you identify the columns  
21 and see underlying formulas or values that may have  
22 existed?

23 A. No, not that I'm aware of.

24 Q. Okay. Looking -- now, sending it in PDF,  
25 that doesn't invalidate the results contained within

CONFIDENTIAL

Page 197

1 the report in and of itself, does it?

2 A. My report or Penon's?

3 Q. Penon's.

4 A. No. The PDF in itself does not validate.

5 Now, just the form- -- let me make it more precise.

6 The PDF format does not inval- -- itself invalidate.

7 Q. Okay. Did you ever ask for the Excel form of  
8 that document?

9 A. I did. I did.

10 Q. Who did you ask?

11 A. Probably Pace. I don't know if I asked  
12 Mr. Lomax, because Pace and -- and Bernie for sure.

13 Q. Do you know if they ever asked Dr. Penon for  
14 an Excel form of that?

15 A. I don't remember. And, again, during the dep  
16 last week, Mr. Pace may or may not have asked him for  
17 it. I -- I didn't hear that if he did, but the record  
18 will show.

19 Q. Do you know if it was ever asked before you  
20 prepared this report?

21 A. That, I do not know.

22 Q. Do you know if you asked Mr. Pace for it  
23 prior to preparing your report?

24 A. I did.

25 Q. And what did he tell you?

CONFIDENTIAL

Page 198

1           A.    He said that they've been trying to get it  
2           and they've had no luck, I think was a rough  
3           paraphrase, but that's pretty much what he said.

4           Q.    And in that portion of your report, did you  
5           rely on any special methodology or technique to arrive  
6           at your conclusions there?

7           A.    Well, I'm moderately good at data analysis,  
8           so I did look at the data as best I could under the  
9           limitations of a PDF.

10          Q.    Looking, sir, to the fourth paragraph down  
11          that starts with, The column entitled Average Power  
12          Supply --

13          A.    Yeah.

14          Q.    -- now, you state that this would appear to  
15          be the average power supplied to the E-Cat is  
16          watt-hours per hour, which equals watts?

17          A.    Correct.

18          Q.    Some months, watt-hours per hour equals  
19          watts, what does that mean?

20          A.    Yeah, watt-hours per hour, if you just --  
21          because you've got watt-hours of the numerator and  
22          hours in the denominator, the hours are canceled,  
23          making the unit watts. It's just a numerical  
24          convention -- or I should say an arithmetic convention.

25          Q.    Okay. You say some months are in watt-hours

CONFIDENTIAL

Page 199

1 and others are in kilowatt hours --

2 A. Correct.

3 Q. -- this difference in units is of no concern?

4 A. Correct.

5 Q. That doesn't bother you at all?

6 A. The units proper, no, no. Because kilo- --  
7 kilowatts and watts are -- you know, it's a thousandths  
8 difference, so I understand what's going on there.

9 Q. An interesting thing occurs starting June  
10 2015. If one takes the number in the column entitled  
11 Supplied Energy Watts Per Day and divides it by 24, one  
12 gets the exact number in the average power supply?

13 A. Uh-huh, to five --

14 Q. Why --

15 A. -- to five-digit precision.

16 Q. Why is that curious, sir?

17 A. Because, let's see, did I put -- include that  
18 in there? Could I -- if you have a copy of that, I'd  
19 like to see it so I can -- if you don't mind.

20 - - -

21 (Deposition Exhibit 11 marked.)

22 - - -

23 Q. Sir, I will show you and mark as Exhibit 11 a  
24 copy of the E-Cat MW1 Energy Plant in Miami Energy  
25 Multiple Evaluation Final Report.

1                   So since you say starting in June, let's look  
2                   at July 2015.

3                   A.     Okay.

4                   Q.     Specifically, why not, we'll choose  
5                   Independence Day, July 4, 2015.

6                   A.     Good day.

7                   Q.     Looking at that, sir, why is it curious to  
8                   you or an interesting thing that if you divide the  
9                   number that's been given for supplied energy watts per  
10                  day by 24, that you get that number?

11                  A.     If you look at all -- all the numbers in  
12                  supplied energy are rounded to the nearest thousandth.

13                  Q.     Do you know if -- do you know if the  
14                  equipment used to measure that measured in kilowatts  
15                  and watts?

16                  A.     I don't recall seeing it, so I don't know.

17                  Q.     You don't know what equipment was used to  
18                  measure the energy supplied?

19                  A.     No.

20                  Q.     Okay. So you're not opining as to whether  
21                  the equipment was accurate or not with respect to the  
22                  energy supplied?

23                  A.     No.

24                  Q.     Okay. So looking at July 4th, it says  
25                  200,000 watts per day.



CONFIDENTIAL

Page 201

1 A. Right.

2 Q. Now, correct me if I'm wrong, but that would  
3 be 200 kilowatts per day?

4 A. You are correct.

5 Q. Okay. So if we had 200 kilowatts per day or  
6 200,000 watts per day, you divide that by 24, which  
7 would give you the average hourly supply, correct?

8 A. 8333.3 or use a thousandth and move it over  
9 three places, yeah.

10 Q. Why is that curious?

11 A. It's curious because in looking at a number  
12 that's rounded to thousandths, and then over in the  
13 column before, you go to five-digits precision, that  
14 just strikes me as curious and odd. I would think the  
15 numbers, the energy supplied would be more of a random  
16 nature. As an example, 200,038, 206,015, just to cite  
17 two numbers, in which case, then, dividing that by 24  
18 would come up with a somewhat different number.

19 I just find it odd to see all these zeros and  
20 then divide those by 24 to get that exact number in the  
21 column immediately to the left.

22 Q. Okay. You're not saying dividing the  
23 supplied energy by 24 was improper, are you?

24 A. Well, I just -- if you're looking at, you  
25 know, on an hourly basis versus by 24, it's just a math

CONFIDENTIAL

Page 202

1 calculation. Improper or not, it's just a division  
2 problem.

3 Q. Okay. And you were in Mr. Penon's  
4 deposition. Did you hear his explanation for the  
5 rounded numbers?

6 A. With -- with all of the goings on with the  
7 interpreter and stuff, it -- I didn't have as good a  
8 comprehension as I would have liked. Sorry about that.

9 Q. So -- so if he rounded to the nearest  
10 kilowatt, right?

11 A. If that's --

12 Q. I'm sorry, that's in yours, but if he rounded  
13 up to the next kilowatt --

14 A. I do kind of remember him saying that, yeah.

15 Q. -- then that would explain why you have a  
16 number such as 200,000, would it not?

17 A. Yeah, it would.

18 Q. Okay. Now, you say that it is interesting.  
19 That doesn't invalidate his report, does it?

20 A. Not -- not stand-alone. But it just -- you  
21 know, in having analyzed a lot of data over my career,  
22 it's usually not this clean and pretty, if you will.  
23 When I say "clean and pretty," all these nice zeros.  
24 You know, the steam pressure is the same, the output is  
25 the same, for the most part.

CONFIDENTIAL

Page 203

1           The data I'm normally seeing is a lot --  
2       what's the word I want? I don't want to say dirtier,  
3       but less refined, I guess, might be a better word.  
4       Okay.

5           Q.    Do you know whether this test was designed to  
6       measure the specifics and for exactness or whether it  
7       was designed to determine whether the device, the E-Cat  
8       device satisfied the contractual requirements?

9           MR. LOMAX:  Objection to the form of the  
10      question.

11          A.    Obviously, you know, I'm not -- I've said I'm  
12      not dealing with the contractual issues. But were I  
13      doing this test, I would try to be as accurate and  
14      specific as I can.

15          Considering, again, our disagreement aside,  
16      if this technology is valid and it works, the potential  
17      import for the human race is pretty big. So were I  
18      doing it with those kind of stakes riding on it, I  
19      would be as precise as I absolutely could and not round  
20      stuff. I'd let it -- you know, what it is is what it  
21      is and that's what I'd write down in the report.

22          Q.    Is it easy to determine the amount of thermal  
23      energy being produced by a power plant?

24          A.    Yeah. I mean, it takes work. You've got to  
25      have instrumentation and so forth. When you say

CONFIDENTIAL

Page 204

1 "easy," you know, to my standpoint it's easy, yeah.

2 Q. And how do you do that?

3 A. You put in steam flow meters, temperature --  
4 you know, steam pressure, steam temperature. You put  
5 in the proper instrumentation for the job.

6 Q. Well, specifically, steam flow meter you  
7 said, steam temperature?

8 A. Yep. Steam pressure.

9 Q. What else?

10 A. That's just a few of them. If -- if I were  
11 going to do a test like this, I'd probably use  
12 something like the -- did I mention the ASME  
13 performance test code as a backbone and then I'd go  
14 from there to start modifying my test based on what we  
15 have compared to what the -- you know, the code is  
16 designed for big steam generating units.

17 Q. Is that the only way, or is it the best way?

18 A. It's certainly not the only way, but it's an  
19 industry standard way that's pretty well recognized  
20 across the country.

21 And as I mentioned, you know, for something  
22 of this potential import, I would want -- I would want  
23 the absolute most rigorous test I could use.

24 Q. And, again, you -- you had been informed that  
25 Industrial Heat agreed to the test plan provided by

1 Mr. Penon?

2 MR. LOMAX: Objection to the form of the  
3 question.

4 Q. Am I correct that you had been informed of  
5 that?

6 A. I'm sorry, I got crossed up on the objection.

7 Q. You know what, I'll come back to it.

8 Specifically, sir, with respect to what you  
9 found interesting, the five-digit precision of the  
10 average power supply per hour, did you apply any  
11 special methodology or technique or otherwise to come  
12 to that conclusion?

13 A. No. And let me clarify, those -- the  
14 five-digit precision you just mentioned, that's what --  
15 this is what I would be more likely to see on a test  
16 report. And then when you multiply that by 24, it will  
17 come out to something.

18 Now, you know, if Dr. Penon says he did that,  
19 multiplied by 24 and then rounded, I'll stand  
20 corrected.

21 But if it was me, again, since we're doing  
22 this in Excel, why round? It takes a special round  
23 function to do that, which is just an extra step. I'd  
24 just let the numbers be what they may. And then when  
25 it's all rolled up, maybe then you could, you know,

CONFIDENTIAL

Page 206

1 round it up or down then. But for each of these, I'd  
2 just leave them, you know, whatever times 24 and call  
3 it a day.

4 Q. But, again, that's -- that's how you would do  
5 it, right, sir?

6 A. Yes. Yeah.

7 Q. But because it was rounded by Engineer Penon,  
8 does that invalidate his test?

9 MR. LOMAX: Objection to the form of the  
10 question.

11 A. It -- it does not. And that stand-alone does  
12 not invalidate it, per se. Again, to me, it just  
13 looked curious and I commented on it.

14 Q. Was there any special methodology, technique  
15 or theory that you've applied to come to that  
16 conclusion that it was a curious anomaly, if you will?

17 MR. LOMAX: Objection to the form of the  
18 question.

19 A. Having done a fair amount of data analysis,  
20 again, just, you know, what we talked about at length  
21 earlier, my procedure is to let the numbers fall where  
22 they may.

23 Q. Okay. So -- and that's what you relied upon  
24 in making that --

25 A. That would -- my methodology was my

CONFIDENTIAL

Page 207

1 experience in data analysis.

2 Q. Now, looking at the next paragraph that  
3 starts with, The column entitled supplied energy, this  
4 is apparently the daily energy supplied to the E-Cat.  
5 If one takes the values in average power supply column  
6 and multiplies by 24, one obtains the almost exact  
7 value in the supplied energy watts per day.

8 Here is the problem: Instead of a value of  
9 24 -- I'm sorry, 247,000, this column on February 6,  
10 the author would expect to see a calculation here that  
11 would not result in each entry in a rounded number.  
12 The report does not explain the calculation or  
13 estimation that Penon made to arrive at the reported  
14 number.

15 Additionally, this is inconsistent with the  
16 Florida Power & Light records, which cast further doubt  
17 on the data in Penon's report.

18 I'll just start one step at a time. The  
19 first part, is that what we've just been discussing,  
20 the same issue that you do not believe that Penon  
21 should have rounded his numbers for the supplied  
22 energy?

23 A. Correct.

24 Q. You're not saying that there's a problem with  
25 the fact that if you multiply the average power supply

CONFIDENTIAL

Page 208

1 watts per hour by 24, that it equals or nearly equals  
2 the supplied energy?

3 A. What it -- what it looks like to me is in  
4 looking at these numbers, you know, you've got per day,  
5 per hour, you take each of these numbers and call them  
6 what, the supplied energy watt-hours per day, that  
7 column divided by 24, and you get the exact number in  
8 the column just to the left, I find that curious,  
9 that's what I'm saying.

10 Q. Wait. You -- okay. Let's --

11 A. I stepped on you. I'm sorry. Let me -- my  
12 bad.

13 I would -- I would more expect to see you  
14 take a five-digit number here in the average power  
15 supply and -- whatever that might be, if you multiply  
16 it by 24, then you're going to get a -- you know, a  
17 number over here that's not into the thousandths. Now,  
18 I understand that Penon rounded them, okay, but --

19 Q. Hold on. I'm going to interrupt you for a  
20 second.

21 A. Sure. Yes, sir.

22 Q. So you're saying that they -- that you would  
23 have preferred if he took the average power supply,  
24 multiplied it by 24?

25 A. Yeah, that would -- yeah, that would be my



CONFIDENTIAL

Page 209

1 preference. And then --

2 Q. How do you -- how do you come to your average  
3 power supply? How do you get that number?

4 A. I've not been told that, per se. All right.  
5 Again, making an assumption on what I know about  
6 machinery and so forth is they take whatever metering  
7 they were using and when -- you know, at a certain  
8 24-hour clock period, either the data logger will say  
9 it used this much or you do a subtraction, time period  
10 A minus time period B.

11 Q. Okay. So you would take the total amount  
12 supplied for the day --

13 A. Uh-huh.

14 Q. -- and divide it by 24?

15 A. You could do it that way.

16 Q. Okay. And so that -- that's actually, in  
17 fact, what was done here, right?

18 MR. LOMAX: Objection to the form of the  
19 question.

20 A. It -- it appears that way, yes.

21 Q. Okay. And so you would expect that if you've  
22 taken the supplied energy watts per day, divide that by  
23 24 to get your average power supply, if you then  
24 multiply that average power supply by 24, you should  
25 result in the same number as you began with, right?

CONFIDENTIAL

Page 210

1 A. Sure. You're going back and forth doing  
2 numbers, yeah.

3 Q. Precisely. Okay. Now, you state that,  
4 additionally, this is inconsistent with the Florida  
5 Power & Light records, which cast further doubt on the  
6 data in Penon's report.

7 How is it inconsistent?

8 A. What I've seen on the records -- and, again,  
9 I did not do a huge study on Florida Power & Light.  
10 Mr. Murray did, you know, a lot more of an extensive  
11 study on that than I did, just I guess I should have  
12 maybe referred to his report, but what -- you know, he  
13 showed what he considered to be some anomalies between  
14 FP&L's data and Mr. Penon's data.

15 Q. Okay. So the only information that you've  
16 reviewed with respect to that opinion that it was  
17 inconsistent was FP&L records was the reports prepared  
18 by Mr. Murray?

19 A. Murray, yeah.

20 Q. Okay. Going down two paragraphs from that to  
21 the paragraph starting with -- well, actually, hold on.

22 Before we leave that last paragraph, you  
23 didn't create your own charts or comparison, did you,  
24 between the FP&L records and the MG supply recorded by  
25 Engineer Penon?

CONFIDENTIAL

Page 211

1 A. No, sir.

2 Q. Are you aware of Mr. Murray's background,  
3 educational background?

4 A. Somewhat, yeah, I've read some about it. He  
5 was a P -- you know, a Ph.D. candidate. I think he was  
6 pretty much all but dissertation, I believe.

7 Q. Okay. Do you know if he was ever involved  
8 with Industrial Heat in any manner, or was he an  
9 independent expert by himself?

10 A. Well, he's been both. He was an employee of  
11 Industrial Heat, and now I believe he's consulting with  
12 them.

13 Q. Okay. So he's not an independent expert, is  
14 he?

15 A. No. He --

16 MR. LOMAX: Objection to the form of the  
17 question.

18 Q. From what you understand?

19 A. Well, he -- well, he was an in-house employee  
20 doing an analysis. So from the classic definition of  
21 an independent consultant, no.

22 Q. Do you know what methodology or technique  
23 that he used in performing his comparison?

24 A. I saw all the -- in that one report, I saw  
25 the code that he wrote and so forth and I looked at it

CONFIDENTIAL

Page 212

1 and thought, good job, Joe.

2 Q. You saw the code that he wrote?

3 A. There was in one of the appendixes -- at the  
4 body of his -- and this may be work product because it  
5 was labeled --

6 THE WITNESS: Should I stop?

7 Q. Well, did you rely upon it in coming to your  
8 conclusion that it was inconsistent with Florida Power  
9 & Light?

10 A. I -- I based my comment upon Mr. Murray's  
11 concerns with the discrepancy. I'll leave it at that.

12 Q. Okay. And did you base your comment upon the  
13 code that he wrote that you agreed with?

14 A. I -- I saw the code, I looked at it, and I  
15 did not analyze it any further. That would have taken  
16 a lot of time to dig into it.

17 Q. Well, you just said you said, good job, Joe.

18 A. Well, because it looked like a pretty --  
19 yeah, it was a -- all right, a little bit of a snarky  
20 comment, but it looked like a very thorough analysis.

21 Q. But you didn't analyze it to --

22 A. I didn't go over it line by line. I did  
23 not go --

24 THE REPORTER: You're talking on top each  
25 other.

CONFIDENTIAL

Page 213

1 THE WITNESS: Sorry.

2 THE REPORTER: Okay. But you didn't --

3 BY MR. ANNESSER:

4 Q. But you did not analyze it?

5 A. I did not go into it line by line, no, sir.

6 Q. So you don't know if it is accurate or not?

7 A. Not by my own independent analysis.

8 Q. Now, sir, looking down to the paragraph I  
9 referenced before this, it starts with, The column  
10 entitled effective flowed water.

11 A. Yes.

12 Q. To begin, it states, The pictures of their  
13 flow water meter shows that it reads in meters cubed or  
14 cubic meters. This author wonders if the data logger  
15 converted cubic meters to kilograms or is done in the  
16 spreadsheet -- or is it done in the spreadsheet.  
17 Sorry.

18 What do you mean by that?

19 A. Well, cubic meters is a volume measurement.  
20 Kilograms is a mass measurement. Now, under standard  
21 conditions, if I understand the metric system  
22 correctly, a kilogram -- a cubic centimeter of water  
23 may be a gram.

24 Again, don't quote me on that because, you  
25 know, I know the English system, not the metric system.

CONFIDENTIAL

Page 214

1 But there are some small conversions for  
2 temperature and pressure that will -- even though water  
3 is incompressible, it will expand and contract a little  
4 bit due to heat. So there's a little bit of a  
5 correction there. I was just wondering out loud if  
6 that -- if that had been done.

7 Q. And you say, this author has the same concern  
8 with respect -- I'm sorry -- in this column as with the  
9 column entitled supplied energy watts per day regarding  
10 the cell contents seeing the rounded number.

11 A. Correct.

12 Q. We've discussed that.

13 Does the fact that the number was rounded  
14 invalidate the report?

15 MR. LOMAX: Objection to the form of the  
16 question.

17 A. Again, the fact -- that fact by and of itself  
18 does not. I just -- it -- I would rather see lots of  
19 numbers rather than lots of zeros.

20 Q. Preferred methodology, that's your preferred  
21 methodology?

22 A. Yes.

23 Q. So in this paragraph, you're -- you're just  
24 expressing the opinion that you don't see why he  
25 rounded it, not necessarily that rounding invalidates

CONFIDENTIAL

Page 215

1 the final, correct?

2 MR. LOMAX: Objection to the form of the  
3 question.

4 A. Correct. Yeah, the rounding may have, may  
5 not have affected it, it just -- it makes it a little  
6 harder. Without -- when you're looking at a PDF like  
7 this as opposed to the spreadsheet with the formulas  
8 where you can look at each cell and look at the  
9 formula, it makes it harder for somebody coming in  
10 after the fact to try, okay, what was he doing, what  
11 was he thinking here.

12 Q. Okay. The next paragraph down that begins  
13 with, The column entitled reduced flowed water.

14 A. Right.

15 Q. And you discuss that Dr. Penon has reduced  
16 the flow by 10 percent.

17 A. Correct.

18 Q. And your concern, again, is that there's a  
19 rounded number in this column?

20 A. Yes. It's kind of a standing concern on the  
21 numbers.

22 Q. If you take one rounded number and reduce it  
23 by 10 percent, it's going to be rounded, right?

24 A. No. No. Because if I round -- if I take  
25 35,402 and round it up to 36,000 and divide it, it's a

CONFIDENTIAL

Page 216

1 different numbers, so that's where you start getting  
2 into round-off errors and things like that. So, no,  
3 they don't come out clean that way.

4 Q. If you take a rounded number, sir, say  
5 100,000, and you reduce it by 10 percent --

6 A. It's 90,000.

7 Q. -- it's a rounded number?

8 A. But if you take 103,000 and round it down to  
9 100,000, 90 percent of 103- is a different number,  
10 because a rounded number is not the same number as a  
11 number. 103,000 and 100,000 are not different -- I'm  
12 sorry, are not the same. My bad. So the 90 percent of  
13 103 and 100 are different numbers.

14 Q. Okay. But you're talking about a rounding of  
15 what, 3,000?

16 A. I'm just pulling a couple numbers out of the  
17 air just to illustrate my point.

18 Q. But, again, it's just that -- it's the same  
19 point that you made before, correct, in terms of you  
20 would not have rounded?

21 A. I would not have rounded.

22 Q. Okay. But the rounding itself does not  
23 invalidate the finding, correct?

24 MR. LOMAX: Objection to the form of the  
25 question.



CONFIDENTIAL

Page 217

1 A. Not standing by itself.

2 MR. ANNESSER: What's your objection, Chris?

3 MR. LOMAX: Invalidate the findings of what,  
4 the entire report? This specific --

5 MR. ANNESSER: Invalidate the measurements  
6 for the findings in his report.

7 BY MR. ANNESSER:

8 Q. Did you understand the question?

9 A. If you would repeat it again for me, I was  
10 getting a drink.

11 Q. The fact that Engineer Penon used rounded  
12 numbers, that standing alone does not invalidate the  
13 findings of this report?

14 A. And I believe my --

15 MR. LOMAX: Objection to the form of the  
16 question again.

17 MR. ANNESSER: That's fine.

18 MR. LOMAX: Go ahead and answer.

19 A. Again, and I'll restate, standing by itself,  
20 it does not invalidate the report. But it does not  
21 give me a warm, fuzzy feeling about what his  
22 methodology may have been.

23 Q. Okay. Did you apply any specific  
24 methodology, theory or technique to come to that  
25 conclusion?

CONFIDENTIAL

Page 218

1 MR. LOMAX: Objection to the form of the  
2 question.

3 A. 40 years of being an engineer and doing lots  
4 of data analysis.

5 Q. Okay. Now, were you aware, sir, that, in  
6 fact, Engineer Penon, in his test plan, indicated that  
7 he would apply a 10 percent reduction to the water flow  
8 calculation?

9 A. I'm aware of that, yes, he did.

10 Q. And, in fact, that 10 percent reduction would  
11 result in a lower COP, would it not --

12 MR. LOMAX: Objection to the form of the  
13 question.

14 Q. -- based on the way the test was set up?

15 MR. LOMAX: Objection to the form of the  
16 question.

17 A. It would result in a lower calculation of the  
18 COP, which is not the proper measurement to use for  
19 this type of machine.

20 MR. ANNESSER: What's your objection on this  
21 one?

22 MR. LOMAX: You're asking -- I don't think  
23 you've laid a foundation about his way of determining  
24 how to calculate the COP for this test.

25 MR. ANNESSER: Okay.

1 BY MR. ANNESSER:

2 Q. So applying -- or calculating the COP, which  
3 I understand you don't believe is the proper technique  
4 for performing this test, but if COP was going to be  
5 used, the 10 percent reduction would result in a lower  
6 calculated COP.

7 A. It would result in a lower calculated number  
8 called COP. And I use -- and I use -- let me emphasize  
9 called, because, again, I'm just going to throw in kind  
10 of a standing caveat, if I may, about my total  
11 objection to the use of COP as a proper measuring  
12 yardstick or metric, if you will, for this type of a  
13 machine.

14 Q. Did you apply any methodology, technique or  
15 theory in coming to your conclusion that -- I'm sorry.  
16 No. Let me -- let me back off that for one second.  
17 I'm going to come back to that question.

18 Sir, looking at the first paragraph on page  
19 12, at the end of the paragraph, seeing a number in  
20 each cell as opposed to seeing a formula was an issue  
21 of concern for you.

22 A. Where are we? I lost where you were. I'm  
23 sorry.

24 Q. The first paragraph on page 12. This author  
25 has the same concern with this column as with the

CONFIDENTIAL

Page 220

1 Supplied Energy column regarding the cell contents, for  
2 example, seeing a number in each cell as opposed to  
3 seeing a formula.

4 A. Gotcha. Okay.

5 Q. Do you know if a formula was used --

6 MR. LOMAX: Objection to the form of the  
7 question.

8 Q. -- by Dr. Penon?

9 A. For what?

10 Q. In populating that -- this column, in  
11 populating the Effective Flowed Water column.

12 A. It would --

13 Q. Or I'm sorry. I apologize. It's the Reduced  
14 Flowed Water column.

15 A. Okay. If it's -- if he's reduced it by 10  
16 percent, then the -- I would expect to see a formula  
17 down -- and, again, this is a PDF, so you can't see  
18 formulas. Were it a spreadsheet, I would -- let's go  
19 to the very top -- oh, let's go to July 4th. All  
20 right. Just -- yeah.

21 So you take 36 -- in the column -- I wish  
22 these were numbered, but let's just go effective versus  
23 reduced, reduced, you'd have something -- a statement  
24 equals, cell, whatever times .9. That's what I would  
25 expect to see in this reduced column.

CONFIDENTIAL

Page 221

1 Q. Do you know if Dr. Penon did that or not?

2 A. I do not, because I don't have his  
3 spreadsheet.

4 Q. Okay. So you're not saying he did it wrong,  
5 you're just saying you don't know?

6 A. Correct. Yeah. I mean, you know, the  
7 numbers between the two of them are -- they appear to  
8 match up.

9 Q. Okay. The next paragraph on page 12 says,  
10 The column entitled steam T min -- is that minimum?

11 A. Yeah, that should have been a sub --

12 Q. -- is the measured temperature of the fluid  
13 leaving the E-Cat (this author has used fluid instead  
14 of steam intentionally. This will be discussed later  
15 in the report). We'll get to that. But it says, The  
16 numbers themselves are unremarkable. What they  
17 actually represent is a different matter.

18 What do they represent, sir?

19 A. Well, they suppose- -- they're alleged to  
20 represent the alleged steam leaving the E-Cat.

21 Q. Okay. What facts or evidence have you seen  
22 that undermines those measurements?

23 A. All right. I'm glad you asked that question.  
24 Again, that is a number, all right. We're looking at a  
25 number here. And, again, that would be reported as a

CONFIDENTIAL

Page 222

1 number. And I'm -- again, just for the sake of  
2 discussion, let's assume this is the average number for  
3 the day so we don't have to, you know, go through all  
4 that other about the math and so forth.

5 But I'm firmly convinced that the -- well,  
6 number one, the way I understand and the way I'm firmly  
7 convinced the boiler portion of the E-Cat, there was no  
8 superheater, so there could be no superheat leaving the  
9 steam. Because if the temperature was actually  
10 atmospheric, the steam temperature should be 100  
11 degrees.

12 Q. Okay. Hold on. If the temperature was  
13 atmospheric, the steam --

14 A. If the pressure. Did I say -- my bad. If  
15 the pressure was atmospheric, ambient temp- -- ambient  
16 pressure, this steam temperature should be 100.

17 Q. Could not be heated beyond 100?

18 A. Not without a superheater.

19 Q. What's the superheater?

20 A. As I mentioned, it's a separate device that  
21 is external to the boiler proper, not necessarily the  
22 whole box, but is external that heats the steam above  
23 the saturation temperature.

24 Q. How does it heat the steam above the  
25 saturation temp- --

CONFIDENTIAL

Page 223

1           A.     Some heat source. Usually it's a separate  
2     set of tubes that get radiant or convective heat from  
3     the flame.

4           Q.     But you don't know and you haven't seen  
5     specifications on how the E-Cat works?

6           A.     I've seen pictures of the exterior of it, and  
7     I know enough about boilers to know there's no  
8     superheater in the E-Cat, sir.

9           Q.     How do you know that?

10          A.     What did I just -- not being argumentative,  
11     what did I just say? I know boilers. I'm a boiler  
12     expert.

13          Q.     Is this a boiler, sir?

14          A.     Yeah, it's a boiler.

15          Q.     You haven't seen documents regarding the  
16     components of the E-Cat, but you've declared it's a  
17     boiler.

18                     What do you base that on?

19          A.     If he's claiming to make steam, it's a  
20     boiler, period.

21          Q.     So anything that gets hot enough to evaporate  
22     water is a boiler?

23          A.     Say again.

24          Q.     Anything that gets hot enough to evaporate  
25     water is a boiler?

CONFIDENTIAL

Page 224

1           A.    No.  An open pan of water is not a boiler.  
2           It boils water; it is not a boiler.  A boiler has a  
3           closed vessel to generate steam or hot water.

4                    So the E-Cat as a whole is a boiler.  The  
5           E-Cat module may not be, but the blue boxes that it's  
6           sitting in is a boiler.

7           Q.    And do you know if there's a progression of  
8           the steam as it leaves the E-Cat so that they're -- so  
9           that the steam could be heated on the way out of the  
10          E-Cat?  Is that a possibility?

11          A.    It's a remote.  Based on what I've seen,  
12          there's no means to do that.

13          Q.    But, again, you haven't seen any drawings of  
14          the inside of the plant, have you?

15          A.    No.

16          Q.    Okay.  You haven't seen the inside of the  
17          plant?

18          A.    Well, again, what I've seen of the pictures,  
19          I've seen of the boiler, there's no superheater.

20          Q.    And that's, again, just something that heats  
21          up the steam for -- right?

22          A.    Above the saturation temperature, yes, sir.

23          Q.    Why is it that the E-Cat itself couldn't heat  
24          the water above the saturation temperature?

25          A.    It's physically impossible to do so.



CONFIDENTIAL

Page 225

1 Q. Why is that?

2 A. It's just physically impossible. It can't  
3 happen. It's the laws of physics. They're emperical,  
4 not theoretical.

5 Q. How do you explain the temperature  
6 measurements that are indicated in Mr. Penon's report  
7 of 103 -- 102 to 104 on most occasions in that event?

8 A. All right. I see numbers on a page. So  
9 explanation, there could be heaters near the  
10 thermocouples that are buried under the insulation.

11 Q. I'm sorry, there could be --

12 A. Heaters, I'm sorry, strip electric heaters.  
13 There could be a box between the thermocouple and the  
14 computer that allows somebody to bias the signal from  
15 the thermocouple to the computer, or the numbers are  
16 just made up and stuck on a page.

17 Q. Or they could be legitimate?

18 A. No, they cannot.

19 Q. Based on what? Based on what facts, sir?

20 A. What I just --

21 Q. Because you do not believe that there was a  
22 way to heat the steam beyond --

23 A. It's -- no. It's not that I do not believe,  
24 I know for a fact there was no superheater on that  
25 machine.

CONFIDENTIAL

Page 226

1 Q. How do you know that for a fact?

2 A. I'm a boiler expert. I do boilers. I've  
3 looked at it. I've looked at the photos and the  
4 videos. There's no superheater, sir.

5 Q. How do you know that?

6 A. Asked and answered.

7 Q. You're not going to tell me?

8 A. I just did.

9 Q. I don't think you did.

10 A. Well, then, we agree to disagree.

11 Q. What methodology did you use to come to that  
12 conclusion?

13 A. 40 years of being a power plant engineer, a  
14 stationary engineer's license, a couple engineering  
15 degrees, P.E. licenses. Other than that, not much.

16 Q. And you don't know what exists inside of  
17 those blue boxes that you refer to?

18 A. I don't, but actually it's not that relevant  
19 to my determination of why this machine is bogus.

20 Q. Okay. Why -- why is it that there couldn't  
21 have been a superheater within those boxes?

22 A. Because you can't have steam in the box and  
23 it's not -- and it's superheated.

24 Q. Why not?

25 A. There's no external way to heat it.

CONFIDENTIAL

Page 227

1 Q. How do you know?

2 A. How do I know?

3 Q. You said that there could be external --

4 A. You have to have an external heat source to  
5 superheat it.

6 Q. You said there could be heater strips by the  
7 thermocouple.

8 A. This is on the outside pipe, not inside the  
9 -- this is on the outside where the -- where the  
10 temperature was measured. I should have been more  
11 specific. My bad. I apologize.

12 Where the thermocouples were inserted to the  
13 outlet pipe, there could have been strip heaters around  
14 those.

15 Q. Do you have any evidence whatsoever that  
16 there was?

17 A. I have no evidence that there wasn't.

18 Q. So you can't draw a conclusion one way or  
19 another as to whether that was the case or not?

20 A. Not right now. And I'm really -- I would  
21 really like to see that steam pipe between the Cat box  
22 and the black box to take a look at it both inside and  
23 outside. So I hope it's there later in the week.

24 Q. Now -- okay. So I think -- I think you said,  
25 and I don't mean to belabor the point, but other than

CONFIDENTIAL

Page 228

1 your 40 years of experience in the field, you didn't  
2 apply any other methodology or theory or technique to  
3 determine that there was no superheater or that the  
4 steam could not achieve levels above a hundred degrees  
5 C?

6 MR. LOMAX: Objection to the form of the  
7 question.

8 MR. ANNESSER: What's the objection?

9 MR. LOMAX: It's very compound and broad and  
10 vague.

11 BY MR. ANNESSER:

12 Q. Did you understand the question, sir?

13 A. Not really.

14 Q. Okay. Then let me repeat it.

15 A. Please.

16 Q. Other than your 40 years' experience, sir,  
17 was there any technique that you used to determine that  
18 there was no superheater or any other method of  
19 allowing the steam to reach the temperature above a  
20 hundred degrees C?

21 A. The laws of thermodynamics and boiler  
22 construction.

23 Q. And what are those laws?

24 A. Well, again, I think I've mentioned multiple  
25 times already, when you have liquid and vapor in the

CONFIDENTIAL

Page 229

1 confines of a pressure vessel, the steam and water will  
2 both be at saturation temperature. You cannot  
3 superheat. It's not possible, sir.

4 Q. So you can never have -- okay. Well, let me  
5 ask you this: Can water in its liquid form, okay, not  
6 steam form, but liquid form, ever exceed 100 degrees C  
7 at -- at atmospheric pressure?

8 A. Well, let's assume that atmospheric pressure  
9 is sea level; okay? Let's agree to that first, because  
10 it's very, very --

11 Q. We can agree on that.

12 A. -- very temperature dependent.

13 Water at that pressure will exist at 100 C.  
14 It's saturated water.

15 Q. And if it's heated beyond that point?

16 A. It will convert to steam at the same  
17 temperature and pressure. It will convert to saturated  
18 steam if more heat is added.

19 Q. Okay. So if more heat is added, it converts  
20 to saturated steam?

21 A. Yes, sir. And let me -- and the reason --  
22 and this gets back to, you were asking me earlier about  
23 my generic description of thermodynamics and so forth.  
24 And this discussion we're having goes back to the  
25 figure on page 8 that looks kind of like a dome with a

1 bunch of lines on it, that is -- what I was trying to  
2 do here is give people that are not engineers a  
3 graphical depiction of what's going on so that they  
4 could actually see on the diagram what's physically  
5 happening rather than try to describe all this in  
6 words.

7 Q. Now, sir, specifically with respect to that  
8 second paragraph on page 12, you see where it says  
9 steam T minimum, right?

10 A. I do, yes.

11 Q. Do you have any problem with Dr. Penon's use  
12 of the minimum temperature of the steam during the time  
13 period?

14 A. Well, you know, yeah, the use of the word  
15 "steam" bothers me because I don't think there was any.  
16 But as far as "T min," I can live with that. "Steam,"  
17 no.

18 Q. I believe you had testified earlier that with  
19 respect to one of the projects you worked on where you  
20 were transferring steam I believe across a river --

21 A. Yeah, OSU.

22 Q. Yeah, at OSU, you had testified, I believe,  
23 if I'm not mistaken, that the steam was 558 degrees  
24 Fahrenheit?

25 A. That sounds about right, yeah.

CONFIDENTIAL

Page 231

1 Q. Okay. How did the steam get that high?

2 A. We superheated it. We had a separate  
3 superheat in the boiler, so we had a boiler and then a  
4 separate set of superheater tubes to superheat it.

5 Q. So if the E-Cat had separate chambers for its  
6 heating, could that have accomplished a superheated  
7 steam, in your opinion?

8 A. Not with the construction I saw of the E-Cat,  
9 no. Now, if we can get in one and take it apart, then  
10 I -- you know, then you may force me to change my  
11 testimony. But until I see that, I'm not changing it.

12 Q. Okay. So until you -- you see the inside,  
13 you're not willing to make any assumption whether that  
14 could exist or not?

15 A. Correct. And let me -- let me further amend  
16 -- let me amend my statement, if I will, to see it in  
17 the condition that it was during the test, not that it  
18 necessarily may be now, because there's been a year  
19 interval between the test termination and -- about a  
20 year interval -- over a year interval, I don't know  
21 what's happened. You know, those -- all the things  
22 could be changed.

23 Q. But, again, you never requested any diagrams  
24 or drawings of what these units look like?

25 A. I can't say that I did or did not. I

CONFIDENTIAL

Page 232

1       probably did knowing me, but I can't say with 100  
2       percent certainty.

3           Q.     Don't you think it would have been prudent  
4       to -- before formulating that opinion, to know what --  
5       or how the device operated?

6           A.     Well, I may have asked, and if nothing is  
7       forthcoming from plaintiffs, then I can ask all I want.

8           Q.     Well, do you know if -- do you know if the  
9       defendants or counsel has that information?

10           MR. LOMAX:   Objection to the form of the  
11       question.

12           A.     They have not -- I -- I will just -- I will  
13       say that I have asked for it, because I know myself  
14       well enough when I do this, and the answer was no, we  
15       don't have that.

16           Q.     Can you think of any reason why they wouldn't  
17       have provided it to you?

18           A.     You would not have provided it to them.

19           Q.     Okay.   So sitting here today, if we had  
20       provided it to them and they didn't provide it to you,  
21       can you think of any reason why that might be?

22           MR. LOMAX:   Objection to the form of the  
23       question.

24           A.     Yeah, they -- they either -- they forgot it  
25       or they don't want to.



CONFIDENTIAL

Page 233

1 Q. Might be.

2 Number 9 on my list is steam pressure, which  
3 is the third paragraph down on page 12.

4 A. Uh-huh.

5 Q. You state, The numbers themselves are  
6 unremarkable. What they actually represent is a  
7 different matter. Every cell under steam pressure is  
8 zero in the entire spreadsheet.

9 What does that represent, sir?

10 A. I understand it to be the outlet steam --  
11 again, outlet so-called steam pressure of the E-Cat.

12 Q. Okay. And you say what it represents is a  
13 different matter.

14 What does it represent?

15 A. It represents steam, which I don't believe is  
16 present.

17 Q. Okay. So that statement goes directly to  
18 your belief that there was no steam present?

19 A. Correct.

20 Q. Okay. The next paragraph says, the steam  
21 pressure in the steam pressure column is uniformly  
22 reported as 0.0 bar. 0.0 bar is 0.0 atmosphere --  
23 atmospheres absolute. And then you go on and say, if  
24 the ERV meant 1 atmosphere, the column should have been  
25 labeled 1 bar.

CONFIDENTIAL

Page 234

1           So your -- just so I understand, your  
2           objection to that particular column is that he did not  
3           state 1 bar or that it was atmospheric as supposed to  
4           absolute?

5           A.     Correct.   Because if it was absolute,  
6           obviously we can't have steam.   So this is probably  
7           just an innocent typo, truth be told.

8           Q.     Okay.   Now, you state that -- and so that  
9           typo doesn't invalidate the report, does it?

10           MR. LOMAX:   Objection to the form of the  
11           question.

12           A.     Standing -- stand alone, no.   Now, again, if  
13           he meant that it was steam pressure and absolute bar,  
14           yeah, that's a big problem.

15           Q.     You were at his deposition.

16                   Did he indicate one way or another?

17           A.     I don't recall.   Again, with the -- all the  
18           goings-on with the translator, sometimes it was hard to  
19           keep focused on what he was saying.

20           Q.     Now, you state here, another very serious  
21           data anomaly is the steam temperatures are almost all  
22           reported as being over 100 degrees C.   The saturation  
23           temperature of water at atmospheric pressure is 100  
24           degrees C.

25                   Is that what we just discussed?   Is that --

CONFIDENTIAL

Page 235

1 A. Yes, sir, it is.

2 Q. Okay. There's nothing different there?

3 A. No.

4 Q. So your testimony would be the same as what  
5 we just discussed with respect to the steam temperature  
6 above 100 degrees C?

7 A. Yeah.

8 Q. The next paragraph refers to the column  
9 entitled Produced Energy.

10 And the first thing that you note here is  
11 that the columns contain cells as opposed to formulas,  
12 correct?

13 A. Yes, numbers as opposed to formulas, correct.

14 Q. Okay. And, again, you don't know whether  
15 Penon, Dr. Penon, used a formula or if he just put in  
16 numbers?

17 A. And, again, I don't know, correct.

18 Q. Okay. The next paragraph says, The produced  
19 energy numbers should have been generated and provided  
20 by a calibrated energy measuring device to include  
21 steam flow, steam quality, temperature and pressure.

22 Is there such a thing as a device that  
23 includes all those?

24 A. Not -- I think they're -- they're generally  
25 separate devices.

CONFIDENTIAL

Page 236

1 Q. Okay. And temperature was measured in this  
2 case, was it not?

3 A. Allegedly, yes.

4 Q. And pressure was?

5 A. Allegedly, yes.

6 Q. Okay. Now, steam flow and steam quality,  
7 let's talk about those for a moment.

8 Steam quality. If, in fact, the temperatures  
9 were -- and I'm asking you to assume because I know you  
10 disagree, but if, in fact, that they were at 103.9 or  
11 anywhere between 101 and 104; okay?

12 A. Okay.

13 Q. Would you agree with me that the steam  
14 quality be -- would be 100 percent?

15 A. If all of your assertions are true, yes, I  
16 would agree in that limited context.

17 Q. Okay. So if there were measurements -- okay.  
18 If the temperature measurements were correct, then you  
19 would agree that the steam quality is, therefore,  
20 already defined? You don't have to do any additional  
21 analysis for steam quality where the temperatures are  
22 over 101 C?

23 A. But the whole -- the whole crux of your  
24 question relates on the if, and I'm not assenting to  
25 that if.

CONFIDENTIAL

Page 237

1 Q. Okay. I understand. You don't -- you don't  
2 subscribe to the temperature measurements?

3 A. Correct.

4 Q. Now, I understand that. But I'm trying to  
5 define where your areas of concern are and whether this  
6 is a separate issue of concern or whether this stems  
7 from a prior issue.

8 So right now, you -- specifically, I know you  
9 don't agree with the temperature measurements. You  
10 believe that those are faulty in some manner. Okay.  
11 But assuming that they are correct, there would not be  
12 an additional need for a steam quality measurement of  
13 any sort; is that correct?

14 A. I'm going -- I'm going to answer your  
15 question a little obliquely. If this were a  
16 conventional boiler, conventional steam system putting  
17 out steam at 0 pounds gauge and temperatures above 100,  
18 I would agree in that context, yes, to quality 100  
19 percent.

20 Q. Okay.

21 A. In the current case, no, sir, I do not.

22 Q. What is the difference between the current  
23 case and the -- a traditional boiler?

24 A. A tradition boiler has a real superheater.

25 Q. So, again, this -- this is what I was

CONFIDENTIAL

Page 238

1 discussing in terms of that goes back to your belief  
2 that there was no superheater.

3 And so if there was a superheater, you would  
4 agree with me that that would change your opinion?

5 A. If there was a superheater, I would be hugely  
6 surprised.

7 Q. So that's what you were referring to, though,  
8 in terms of -- for steam quality.

9 What about steam flow?

10 A. What about it?

11 Q. How would you measure steam flow?

12 A. With a steam flow meter.

13 Q. And what does the steam flow meter do? How  
14 does that work?

15 A. There are -- there are a whole bunch of them  
16 out there.

17 Q. Sir, the question is what does a steam flow  
18 meter do?

19 A. Yeah, that, I'm going to answer your question  
20 with a -- rather than try to describe them verbally, I  
21 apologize, I downloaded some information from  
22 Spirax-Sarco, who is a client of mine, but they sell --  
23 they were selling stuff long before I was ever around.

24 They have a nice disposition -- it's in here.  
25 There we go -- on types of steam flow. If you'd like

CONFIDENTIAL

Page 239

1 that. Unfortunately, I only made one copy of that, but  
2 that's available at Spirax's website with no problem.

3 Q. Would the steam flow meter indicate how much  
4 liquid water had been converted to steam?

5 A. A steam flow, no. It would -- all it would  
6 indicate was the amount of steam passing through a  
7 given pipe.

8 Q. When you say "the amount of steam," how is  
9 that measured, in what --

10 A. Well, in -- in this country, it's pounds of  
11 steam per hour.

12 Q. Pounds per hour?

13 A. Yes, sir.

14 Q. Okay. Now, steam is water in vapor form,  
15 correct?

16 A. No. Steam is a gas.

17 Q. And, I'm sorry, in gaseous form? I  
18 apologize.

19 A. You're correct, yeah.

20 Q. Yes. So the weight of steam is really the  
21 weight of the water molecules; is that correct?

22 A. Well, a pound of steam is a pound of steam,  
23 so a pound -- a pound of steam is a pound of water.  
24 The same pound of water is the same pound of steam.  
25 The difference is in the volume.

1 Q. Okay. A pound of water converted to steam,  
2 in a boiler, you boil a pound of water, it converts to  
3 steam?

4 A. One pound of steam.

5 Q. One pound of steam?

6 A. Correct.

7 Q. The same exact amount, correct?

8 A. Yes.

9 Q. So -- and when that steam is cooled, the  
10 steam returns back to the liquid state of water,  
11 correct?

12 A. That's correct.

13 Q. Okay. And in a perfectly closed system with  
14 no losses whatsoever, it would be a pound of water  
15 again?

16 A. Correct.

17 Q. Correct. So -- so a steam flow meter is one  
18 way to measure.

19 Would another way be to determine how much  
20 steam was produced, how much water was heated to steam  
21 and turned into a gaseous form?

22 MR. LOMAX: Objection to the form of the  
23 question.

24 A. I don't understand your question.

25 Q. So, for example, in -- in our 1-pound



CONFIDENTIAL

Page 241

1 scenario, you put 1 pound of water into the boiler and  
2 you boil it all, it's turned into a gas, correct?

3 A. Correct.

4 Q. There's nothing left in our boiler --

5 A. Right.

6 Q. -- right?

7 So without a steam flow meter, we know,  
8 though, that we have created 1 pound of steam?

9 A. Correct.

10 Q. Beyond a doubt?

11 A. Yep.

12 Q. Okay. So knowing how much water was boiled  
13 and turned into a gaseous state tells us how much steam  
14 was created, that it created 1 pound of steam?

15 A. In your hypothetical, yes. In this  
16 hypothetical, yeah.

17 Q. Okay. So similarly, and applying that to the  
18 E-Cat, if we knew the amount of water that was boiled  
19 by the E-Cat or converted into a gas, we would then  
20 know the amount of steam that was created, correct?

21 A. No, because an input is not an output.

22 Q. Okay.

23 A. The test plan indicated measuring the water  
24 coming back from across the wall. That's an input to  
25 the E-Cat. It is not an output.

CONFIDENTIAL

Page 242

1 Q. Okay.

2 A. They're different. No matter -- no matter  
3 how you try to conflate them, one is a goesouta, the  
4 other is a goesinta.

5 Q. Okay. Let's talk about the goesoutas and the  
6 goesintas. If there is a substantial amount of  
7 goesinta, water that goes into the plant, and the only  
8 means for it to go out of the plant would be as steam,  
9 would you agree with me that in order for there not to  
10 be a flood, that the same amount coming in would have  
11 to go out?

12 A. In a -- in a perfectly closed loop with  
13 absolutely no leaks, it's totally tight, I would agree  
14 with that.

15 In the present case, I do not agree, because,  
16 again, we're trying to measure the efficiency of a  
17 heat-producing machine and we have to measure the  
18 output. Measuring the input won't cut it.

19 Q. Okay. Why doesn't measuring the input --  
20 again, in our little hypothetical with the 1 pound of  
21 water, we were able to measure the 1 pound of water  
22 going into the boiler and know that that 1 pound was  
23 the amount of steam produced.

24 So what is the difference in our E-Cat unit  
25 that we cannot make that same presumption?

CONFIDENTIAL

Page 243

1 A. There's leaks. There may be blowdown. Okay.  
2 Those are the two things that pop immediately into my  
3 mind.

4 Q. What is "blowdown"?

5 A. Blowdown is water that is drained off of a  
6 boiler to reduce the solids in the water.

7 Q. Where does that water go?

8 A. To the drain.

9 Q. Okay. Was there a drain in the Doral  
10 facility to your --

11 A. I would hope there was. I haven't seen it  
12 yet, but I would certainly hope there was at least one.

13 Q. Why?

14 A. Well, because it's an industrial facility.  
15 You've got to have drains.

16 Q. Okay. And if there wasn't a drain, then --

17 A. Then it would go on the floor.

18 Q. Okay. And was there any reports that you  
19 know of of water all over the floor?

20 A. I can't -- you won't be able to pin me down,  
21 because I don't remember exactly where, but I've seen  
22 -- I've heard reports of fixing leaks. In looking at  
23 some of the fittings, I've seen evidence of leakage.  
24 Mr. -- I saw a picture that had been provided to  
25 counsel of vapor coming out of the E-Cat -- the Cat

1 box, so that vapor could only come from one place.

2 So -- but, again, to get back to your perfect  
3 hypothetical, yeah, I agree with you. All right. But,  
4 again, this is -- this is a performance test of an  
5 energy-producing machine. There is no reason not to  
6 measure the output.

7 Q. Okay. The -- the volumes of water that we're  
8 talking about processing through this plant, we're  
9 talking in the neighborhood between 1.2 and 1.6 cubic  
10 meters per hour?

11 A. I'll not argue with that. That sounds --  
12 yeah. Fine. I'll not argue with that.

13 Q. That's a fair amount of water?

14 A. It's not -- yeah, it's a chunk.

15 Q. It's a good chunk.

16 And that's per hour, correct?

17 A. I can't say one way or the other, but --

18 Q. So if there was -- if there was a leak of  
19 that amount, even one hour's worth of water, that would  
20 be noticeable, would it not?

21 A. I would -- I would expect so, yeah.

22 Q. Okay. Did you talk to any of the gentlemen  
23 that were in the plant?

24 A. I've not talked to anybody that worked there,  
25 no.

CONFIDENTIAL

Page 245

1 Q. Okay. Did you know that Industrial Heat had  
2 a representative on site named Barry West?

3 A. I did not know that he worked for Industrial  
4 Heat. Apparently if he did, then I thought he was  
5 working for Mr. Rossi.

6 Q. Do you know if he reported ever any massive  
7 leaks? And I'm talking over a cubic meter in an hour.

8 A. No, I don't.

9 Q. Okay. Now, you said there was some loss due  
10 to -- to vapor?

11 A. Leaks in the casing and so forth.

12 Q. Leaks in the casing. Okay.

13 And that -- do you know if that's why  
14 Engineer Penon calculated a 10 percent reduction off of  
15 the recorded waterfall?

16 A. I recall reading that was part of his  
17 rationale.

18 Q. Okay. Do you have any problem with that?

19 A. I -- that ration- -- I still have the whole  
20 problem -- the whole rationale of calling it input and  
21 output.

22 Now, an attorney -- and, again, this is a  
23 shot at both of you, so don't take it personally, but  
24 attorneys can call anything anything. I'm an engineer;  
25 I can't do that. I cannot call an input an output.

CONFIDENTIAL

Page 246

1 They were not measuring the output. They were  
2 measuring the input. And, again, that's another thing.  
3 You know, we can wrangle about this as long as you  
4 want. I'm not backing off of that. They should have  
5 measured the output.

6 Q. Okay. I'm not asking, though, sir, what --  
7 what they should have done. Okay. What -- what I'm  
8 asking in this case -- and I may even come to the point  
9 to agree with you that there may have been better ways  
10 in which it could have been done, but the question is  
11 is whether these results are entirely invalid --

12 A. Yes.

13 Q. -- or --

14 A. I'm sorry, I stepped on you. Again, I  
15 apologize.

16 Q. -- whether they're entirely invalid or if  
17 they're off by even 30 percent?

18 A. They're entirely invalid because the whole  
19 methodology of testing a heat-producing machine is to  
20 measure the outputs and measure the inputs.

21 And don't forget, the output from this  
22 machine was going across the gray wall into another  
23 black box. And Mr. Penon was pretty -- and this I do  
24 remember because I did pay pretty close attention at  
25 this point, he did not know nor did he care, and I

CONFIDENTIAL

Page 247

1 even -- I think he spells it out in his test plan what  
2 happened over there.

3 So they could have been putting water in,  
4 they could have been taking water out. We don't know  
5 what happened. And so that's my problem with this  
6 methodology, is we -- since we don't know what happened  
7 over there, we don't know if what's coming back is what  
8 was really being sent out.

9 Q. Well, let me ask you in this matter, again,  
10 if more water was coming into the E-Cat on the  
11 quantities that we're talking about between, we'll call  
12 it 1 and 1.6 cubic meters per hour, if more water was  
13 constantly coming in than was going out in the form of  
14 steam, then there's only one result, the water is going  
15 to come out somewhere, correct, either to a drain,  
16 correct --

17 A. Yeah.

18 Q. -- or water vapor, although that would be an  
19 awful lot?

20 A. Correct.

21 Q. Or some other manner, otherwise, it would  
22 just continue to build up inside of this box and we'd  
23 have a swimming pool, right?

24 A. Correct.

25 Q. Okay. So if the water that was coming in was

CONFIDENTIAL

Page 248

1 a correct measurement, we know generally that the water  
2 going out, in some form or another, must have been  
3 equals; otherwise, there would have been an imbalance  
4 and we would have been collecting more water than the  
5 facility could have handled?

6 A. Again, I'm not going to assent to your if.  
7 All right. Because, again, J.M. Products as opposed to  
8 Leonardo may have been draining the water off. I  
9 haven't seen the drains. And Penon didn't care. So  
10 that's -- the whole methodology is flawed.

11 Q. Again --

12 A. It's totally flawed. And so based on it  
13 being totally flawed, the test as a whole is -- is  
14 invalid, in my view, because we're not looking at a  
15 true output. We're looking at an input that is now  
16 supposedly correlated to make it an output.

17 And a lawyer might make an output an input,  
18 but an engineer cannot make an output an input.

19 Q. Okay. Sir, in going back to our hypothetical  
20 with our 1 pound of water, okay, if I pour 2 pounds of  
21 water into the boiler, assuming that there is no drain  
22 or leaks, and the boiler is dry at the end, is it safe  
23 to assume that 2 pounds of steam were created?

24 A. Again, absolutely, very safe assumption.  
25 It's a -- that would be a fact.



1 Q. Okay. Do you have any facts or do you have  
2 any information of any other source by which water  
3 could have left the E-Cat unit other than as steam?

4 A. It could have left as water. They could have  
5 just circulated water all the time. And that's what I  
6 think happened, is they were circulating water.

7 Q. In the steam pipe?

8 A. Yes. In the pipe; not the steam pipe, in the  
9 pipe.

10 Q. Okay. First of all, what level was the pipe,  
11 this -- I'm going to call it a steam pipe, and I  
12 understand --

13 A. Fine. We'll agree to disagree.

14 Q. At what level, how high was that?

15 A. I don't know.

16 Q. Do you know if it was above head level?

17 A. Again, I don't know for sure.

18 Q. Well, you've seen pictures, sir. You saw --

19 A. It looks -- again, you know, the angles were  
20 kind of -- but I would -- hopefully it was designed to  
21 be above head level.

22 Q. Okay. If it was liquid water, how would the  
23 water go from an E-Cat unit up to a pipe that is above  
24 head level?

25 A. If it's a closed loop, water is going to

CONFIDENTIAL

Page 250

1 circulate by natural convection. Warm water --  
2 everybody says heat rises. All right. Heat is  
3 omnidirectional. Warm water is less dense than cool  
4 water.

5 I will -- I will agree that the E-Cat module  
6 heated the water in some method. I've got no problem  
7 with assenting to that. All right.

8 So that heated water is going to be less  
9 dense than the cooler water coming back to it. So that  
10 will set up a natural circulation loop. And that's  
11 actually the way boilers work that don't have pumps, is  
12 because of that buoyancy difference, will set up an  
13 internal circulation flow.

14 Q. Okay. That can overcome gravity?

15 A. Yeah. Yeah, because it's a closed loop.  
16 What goes up, comes down. It's a closed loop. Now, if  
17 it was an open system, it would not go up. But being a  
18 closed system, what goes up must come down.

19 Q. That means it's got to be watertight,  
20 literally watertight?

21 A. Or pretty close to it.

22 Q. Okay. Now, you mentioned that you saw  
23 pictures with vapor being released. That means the  
24 system wasn't watertight, was it?

25 A. At least at the time of the leaks. Now, the

CONFIDENTIAL

Page 251

1 leaks may have been fixed so that it did get tightened  
2 back up.

3 Q. Do you know if there were leaks?

4 A. The evidence I saw indicates there were some.

5 Q. Okay. So if it was -- if it was not  
6 watertight, if this system inside the E-Cat is not  
7 watertight -- and we may get a chance to see that here  
8 soon when we go to the site -- would there be any other  
9 method that you can think of in which water could  
10 somehow overcome gravity, absent a pump, to flow  
11 through that pipe?

12 A. Even if -- even if it's not watertight and  
13 there's a little bit of a leak, the leak is going to be  
14 small in comparison to that large volume of water that  
15 you just talked about flowing. So that little leak is  
16 not going to allow atmospheric pressure to enter. So  
17 it's -- it's still going to be, I'll call it a  
18 quasi-closed system for lack of a better term, so  
19 you're still going to have a natural convection heat  
20 loop in it.

21 Q. Okay. Well, let's just say -- and what  
22 you're saying is that the flow would overcome the  
23 amount that could leak, and I understand that.

24 What if there was a -- what if it wasn't  
25 small, I mean, if it was just wide open, an open area

CONFIDENTIAL

Page 252

1 of -- like an open holding tank for water to feed into  
2 the E-Cats?

3 A. But that -- that tank is separated by a  
4 water -- a bit of a water column to create a water seal  
5 to keep atmospheric pressure from coming in.

6 Q. I'm sorry, say that again, please.

7 A. That was bad. If there was a tank like that  
8 and it was connected to the E-Cat, there would be a  
9 static line between the two of them unless that tank  
10 was acting and feeding water in through a pump, you  
11 know, if there was a make-up water pump, then that  
12 water would be coming in under pressure.

13 And also don't forget that the -- these --  
14 all these little pumps, you've got all these little  
15 what, a hundred or so small peristaltic pumps that are  
16 pumping water into the E-Cat. They're going to keep it  
17 full more so than the leaks.

18 Q. Okay. Sir, to come back, because I got off  
19 track a little bit, and I apologize for that, coming  
20 back to your statement that you can't measure the input  
21 as opposed to the output --

22 A. Well, we could have measured the input. Oh,  
23 we did -- I'm sorry. My bad. We could have -- we did  
24 measure the input. We could have measured the output.

25 Q. Okay. Is there any specific methodology,

CONFIDENTIAL

Page 253

1 technique or theory that you've applied to arrive at  
2 your conclusion that the measurement of the water input  
3 into the system does not sufficiently allow a  
4 measurement of the output of steam?

5 A. Haven't I kind of answered that question in  
6 the last ten minutes or so pretty concisely?

7 Q. Well, but I'm asking for specific  
8 methodologies or theories or --

9 A. The theories of hydraulics and fluid flow,  
10 the methodology being the ASME, the performance -- or  
11 the power test code, the industry standard for  
12 determining these kind of things.

13 In the 40 years of engineering, I have never  
14 seen a device that's called an input and output or vice  
15 versa. An input is an input, an output is an output  
16 and you can't measure the output by inferring the  
17 input.

18 Q. If there were -- if there were no way to  
19 measure the output, let's say shot out a hole in the  
20 side as opposed to into this pipe, the steam, if  
21 instead of going through the pipe -- and I know you  
22 disagree with the word "steam" -- if there were no  
23 measurement or either an inability or a failure to  
24 measure the steam flow out of the unit, would you agree  
25 that you could look at the amount of water input into

CONFIDENTIAL

Page 254

1 the system to try to determine how much steam was  
2 generated?

3 A. I disagree with your premise that there's no  
4 way -- way -- sorry -- there's no way to measure the  
5 output. I totally disagree with that.

6 Q. I understand that. But I'm asking you if --  
7 if we could not or just failed to measure the steam  
8 outflow --

9 A. But you could have and you didn't, so it's  
10 not that you failed to, you chose not to and did not.  
11 And, again, I don't mean you personally. My bad.

12 Q. I'm going to correct you, sir, and it wasn't  
13 even my client, in fact, because the test plan and test  
14 protocol were agreed to by both parties.

15 A. Okay.

16 Q. Okay. So both parties.

17 A. Then to be totally objective, on both of  
18 them.

19 Q. And had they contacted -- had they contacted  
20 you before the test, would you have been happy to  
21 assist them with their test plan?

22 MR. LOMAX: Objection to the form of the  
23 question.

24 A. Probably, yeah.

25 Q. Okay. Sir, looking at the second to last

CONFIDENTIAL

Page 255

1 paragraph on page 12, with respect to the column  
2 entitled COP, based on the above discussion, these  
3 numbers do not appear to have been properly calculated.

4 A. Uh-huh.

5 Q. Is that statement solely premised upon  
6 your -- the exceptions that you've taken with respect  
7 to the measurements that we've discussed previously?

8 A. Partially. I don't know if I talked about  
9 the use of COP as a proper measuring metric, but I  
10 disagree with that also.

11 Q. Okay. We're going to get to that.

12 But specifically with your statement that  
13 these numbers do not appear to have been properly  
14 calculated, okay, for COP, how do you measure COP?  
15 What is the formula?

16 A. Well, COP, the formula in a work-absorbing  
17 machine such as an air-conditioner or a heat pump,  
18 is -- it's like -- it's shown in both of the  
19 professors' books, it's Q moved, if you will, divided  
20 by work in. The amount of heat -- I should say Q is  
21 engineering shorthand for heat. Okay. So when you get  
22 in the books, both professors will use the letter  
23 capital Q typically. That's our engineering shorthand  
24 for heat quantities.

25 Q. Okay.

CONFIDENTIAL

Page 256

1           A.    I imagine Professor Wong has probably already  
2           told you that, but if he doesn't, he will.

3                        So COP, coefficient of performance, is  
4           technically and correctly defined for a work-absorbing  
5           device such as a refrigerator, air-conditioner, heat  
6           pump, as the amount of heat moved from point A  
7           typically inside a conditioned space to outside a  
8           conditioned space. And then that's divided by the  
9           amount of work that it takes to move that heat.

10           Q.    What do you mean by a "work-absorbing  
11           device"?

12           A.    Your air-conditioner. You've got electric  
13           lines going into it. It runs a compressor and some  
14           motors. It's absorbing electric power to move heat  
15           around.

16           Q.    Okay. And the E-Cat, for example, absorbs  
17           electrical input, correct?

18           A.    Yes.

19           Q.    Okay. And puts out thermal energy --

20           A.    Yes.

21           Q.    -- in the form of steam?

22           A.    It puts out thermal energy.

23           Q.    Okay. It puts out thermal energy.

24                        Again, you -- you take exception with the  
25           steam. I understand that.



CONFIDENTIAL

Page 257

1 So, in fact, it is a work-consuming process?

2 A. No. It's an energy conversion device. A  
3 boiler is an energy conversion device. So the E-Cat is  
4 actually an energy conversion device.

5 Q. Well, let me -- let me ask you -- hold on for  
6 a second -- does the E-Cat convert the electrical  
7 energy input into thermal energy, is that what it's  
8 doing?

9 A. Eventually, yeah.

10 Q. Eventually. Okay. What happens in between?

11 A. Well, I don't know. That's supposedly  
12 Rossi's proprietary mix in the elements and so forth.  
13 Okay.

14 But, again, I believe it's just an electric  
15 heater. You know, he may -- obviously he would  
16 probably vehemently disagree with me. But regardless  
17 of that disagreement, within the confines of Rossi's  
18 model, we are bringing electricity in, heat is an  
19 output product.

20 Q. What is the source of that heat?

21 A. In my -- I think it's just electric  
22 resistance.

23 Q. Do you have any evidence that you've seen to  
24 indicate that? What -- what do you base that belief  
25 on?

CONFIDENTIAL

Page 258

1 A. Well, there's just no -- there's no other  
2 input that I'm aware of.

3 Now, that does raise an interesting point,  
4 because I understand hydrogen may be part of this  
5 process and therein another flaw in the test report and  
6 the -- in the test plan and test report, because if  
7 hydrogen is an input, then that should be measured as  
8 an input, the amount of hydrogen. Because hydrogen is  
9 a combustible fuel with a fair amount of heat value,  
10 that being brought in should be considered in the  
11 calculations as an energy input.

12 Q. And when you say "heat value," are you  
13 talking about calories?

14 A. Yes, well, calories, BTUs. Again, you know,  
15 same stuff, different way of measuring it.

16 Q. Okay. Do you know what was being used in the  
17 E-Cat unit?

18 A. What I've read is nickel and some other kind  
19 of hydride-type stuff. And I've -- and I've seen --  
20 I've also been led to believe that there might be even  
21 actually hydrogen gas used.

22 Q. Okay. And do you believe that those have  
23 sufficient calories to -- strike that.

24 Calories is important to consider in chemical  
25 reactions, correct?

CONFIDENTIAL

Page 259

1 A. Yeah. Yes.

2 Q. Because that's -- that determines how much  
3 energy can be released, the number of calories that can  
4 be released in that reaction?

5 A. Correct. How many calories/BTUs, yes, sir.

6 Q. Is that the same consideration in nuclear  
7 energy?

8 A. I believe it is, because the decay --  
9 regardless of -- again, not being a nuclear engineer,  
10 but I do know heat. And the decay of the fuel,  
11 elements in the fuel, the nuclear decay produces heat,  
12 so there are calories being generated from the atomic  
13 interactions as opposed to the molecular interactions  
14 in a conventional chemical reaction.

15 Q. Well, calories are consumable normally  
16 without altering the underlying molecules --

17 A. Well, wait a minute. You say calories are  
18 consumable --

19 Q. Okay. You're correct. Let me rephrase this.  
20 In a chemical reaction, you're not decaying  
21 the atoms, correct?

22 A. Not the nuclei.

23 Q. Okay. You're not decaying the nuclei?

24 A. Correct.

25 Q. Now, in a nuclear reaction, you are decaying

CONFIDENTIAL

Page 260

1 the nuclei?

2 A. Correct.

3 Q. And, in fact --

4 A. Or fusing them, decaying them or fusing them.

5 Q. Okay. And in those reactions, you are  
6 altering the nuclei. They are being changed, correct?

7 A. Yes.

8 Q. They give off an immense amount of energy --

9 A. Yes.

10 Q. -- correct?

11 Far more than can ever be achieved in a known  
12 chemical reaction?

13 A. Correct. Well, when you say -- let me go --  
14 I mean far more on a unit -- unit mass basis. Let's --  
15 let's quantify it that way. Okay.

16 Q. Do you know what reaction is occurring in the  
17 E-Cat?

18 A. I believe I've said I do not.

19 Q. Okay.

20 A. But I also said that my understanding is that  
21 it is a non-nuclear process.

22 Q. And that's based on Mr. --

23 A. Stokes.

24 Q. -- Stokes?

25 A. And I believe Dr. Ross's assertions, too,

CONFIDENTIAL

Page 261

1 that he said it's a non-nuclear process.

2 Q. Then what is it; do you know?

3 A. It's electrical. It's an electrical  
4 resistance heater, maybe bringing in some hydrogen, I  
5 don't know, but it's probably predominantly an  
6 electrical resistance heater.

7 Q. Now, you -- you had mentioned that you were  
8 aware of the Lugano report?

9 A. I'm aware of it.

10 Q. Okay. Have you read it?

11 A. I scanned through it. I did not study it in  
12 detail.

13 Q. Are you aware that a number of Swedish  
14 scientists as well as Italian scientists, professors,  
15 in fact, performed a test on the E-Cat device?

16 A. I'm aware of that.

17 Q. Are you aware that they reported to have  
18 achieved a positive CO fee -- COP, coefficient of  
19 performance, on those tests?

20 A. If that's what you say and if that's what's  
21 reported, then I'm not -- if that's what they reported,  
22 I can't argue with that.

23 Q. You haven't looked at the report, though?

24 A. Like I said, I scanned it, I did not study  
25 it.

CONFIDENTIAL

Page 262

1 Q. So you had that at your disposal, but you did  
2 not consider that before coming to the conclusion that  
3 there's no way that the E-Cat could have worked?

4 A. My reason being is that in the module itself,  
5 what goes on is what goes on. All right. The laws of  
6 thermodynamics state that for a perpetual -- we  
7 discussed a perpetual motion machine, that cannot  
8 create energy. Even a nuclear reaction does not create  
9 energy. It just changes the highly dense nuclei as  
10 opposed to molecular bonds.

11 Q. Okay.

12 A. So I'm looking at -- and to me, the whole --  
13 if you're not measuring the output, as far as I'm  
14 concerned, the whole test is invalid. And -- and I  
15 have -- I have a strong enough belief in the laws of  
16 thermodynamics that I absolutely do not believe that  
17 any device can produce more energy than it consumes.

18 Q. Okay. Let me -- let me simplify this. So  
19 then, again, your opinion is that the test protocol,  
20 the test plan was deficient, not necessarily -- you're  
21 not opining that the measurements were -- specifically  
22 with respect to the water flow, that the water flow was  
23 somehow erroneous?

24 A. I -- I have questions about the water flow.

25 Q. Well, there's a difference, would you agree,

CONFIDENTIAL

Page 263

1 between having questions and formulating an opinion  
2 that it's erroneous?

3 A. Well, it's -- it is a -- I agree there is a  
4 distinction. All right. Number one, it was not the  
5 way to measure the performance of the total machine.

6 Number two, Mr. Murray has done a lot more  
7 work into investigating the water meter than I have.  
8 He's looked at it, I believe, and so forth and found  
9 some discrepancies. So that raises issues as to the  
10 validity of the report also.

11 Q. But you don't have information as to those  
12 discrepancies allegedly reported by Mr. Murray?

13 A. I've looked at some of the issues he raised  
14 with Dr. Penon in that one letter.

15 Q. Did -- did you do any testing of your own?  
16 Did you do any investigation as to the water flow?

17 MR. LOMAX: Objection.

18 A. Again, how could I? Not physically possible.

19 Q. How did Mr. Murray?

20 A. He was there.

21 Q. He was where?

22 A. At the Doral site.

23 Q. Okay. What do you understand his test  
24 protocol to have been?

25 A. Well, he looked at it, and I believe he also

CONFIDENTIAL

Page 264

1 purchased some meters, identical meters and tested  
2 them.

3 Q. But you haven't checked his data or his --  
4 his assumptions on those, correct?

5 A. I've looked at it. I haven't studied it in  
6 depth yet.

7 Q. Okay. Do you know if the -- the angle of the  
8 meter was the same?

9 A. Again, I've looked at it, I've read those  
10 issues.

11 Q. Well, my question is, do you plan on opining  
12 as to the accuracy of the water flow meter?

13 A. I may. I'll reserve that right.

14 Q. Based on what?

15 A. I have not yet.

16 Q. Okay.

17 A. But based -- based on the rust water line  
18 that I saw in the rotor, that raises some major issues  
19 for me.

20 Q. But you haven't opined to that yet?

21 A. Not yet.

22 Q. Is there a reason you haven't done so yet?

23 A. I haven't gotten to it.

24 Q. But you were retained over a month ago,  
25 right?



CONFIDENTIAL

Page 265

1 A. I haven't been allowed access to the site.

2 Q. Well, you said you saw pictures that -- you  
3 saw pictures, I believe, of a rust -- a rust line?

4 A. Yes.

5 Q. Okay. Now, sir, have you taken the numbers  
6 in Mr. Penon's report and calculated what you believe  
7 the efficiency of the E-Cat unit to be?

8 A. No.

9 Q. How would you calculate the efficiency of the  
10 E-Cat unit if not COP?

11 A. Through, again, the conventional way. I  
12 would use this. "This" being the power -- there again,  
13 power test code, performance test code. They changed  
14 the terminology. I would use that as a backbone. I  
15 would measure the output by an appropriate steam flow  
16 meter, output temperature, output pressure, output  
17 steam quality. And then I'd measure all the other  
18 inputs, return water, make-up water, hydrogen if there  
19 is any, electric power input and then do the math.

20 Q. What's the math? Is there a formula?

21 A. Inputs -- on -- on the denominator, it's  
22 outputs divided by inputs.

23 Q. That's COP, isn't it?

24 A. No. You're conflating the issues. COP is  
25 the measurement of heat moved by a work-absorbing

CONFIDENTIAL

Page 266

1 device. This is an energy conversion device. They're  
2 two separate critters.

3 Q. What is the difference?

4 A. I've described it already. Should I do it  
5 again?

6 Q. Okay. Well, besides the difference in the  
7 devices, I believe you testified to measure COP, you  
8 measure the energy output divided by the energy input,  
9 correct?

10 A. I believe I did, yeah.

11 Q. Okay. And I believe that's what you just  
12 described now for your cal- -- or how you would  
13 calculate the efficiency of the E-Cat unit --

14 A. But --

15 Q. -- the only difference being how you  
16 described the units.

17 A. No, sir. No. It's not how I describe the  
18 unit, it's what they physically are. The E-Cat, for  
19 all of our disagreement, is an energy conversion device  
20 of some -- some type. The proper way to measure --  
21 should I cut it off and wait till the change?

22 Q. Go ahead.

23 A. The proper way to measure is the -- the total  
24 output, divide- -- in BTUs or whatever units used,  
25 divided by the total input. That is the proper and

CONFIDENTIAL

Page 267

1 correct way to measure the efficiency of the E-Cat or  
2 any heat conversion device.

3 Q. Okay. Total output divided by total input?

4 A. Yeah.

5 Q. Okay.

6 MR. ANNESSER: And we will take a break so we  
7 can change the tape.

8 THE VIDEOGRAPHER: We're off the record. The  
9 time is 1511.

10 (Recess taken.)

11 THE VIDEOGRAPHER: We are on the record. The  
12 time is 1521.

13 BY MR. ANNESSER:

14 Q. Sir, do you know where the thermocouples were  
15 placed in the -- I'm going to call it the steam line.  
16 I know you take exception to that -- in the steam line  
17 coming out of the E-Cat plant?

18 A. I think one -- the second one was put in the  
19 bottom of the pipe. And, again, I can't tell you the  
20 lateral distance from the E-Cat unit. And I believe  
21 the other one was put in the top of the pipe or close  
22 to it.

23 Q. Okay. Do you know if that was done at the  
24 request of Mr. Darden?

25 A. I don't know that. Wait a minute. He -- I

CONFIDENTIAL

Page 268

1 seem to recall he and Mr. Rossi did have a discussion  
2 about that, and he might -- Darden might have had some  
3 input to that. I stand corrected, I think.

4 Q. Now, if one of the thermocouples was at the  
5 bottom of the pipe, if water was running over that  
6 thermocouple in liquid form, the reading would always  
7 be below 100 degrees Celsius, correct?

8 A. It might be 100, but it would be 100 or  
9 below, correct.

10 Q. So if the reading on that thermocouple  
11 exceeds 100 degrees Celsius, that would mean that there  
12 was no water running over that line, correct?

13 A. Or those -- the other -- the other reasons  
14 that I mentioned earlier.

15 Q. I'm sorry, go through them again for me.

16 A. Sure. Heaters near the thermocouple, a box,  
17 an electric/electronic box between the thermocouple and  
18 the computer to bias the signal, or, again, the numbers  
19 are just totally made up and written down.

20 Q. Okay. You said a box near the thermocouples?

21 A. Yeah, electronic box.

22 Q. How would that --

23 A. If you put -- and, again, I'm not an  
24 electronic tech or a double E, but by taking the output  
25 from the thermocouples and then running that through

CONFIDENTIAL

Page 269

1 some electronic device with an adjustment on it, you  
2 could bias that signal so that regardless of what  
3 temperature the thermocouples were actually seeing --  
4 even -- and I will -- I will, because I -- I heard very  
5 clearly all your discussion with Penon about the  
6 calibration of couples, all right, so, you know, I'll  
7 -- I'll not argue that the couples were probably  
8 properly calibrated. All right.

9 Even so, they could have been -- the  
10 thermocouples proper could have been properly sensing  
11 the temperature, but with an electronic device between  
12 their wires and the computer input or whatever other  
13 circuitry there was, an electronic device could have  
14 been placed to bias that signal.

15 Q. Okay. And what type of electronic device  
16 would that be?

17 A. Again, I'm not a double E. Most likely some  
18 kind of a small resistor.

19 Q. A small resistor?

20 A. Again, I'm not a double E, but a double E or  
21 an electronic tech could give you a hard-and-fast  
22 answer.

23 Q. Have you seen any facts that would support  
24 the conclusion that some type of device was put on this  
25 line?

CONFIDENTIAL

Page 270

1           A.    I'm giving you reasons why the superheater  
2           number could be high with water passing over it.

3           Q.    Okay. But what I'm asking you, not just is  
4           there any reason or any way to manipulate, certainly  
5           that's -- that's a broad question.

6           A.    Okay.

7           Q.    But what I'm asking you is, have you seen  
8           anything in this case to indicate that there was some  
9           sort of box put around the thermocouple or the wire for  
10          the temperature device -- temperature-reading device?

11          A.    I have not seen anything, per se, yet. But a  
12          flow analysis that I have done, as limited as it was,  
13          indicates that their -- that these -- the pipes, the  
14          size of the pipes could not possibly pass 1 megawatt of  
15          thermal -- of steam much less, what was it, 780, 790,  
16          800, whatever that year-long average was, could not  
17          physically have happened.

18                So that further leads me to believe that  
19          something was done to adjust that signal to give an  
20          improper reading.

21          Q.    Why do you say it could not have happened  
22          that the pipes would have passed that much steam?

23          A.    All right. Here we go. I'm looking -- what  
24          I have in my hand, this is just a -- the rough of --  
25          partial rough of Mr. Bass' dep.

CONFIDENTIAL

Page 271

1           And when he was talking about the size of the  
2       pipes, I have an Excel spreadsheet that I developed a  
3       long time ago, because I do, obviously, a lot of steam  
4       work. So rather than go through the calculations every  
5       time, I just came up with a spreadsheet. And a copy  
6       is -- I can make a copy available to you, because it's  
7       in the information I provided on these discs, so I have  
8       a copy of the spreadsheet, not a PDF, showing you my  
9       logic. So what I have -- and if I -- do you want to  
10      make this an exhibit?

11           Q.    May I take a look at it?

12           A.    Sure, you may. We may have to go back and  
13      forth because that's the only one that I printed.

14           Q.    Can you tell me what this is?

15           A.    Yeah. What -- again, what it is, it's a  
16      spreadsheet I developed for various pipe sizes. You  
17      input the steam pressure and gauge pressure and then  
18      that goes to a lookup table, which is on the second  
19      page. That comes back with the properties of steam at  
20      that pressure. And then from that look at, up table,  
21      the flow of steam through a given size pipe at a given  
22      velocity is automatically calculated.

23                   And then what I did -- so that's the right or  
24      the three main columns there on the -- I'm sorry, the  
25      left as I'm looking at it.

CONFIDENTIAL

Page 272

1 And then the right three columns are the  
2 blatant BTU flow. Because as a steam engineer, the  
3 steam flow is nice. If I'm sizing the boiler, I may  
4 want 50- to 100,000 pounds of steam, but what I'm  
5 really looking for is if one of the customers of the  
6 steam is, let's just say, brewing beer, all right,  
7 they're going to need X number of BTUs per hour in the  
8 kettle to brew so many gallons of water to make beer.  
9 Okay.

10 So I'm -- I'm really as much interested in  
11 the BTU flow as I am the steam flow.

12 So see what I did was I converted megawatts  
13 to BTUs, and that's a factor of 3,413. And I did the  
14 calculations down on the bottom.

15 So if you look in the left-hand column -- and  
16 I normally use 6,000 feet a minute steam flow. That's  
17 a good conservative number. Pipes don't get too big to  
18 be expensive and there's room for capacity expansion  
19 within a given pipe. 12,000 is the upper limit that  
20 anybody in the industry really uses. And, again,  
21 that's in 12,000 feet per minute of steam flow.

22 So the two highlighted rows there, those are  
23 the numbers that Mr. Bass indicated were probably the  
24 size of the output pipe from the E-Cat. So looking  
25 at --



CONFIDENTIAL

Page 273

1 Q. Hold on.

2 A. Sure.

3 Q. So the first column, NOM Size?

4 A. That's the nominal pipe size, nominal English  
5 pipe size.

6 Q. Is that in inches?

7 A. Yes, sir.

8 Q. Okay. How many -- okay. And what is the  
9 schedule?

10 A. That's -- that's the wall thickness of the  
11 pipe. Schedule 40 is standard pipe wall thickness.  
12 The higher the schedule number, the thicker the wall,  
13 the flow area gets resume- -- reduced.

14 Q. Do you know the pipe size that was used?

15 A. No, I don't, that's why I'm relying on  
16 Mr. Bass. He recalled it was a 3 or 4 inch.

17 Q. Okay. What if it was a 6 inch?

18 A. Then the numbers would flow through -- you  
19 know, that would be a 6 inch number then. You know, so  
20 you go down to the row number six, if it was a 6 inch,  
21 then add those -- again, if it was steam, at those flow  
22 rates, that's what the BTU throughput would be. Make  
23 sense?

24 Q. Somewhat, but I -- I need some clarification.

25 A. Sure. All right.

1 Q. So looking here at your schedule, and I  
2 apologize --

3 A. Yeah, and I apologize to Mr. Lomax, I only  
4 made one copy.

5 - - -

6 (Deposition Exhibit 12 marked.)

7 - - -

8 Q. Okay. So looking at Exhibit 12, at a 4 inch  
9 pipe size --

10 A. Correct.

11 MR. LOMAX: Have you said -- have you said  
12 what it is on the record?

13 MR. ANNESSER: Okay.

14 BY MR. ANNESSER:

15 Q. And Exhibit Number 12 is a -- Pipe Steam  
16 Carrying Capacity that has been put together by the  
17 witness.

18 Now, what formulas underlie these  
19 calculations?

20 A. It's the -- it's called the continuity  
21 equation. And the -- the engineering use for that is  
22 the mass flow equals the density times the velocity  
23 times the flow, or  $M \dot{=} \rho V A$ .

24 Q. Okay. Do you make any assumptions in this  
25 table?

1 A. No.

2 Q. Okay. So there could be no disagreement as  
3 to these numbers?

4 A. No.

5 Q. So looking sort of at these numbers, on a  
6 nominal size pipe, 4 inches, right --

7 A. Right. Okay.

8 Q. -- we follow that over with a presumptive  
9 schedule 40, what is this next number?

10 A. That's the nominal flow area in square  
11 inches, the idea of internal -- the internal diameter  
12 of the pipe, the flow area at that ID for a schedule 40  
13 pipe.

14 Q. Okay. So the -- that's the circumference?

15 A. The internal, it's the internal. You've got  
16 the OD, the outer diameter of the pipe, the internal  
17 diameter and then the -- the wall thickness.

18 Q. Okay. So looking at the next column, you've  
19 got LMB per hour. What is that?

20 A. Pounds mass per hour.

21 Q. Pounds mass per hour at 6,000. What is  
22 6,000?

23 A. Feet per minute. That's the steam flow  
24 velocity.

25 Q. Okay. How do you determine the steam flow

CONFIDENTIAL

Page 276

1 velocity?

2 A. Through the formula I just told you about, M  
3 dot equals row VA.

4 Q. Okay.

5 A. And then you take -- you just do simple  
6 algebra to back the velocity out. Velocity equals  
7 whatever.

8 Q. So why do you have three different numbers  
9 if --

10 A. Because just -- it was just a convenience for  
11 me. Again, I do a lot of steam work, so just to  
12 indicate what the velocity might be at -- or, I'm  
13 sorry, what the flow might be at a given velocity.

14 Q. Okay. So let -- let's just, for the sake of  
15 going through this, look at the middle section on this  
16 section --

17 A. Sure.

18 Q. -- which is LBM per hour at 9,000.

19 A. 9,000 feet per minute, correct.

20 Q. Okay. And there is a number directly across  
21 from the 4 for the size of the pipe?

22 A. Correct.

23 Q. Which is 1,781?

24 A. That is it.

25 Q. What does that represent?

CONFIDENTIAL

Page 277

1           A.    That's the pounds of steam per hour that will  
2           pass through that pipe under those conditions.

3           Q.    Okay.    The pounds of steam per hour?

4           A.    Yes.    And this add -- the other thing that  
5           you didn't point out, but I will, is what I've got up  
6           in the To block under Steam Pressure, PSIG, that is a  
7           drop-down table or drop-down box, so I've inputted, if  
8           I may, on the back here, I've just picked some arb- --  
9           not arbitrary, but commonly used numbers of PSIG,  
10          convert them to PSIA.   Then I've got the specific  
11          volume and the latent heat.   Then this is what I use in  
12          the lookup table to do the calculations.   These are the  
13          steam --

14                 We were talking earlier about the numbers  
15          from Keenan and Keyes.   That's where these numbers come  
16          from, is from Keenan and Keyes.

17          Q.    Okay.

18          A.    All right.

19          Q.    Now, going back to this.   So, again, looking  
20          at our number of 1,781 pounds per hour -- and that  
21          increases if the pipe size gets larger, correct?

22          A.    Sure.    Absolutely.

23          Q.    In fact, if we go to a 6 inch pipe, it goes  
24          at 9,000 LBM per hour, you actually go to 4,044 pounds,  
25          correct?

1 A. Yeah, that looks right. Yeah.

2 Q. Okay.

3 A. Yeah, that's it.

4 Q. Now, the 6,000, 9,000 and 12,000 in the steam  
5 flow section, those are numbers that you've selected as  
6 being more in terms of the commonplace?

7 A. Those are indus- -- kind of industry standard  
8 numbers.

9 Q. Okay. But you don't have any information  
10 regarding what the actual steam flow rate was at the  
11 E-Cat plant?

12 A. That's the whole point. That's the whole  
13 point of this drill, sir, is looking at -- the E-Cat is  
14 represented to put out a megawatt of thermal heat.  
15 Okay.

16 Q. Okay.

17 A. So if you go down to the bottom to the  
18 calculation there, if you multiply a megawatt by 3,413,  
19 which is the conversion number, you'll come up with  
20 whatever that two -- whatever that million number is.  
21 All right. So that's the number of BTUs in a megawatt  
22 of steam at zero PSIG.

23 So then we get over to the BTU flow column,  
24 the latent BTU, and you can see that there's a pretty  
25 big disparity between what the pipe will pass and the

CONFIDENTIAL

Page 279

1 BTUs in a megawatt thermal.

2 Q. We're going to come back to that in just a  
3 moment.

4 Sir, in -- in your report, the next section  
5 refers to test instrumentation.

6 A. What page are we on?

7 Q. Page 13.

8 A. Okay. All righty.

9 Q. Does -- the first question I have for you is,  
10 does the ASME have a standard procedure for testing  
11 energy-producing units similar to the E-Cat?

12 A. Energy conversion units.

13 Q. Okay. And --

14 A. A boiler is the energy conversion unit.

15 Q. Okay. And the E-Cat, which purports to  
16 produce energy, more like a power plant?

17 A. No. A power plant is an energy conversion.  
18 A power plant converts the chemical energy in coal or  
19 natural gas or whatever into electricity. So it's  
20 converting energy from one form into another form.

21 Q. Okay. And the E-Cat purportedly does the  
22 same?

23 A. Yeah.

24 Q. It's converting the energy stored in the --  
25 we'll call it the catalyst as well as the electrical

CONFIDENTIAL

Page 280

1 energy into thermal energy or steam?

2 A. Well, I'll disagree with the first part of  
3 your question. You know, the second half, the  
4 electrical, I agree with. The catalyst part I disagree  
5 with, because the catalyst -- I don't believe the  
6 catalyst really -- even if it does enter in -- into the  
7 reaction, it's still not going to create more energy  
8 than was input to it.

9 Q. So in a nuclear power plant, energy comes in  
10 as we discussed in the form of electrical energy, for  
11 example, to run the plant and the equipment?

12 A. No. That comes from the generators  
13 themselves. That's plant internal power.

14 Q. With respect to the E-Cat, if it were, in  
15 fact, a low energy nuclear reaction, you follow so far?

16 A. Okay.

17 Q. Okay. Then it would give off additional  
18 energy than the electrical energy put in, correct?

19 A. If it were, but it's not.

20 Q. According to Mr. Stokes?

21 A. And Mr. Rossi.

22 Q. Do you know what type of reaction Mr. Rossi  
23 claimed it was?

24 A. Initially, I believe, he claimed it was an  
25 LENR. But I think over time, that story changed. And



CONFIDENTIAL

Page 281

1 now I think he's saying it's something like nickel  
2 catalyst with hydrogen or some kind of hydrides.

3 Well, a catalyst -- again, I'm not a chemist  
4 or a chemical engineer, but what a catalyst does is a  
5 catalyst enhances a reaction. It does not typically  
6 enter into it.

7 Q. So it's your position and your belief today  
8 that the only energy coming out of the E-Cat plant was  
9 the energy that was put in -- the electrical energy put  
10 in from FP&L?

11 A. Minus losses.

12 Q. Minus losses.

13 Now, I think, sir, I think I'd asked you  
14 before, I just want to follow back, other than the  
15 picture that you saw where there was water vapor, as  
16 you described it, in the E-Cat, you were aware that  
17 Mr. Stokes stated that there was a steam leak?

18 A. I think, yeah, he did say that as I recall.

19 Q. And you don't believe that statement that it  
20 was steam?

21 A. Well, he called it a steam leak. You know,  
22 what he -- you know, he may have just used the generic  
23 vernacular to describe a steam leak. Instead of being  
24 a hot water leak, it's vapor. You know, I think that's  
25 more probable, he was using the generic vernacular

CONFIDENTIAL

Page 282

1 instead of being technically rigorous and -- and picky.

2 Q. Have you talked to him about that?

3 A. Never talked to him.

4 Q. Have you called him?

5 A. Never met the man.

6 Q. Don't you think it would be prudent to give  
7 him a call before making an assumption as to what his  
8 statements mean or don't mean?

9 MR. LOMAX: Objection to the form of the  
10 question.

11 A. I hadn't really considered that, but that's  
12 probably going to be on my to-do list now.

13 Q. Okay. So looking at page 14, third  
14 paragraph, now, again, this section is entitled Test  
15 Instrumentation, although it discusses the boiler and I  
16 don't know that it necessarily addresses the  
17 instruments used other than in the broad sense.

18 Is it your opinion that any of the  
19 instrumentation used by Engineer Penon was somehow  
20 defective or flawed?

21 A. Maybe not defective or flawed, but what I --  
22 again, I've not delved into this deeply, but I believe  
23 the pressure transmitter was only good to 40, 50, 60  
24 degrees C, and --

25 Q. And who told you that?

CONFIDENTIAL

Page 283

1 A. I believe it was Joe Murray.

2 Q. But you have no knowledge. You didn't look  
3 that up yourself, did you?

4 A. I did not independently confirm that, no.

5 Q. Okay.

6 A. And then the whole -- all the issues with the  
7 water meter itself, you know, the sizing of it, the  
8 slope and inclination and all those other issues  
9 related to the water meter, I have not delved into  
10 those in any depth yet.

11 Q. Okay. So you are not formulating at this  
12 time any opinion as to those matters?

13 A. Correct, at this time, but I do reserve the  
14 right to do so later on if need be.

15 Q. So am I correct in saying that your -- your  
16 report states that you would have done things  
17 differently, you would have had a steam flow meter?

18 A. Yes.

19 Q. You would have had temperature gauges?

20 A. Well, we do have temperature gauges, so I'll  
21 agree with that.

22 Q. Okay. We do have those.

23 You would have had a manometer, is that --

24 A. Well, but a manometer is just another term  
25 for a pressure gauge. A manometer measures low

CONFIDENTIAL

Page 284

1 pressure. But some means for pressure measurement,  
2 yes.

3 Q. Okay. And -- and we had that?

4 A. Correct, we did.

5 Q. What else would you have had?

6 A. A steam quality meter.

7 Q. Okay. What -- and a steam quality meter.

8 And, again, we agreed that if, in fact, the  
9 temperatures being reported were accurate, that there  
10 could be no question as to the steam quality?

11 A. True. But, again, for an invention of this  
12 magnitude, I would have spent a couple thousand --  
13 whatever it costs, a couple thousand bucks extra and  
14 put in a steam quality meter and -- just to remove all  
15 doubt.

16 Q. Do you know if Industrial Heat ever asked to  
17 put in a steam quality meter?

18 A. I do not know.

19 Q. Was there anything else other than --

20 A. Then I would -- again, that's on the output.

21 The input, temperature -- again, I would  
22 measure all the appropriate temperatures and pressures  
23 on the inputs and the outputs. And then on the  
24 electric side, voltage, ampering phase -- amperage  
25 phasing, you know, all of the relevant data that I

CONFIDENTIAL

Page 285

1 would think would need to be collected.

2 Again, to get kind of cutesy, all the  
3 goesintas and all the goesoutas with the proper  
4 instrument for the conditions at that particular  
5 service.

6 Q. And what were those conditions and  
7 instruments at that particular service?

8 A. Well, again, have -- not having been there,  
9 you know, we've talked about the steam flow, the  
10 return, whatever it might have been. Some kind of  
11 appropriate flow meter, temperature, pressure. Same  
12 thing for the make-up water, if there was any blowdown.  
13 Typically you don't measure blowdown. Typically it's  
14 just considered a little bit of percentage.

15 And then on the electricity coming in, the  
16 voltage on each leg, the phasing -- well, voltage on  
17 each leg, the phasing. Let's see, voltage, phasing.  
18 I'd check the power factor.

19 Q. But you haven't formulated any opinions as of  
20 this time on those matters, have you?

21 A. No. And then there's a couple more I'm  
22 trying to think of, but -- there's probably a couple  
23 more, but those -- those are the big ones right there.

24 Oh, and any hydrogen coming in. And -- and  
25 also the weight. I would weigh -- take the weight of

CONFIDENTIAL

Page 286

1 the modules at the beginning of the test, the weight of  
2 the modules at the end of the test.

3 Q. Those are all things you'd put into a test  
4 plan or a --

5 A. Yeah.

6 Q. Okay.

7 A. You know, and it's kind of interesting  
8 because I found that there was a whole lot of -- just a  
9 phenomenal amount of precision in the measurements that  
10 were made, which kind of -- wow, that's pretty cool.  
11 You're going out to four decimal places to measure  
12 these -- these -- these parameters they were measuring.  
13 I thought that was pretty interesting.

14 Q. Okay. And what do you base that on?

15 A. The data from Fabiani and -- mostly from  
16 Fabiani and also from Mr. Rossi.

17 Q. Now, have you plugged that data into the COP  
18 calculation that was performed by Mr. Penon to see if  
19 -- if that greatly alters the COP?

20 A. No. What I -- what I did is I looked at it  
21 just from a data integrity standpoint. A few decimal  
22 places out when you're talking hundreds and ten  
23 thousands and ten thousands, our difference is deciding  
24 on the COP. As far as doing the calculation goes,  
25 that's not going to affect it to any significant

CONFIDENTIAL

Page 287

1 effect.

2 Q. Okay. So in that case, if you rounded then,  
3 it would not necessarily have any large impact --

4 A. Yeah, it would be -- it would be an impact on  
5 the number, but it would be pretty small.

6 Q. Di minimis is the word.

7 A. Thank you.

8 Q. Okay. Now, sir, looking at page 14, the  
9 second to last paragraph within the section before we  
10 get to E-Cat Heat Rejection --

11 A. Wait. Help me out here. Where are we at?

12 Q. The second to last above E-Cat Heat  
13 Rejection.

14 A. Oh, okay. Okay. I gotcha. I'm sorry.

15 Q. The paragraph that starts with, Mr. Joe  
16 Murray addressed some of his concerns to the ERV --

17 A. Yes.

18 Q. -- do you know what the ERV's responses were?

19 A. I -- I have not seen those.

20 Q. Did Mr. Murray tell you?

21 A. No, he did not. I think his -- to the best  
22 of my recollection, I'm not sure he did get a response.  
23 "He" being Mr. Murray.

24 Q. Okay. And then you list a number of things.  
25 This author shares -- also shares the other concerns

CONFIDENTIAL

Page 288

1 Mr. Murray has about other issues in his letter, to  
2 wit: 2, the consistency of reported flow rate  
3 statistics; 3, the number of reactor units in operation  
4 varied substantially over time; 4, system alteration on  
5 the night of February 16th or the morning of February  
6 17th; and, 5, the flow of steam through the pipe to  
7 J.M. Products. This author reserves the right to  
8 address these issues at a later date.

9 As of this point in time, have you formulated  
10 an opinion as to any of those matters?

11 A. Let's see, steam flow rate statistics, I've  
12 not looked at those. I would really like to have  
13 Mr. Penon's original spreadsheets.

14 I'm not -- Mr. Murray has done more with the  
15 number of reactor units, so I need to dig into that.

16 Q. Sir, the -- the question is real specific.

17 A. Oh, maybe I misunder- --

18 Q. Sitting here today, have you formulated any  
19 opinions as to the matters listed in this paragraph to  
20 which you are prepared to testify?

21 A. Let's see here. Yeah, the flow rate -- the  
22 flow rate statistics we've talked about already in  
23 great detail so I don't need to opine any more on that.

24 Number of reactors, not now.

25 System alteration, not now.



CONFIDENTIAL

Page 289

1           And then the flow of steam through the pipe,  
2       we've talked about that. And I should have put "steam"  
3       in quotes, so that's a typo on my part. But, yeah, and  
4       we've talked about the steam flow, so I've already  
5       opined on that.

6           Q.    Okay. Well, with respect to the steam flow,  
7       that's not included within this report, is it?

8           A.    No, it's not. And I did -- again, I did that  
9       -- I did not know what the diameters of the pipe were.  
10      When I found -- when I read Mr. Bass's dep and I saw  
11      that, I thought, this is something I need to look at,  
12      so that's when I did it.

13          Q.    So that was done after the fact?

14          A.    After the report, yes, sir.

15          Q.    And have you done a subsequent report to add  
16      that in?

17          A.    Not yet.

18          Q.    Sir, the next section is entitled he-Cat --  
19      I'm sorry, E-Cat Heat Rejection. And to do this, you  
20      do a number of calculations here.

21                And I think -- or am I correct in saying that  
22      those are predicated upon this chart that you've  
23      provided me?

24          A.    They're somewhat similar. If you look at 79  
25      times 3,413 -- and I hope my numbers come out exactly

CONFIDENTIAL

Page 290

1 the same -- so, yeah, this was predicated on the  
2 average over the what, year, 15-month testing period,  
3 whatever the number of days was. That's why I used the  
4 790 and then the 1 megawatt down at the very bottom,  
5 just to give the two numbers for a comparison.

6 Q. Okay. Let me ask you a question. The number  
7 3,413 BTU hours divided by kilowatts, where -- where do  
8 you get that number?

9 A. That -- that's a standard conversion from  
10 metric to English, English to metric.

11 Q. BTUs to --

12 A. BTUs per hour per kilowatt.

13 Q. And, sir, looking at the next page, page 15  
14 of your report --

15 A. Yes.

16 Q. -- the first real paragraph, other than your  
17 calculations, it says, an 80 boiler horsepower boiler  
18 is a small commercial boiler. For illustration, below  
19 is a generic picture of a very common Cleaver-Brooks  
20 steam boiler of this type.

21 That's not what exists at the E-Cat plant, is  
22 it?

23 A. I couldn't hear your last part.

24 Q. That's not what's at the Doral facility?

25 A. Oh, no, no. This was -- this was put in just

CONFIDENTIAL

Page 291

1 merely for comparison to compare the E-Cat to  
2 conventional technology of the same output, not  
3 necessarily the same physical size --

4 Q. Okay. Is that --

5 A. -- or configuration.

6 Q. Is that 80 boiler horsepower (BoHP) boiler  
7 capable of putting out the amount of -- well, capable  
8 of putting out -- I believe you used 790 kilowatt --  
9 kilowatts per hour?

10 A. Yeah. If you -- if you look at the top of  
11 page 15, that's what those two -- those calculations  
12 were, just a cross-check. And I converted kilowatts to  
13 BTUs and then BTUs to boiler horsepower.

14 Q. Okay.

15 A. And then -- and then the second calculation,  
16 I did it just straight, I looked it up off another  
17 conversion just to do a cross-check, because I always  
18 try to cross-check my work, and they came up pretty  
19 close.

20 Q. Okay. So you state here that it does not  
21 appear to be greatly different in size than the E-Cat.

22 What does that tell you?

23 A. Just -- I'm just talking phys- -- you know --  
24 you know, its output, thermal output -- alleged thermal  
25 output would be the same. And then the physical size,

CONFIDENTIAL

Page 292

1 it's roughly the same again, you know --

2 Q. How long is that boiler?

3 A. Oh -- and, again, this may not be an 80  
4 horsepower boiler. This is a Cleaver-Brooks picture.  
5 All right. So if you look at the man, yeah, probably  
6 12 feet long.

7 Q. 12 feet long and --

8 A. Ish.

9 Q. -- what about height?

10 A. Well, it looks like about 8 feet, again,  
11 depending on the guy. Total, probably 8 foot-ish.

12 Q. Were you aware that the E-Cat is contained in  
13 a 40-foot container?

14 A. I was.

15 Q. Okay. And you said this is 12 foot long.  
16 We're talking about --

17 A. This is just to give a comparison of the --  
18 of the size of an 80 horsepower boiler to compare it to  
19 the size of an E-Cat.

20 Q. You would agree that it is greatly different  
21 in size than the E-Cat, wouldn't you?

22 A. Not greatly different; it is somewhat  
23 different.

24 Q. In fact, the 40-foot container is more than  
25 twice and almost three times -- actually three times as

CONFIDENTIAL

Page 293

1 long?

2 A. Okay. Fine.

3 Q. Did that have any effect on your report, sir?

4 A. Well, just, again, I was doing this for, you  
5 know, comparison's sake, not as an exact numerical,  
6 here's apples, here's oranges.

7 And when I say greatly different in size, you  
8 know, if you would say, now, if we compare it to this  
9 building, yeah, it's greatly different. But the whole  
10 E-Cat is several modules and that are, you know,  
11 different size kind of stacked together. So if you  
12 look at the volume and so forth, yeah, they're  
13 different. The E-Cat is bigger, I will -- you know,  
14 there's no question about that, but they're not hugely  
15 different is what I'm saying.

16 Q. Okay. So -- so this boiler, which is  
17 approximately a third of the size, is capable of  
18 putting out the same amount of energy that the E-Cat is  
19 purported to have put out?

20 A. Yes, that's correct.

21 Q. Now, you then, in the paragraph below that,  
22 go in and you ask a -- what appears to be a rhetorical  
23 question, what happens to this heat --

24 A. Correct.

25 Q. -- the amount of heat that's being put out by

CONFIDENTIAL

Page 294

1 the boiler or by the unit, Doral.

2 And you go on to describe that in a  
3 commercial operation, that the heat would be used and  
4 the product stream would then have to be cooled for  
5 further processing and packaging and shipping, et  
6 cetera, basically stating that all of the heat that  
7 entered the product stream would leave the product  
8 stream either by air cooling or by some sort of heat  
9 exchanger?

10 A. Correct. There may -- and I should have  
11 probably added a little bit of water cooling depending  
12 on the process, but that doesn't change the overall  
13 concept of what I'm trying to say. The heat has to go  
14 somewhere.

15 Q. In reference to make --

16 A. Did you change pages?

17 Q. Yeah. Go on to page 16. You state, to  
18 illustrate, if one boils water (212 degrees Fahrenheit)  
19 to make sweet tea.

20 Now, when you make sweet tea, sir, do you  
21 turn it into steam, or does it allow -- do you allow it  
22 to remain in the liquid form?

23 A. I don't make sweet tea, and I did that  
24 because we'd be -- we're going to play to a southern  
25 audience, so -- no. But you get the water right where

1 it boils and when it's -- even before it starts to  
2 boil, you've seen people put a pan of water on the  
3 stove, at maybe what, 195, 200-ish, it's going to start  
4 to vapor because the vapor pressure is going up. You  
5 know, it's not really steaming, it's vaporing.

6 So, no, once the water starts to boil, then  
7 you put it in the tea. Because once it's 212, it's not  
8 going to get any hotter than that at sea level. That's  
9 as hot as it's going to get.

10 Q. Okay. So you can't really compare that  
11 necessarily to steam that you refer to in the paragraph  
12 before?

13 MR. LOMAX: Objection to the form of the  
14 question.

15 A. I'm not following your question.

16 Q. Well, you state in the paragraph before, all  
17 the heat that entered the product stream would have to  
18 leave the product stream --

19 A. Yep.

20 Q. -- either by air cooling or some sort of heat  
21 exchanger?

22 A. Yep.

23 Q. You go in to illustrate -- and you're talking  
24 about hot water as opposed to steam?

25 A. Right. But the same concept applies. The

CONFIDENTIAL

Page 296

1 heat has to go somewhere. The steam or the hot water  
2 are hotter than the surroundings. And, again, if we go  
3 back to your -- the coffee analogy, you get some 180  
4 degree, \$2 million McDonald's coffee and you sit it in  
5 a room, over time that coffee is going to cool to room  
6 temperature. The heat has to go somewhere.

7 Q. Okay. Now, you say in the second paragraph  
8 on page 16, In an industrial process, the product  
9 cooling is accelerated by the use of heat exchangers or  
10 fans or other mechanical means of cooling.

11 And I believe you go down from there, excuse  
12 me, and you say, in the issue at hand, let us first  
13 assume that air is used to cool the product stream.  
14 Please keep in mind that 2,700,000 BTUs enter the  
15 product stream every hour of every day in the test.  
16 You go on to say, the same 2,700,000 BTUs per hour then  
17 leaves the product stream and has to be rejected to the  
18 environment?

19 A. Correct.

20 Q. Okay. Now, the next paragraph, you refer to  
21 the simulation videos performed by Engineer Murray?

22 A. Uh-huh, I did.

23 Q. And you don't know what presumptions were put  
24 into those calculations or simulations?

25 A. That's correct. I've testified to that



CONFIDENTIAL

Page 297

1 already.

2 Q. Do you know the size of the Doral facility?

3 A. I do not, not -- not with any specificity  
4 yet.

5 Q. Okay. And you don't -- and you didn't do  
6 your own calculations or projections?

7 A. Not like Mr. Murray did in this regard, no.

8 Q. Did you do any others?

9 A. For airflow?

10 Q. Well, for --

11 A. Or for heat simulations? No, I have not done  
12 a heat simulation similar to what he did.

13 Q. Do you know what assumptions Mr. Murray made,  
14 such as were there any vents?

15 A. I -- I believe he did show some vents, but,  
16 again, how he sized them or so forth, the specifics I  
17 do not know at this time.

18 Q. And would those specifics affect your opinion  
19 as to the ability of the environment to reject that  
20 heat or to dissipate that heat that was generated by  
21 the plant?

22 A. To a small degree, yes.

23 Q. To a small degree. Why is that?

24 A. Well, because the heat is being generated at  
25 such a high rate that it's going to take a lot of air

CONFIDENTIAL

Page 298

1 movement to get rid of it.

2 Q. And so if, let's say, there were large bay  
3 doors at the back of the facility that were left open,  
4 would that allow heat to escape?

5 A. It would allow some escape, because, again,  
6 hot air rises. Okay. So that air is going -- you  
7 know, the heat is going to be generated and that air is  
8 going to be continuously heated, it's going to tend to  
9 rise, and then some of it will start to spill back  
10 down.

11 So I don't know if Mr. Murray did a  
12 simulation with doors open or doors closed, but that  
13 might be a very productive thing to look at.

14 Q. Okay. Now, the heat rising could go up to  
15 vents in the ceiling, correct?

16 A. It could, yes.

17 Q. Okay. Do you know -- do you know how many  
18 vents there are in the ceiling?

19 A. No, I don't. The pictures I took when I was  
20 outside last week looked like there was one power  
21 ventilation fan, and then the other might have just  
22 been an area that it might have been a skylight. I  
23 couldn't tell from a distance.

24 Q. So you don't know, you're speculating?

25 A. Well, one is -- one is definitely a vent fan.

CONFIDENTIAL

Page 299

1 Okay. I know that for a fact. Whether it was running  
2 or not, I don't know.

3 The other, I'm just going to have to say I  
4 don't know for sure right now.

5 Q. How much -- how much heat could be removed by  
6 that vent fan?

7 A. Not knowing the size of it, I can't answer  
8 that now.

9 Q. Okay. Do you know if Mr. Murray assumed that  
10 that was a vent fan in operation?

11 A. That, I don't know.

12 Q. How much heat could be removed by opening the  
13 doors in the rear of the plant?

14 A. Again, that, I can't -- I can't give you a  
15 hard answer.

16 Q. Okay. How many vents or windows were there  
17 at the facility?

18 A. I don't think there were any windows at the  
19 back on the loading dock side. There was a door, there  
20 was a man door. I believe there were three -- three  
21 bays. And then on the front, I did see -- off of what  
22 I'm assuming is the office area, there was a door and  
23 the typical glass skylight or lights around it.

24 And then the windows above it we discussed  
25 from Mr. Murray. I -- I want to say there were six

CONFIDENTIAL

Page 300

1 windows, there may have been four. Those are the ones  
2 that I'm aware of. And, again, having -- we'll have to  
3 look at the internal configuration of the building  
4 before I can give you a hard number.

5 Q. Okay. Now, you go on to describe, after  
6 going through Mr. Murray's reports, which he did not  
7 verify, you go on to say that, JMP could have used a  
8 roof-mounted fan to remove all the rejected heat.

9 Do you know if that was done or not?

10 A. I -- I didn't -- I have -- I've seen no  
11 evidence of it to date. From what I've seen, I don't  
12 see any evidence of it.

13 Q. And what you've seen -- well, turning to page  
14 17, these are just examples of roof-mounted ventilation  
15 units?

16 A. The top one is. The bottom one is a standard  
17 cooling tower.

18 Q. Okay. Now, turning the page to -- and do you  
19 know if either one of these were present?

20 A. I know a cooling tower was not present.

21 Q. How do you know that?

22 A. I didn't see it. I looked at airflow. I  
23 looked at the facility, and I looked at air photos from  
24 Google and Bing, and saw nothing anywhere in the area  
25 that even resembled a cooling tower.

CONFIDENTIAL

Page 301

1 Q. Let's talk about those photos.

2 Those are the photos that are contained on  
3 page 18?

4 A. That is correct, yes, sir.

5 Q. When were those photographs taken?

6 A. That, I don't know.

7 Q. Could they have been taken in 2012?

8 A. They could have been, sure.

9 Q. Okay. Could an overhead unit have been added  
10 since that time?

11 A. It's possible.

12 Q. Okay. Could a water tower have been added  
13 since that time?

14 A. A cooling tower, depending on the roof  
15 loading and so forth, it's possible to install a  
16 cooling tower, yes.

17 Q. Okay. What about a roof-mounted ventilation  
18 unit?

19 A. Same answer, yes, it's possible.

20 Q. And you don't know whether that happened or  
21 not?

22 A. Not at this time, no.

23 Q. Okay. Similarly, a heat exchanger could have  
24 been installed within the unit; is that correct?

25 A. Now, you're going -- please be more specific

CONFIDENTIAL

Page 302

1 with me, because I'm still -- you know, when you say --  
2 and, again, I'm not trying to be difficult here, but I  
3 want to know to which heat exchanger you're referring.

4 Q. Okay. The heat exchanger that we referenced  
5 before on the mezzanine --

6 A. Okay.

7 Q. -- and you now have a description of,  
8 correct?

9 A. Well, I have what was represented to Dr. Wong  
10 as being the heat exchanger.

11 Q. Okay. If that existed, how much heat could  
12 that have removed?

13 A. Well, you know, with a huge if, in all caps,  
14 were true, I would say Dr. Wong's calculations are  
15 probably reasonable.

16 But unless he knew the exact configuration  
17 and how the pipes were arranged and how the airflow  
18 was, you know, all the -- all of that goes into that  
19 calculation. So he's -- he's operating as much in the  
20 blind as I am.

21 Q. Okay. So if we were to assume, okay, that  
22 the information provided to Dr. Wong that he has  
23 reflected in his report were correct, you would agree  
24 with me, wouldn't you, sir, that the amount of heat  
25 being produced by the E-Cat unit, or purportedly being

CONFIDENTIAL

Page 303

1 produced by the E-Cat unit, could have been dissipated  
2 through that heat exchanger?

3 A. How -- well, again, with the huge if, I will  
4 give you a qualified yes.

5 But here's the question I have: How did the  
6 heat get from the serpentine -- again, I shouldn't be  
7 asking you questions, but it's a rhetorical. I don't  
8 understand how the heat got from the serpentine  
9 exchanger in the black box to the alleged heat  
10 exchanger in the mezzanine. Nobody has explained that  
11 to me yet.

12 Q. Have you asked?

13 A. I've asked these fellows and Mr. Murray and  
14 they don't know.

15 Q. Okay. Do you know if they've asked anyone?

16 A. That, I don't know.

17 Q. Did you write an email to Mr. Barry West and  
18 ask?

19 A. I have no idea where he is.

20 Q. What about Mr. Penon?

21 A. I -- no. No. I make it a practice not to  
22 talk to people on the other side of the issue, as you  
23 can understand.

24 Q. Is Mr. Penon on the other side of the issue?

25 A. He's a defendant.

1 Q. Is he?

2 A. I believe he's -- isn't he a named defendant  
3 in the countersuit?

4 Q. He's not a defendant in this case as it  
5 stands now. He was originally named.

6 A. Then I guess I'm at a bit of a loss. Wait a  
7 minute. Here. Here it is on the -- yeah, he's -- in  
8 this countersuit, Fabio Penon.

9 Q. What are you looking at, sir?

10 A. Exhibit Number 7, the front cover page.

11 Q. Do you know whether he's been dismissed from  
12 this suit?

13 A. That, I don't know.

14 Q. So before you went down to Mr. Penon's  
15 deposition, did you ask counsel whether he was still a  
16 party to the suit?

17 A. No. It didn't seem like -- no, I did not.

18 Q. Did you ask him any questions other than the  
19 questions that were asked during the course of the  
20 deposition?

21 A. I'm not a lawyer. I couldn't legally ask him  
22 questions, I don't believe.

23 Q. Could you have walked up to him and said,  
24 hey, how are you doing today?

25 MR. LOMAX: Objection to the form of the



1 question.

2 A. I think we exchanged a little pleasantries at  
3 the end, but that was it.

4 Q. Did you ask him if he wouldn't mind if you  
5 asked him questions?

6 A. No, I did not ask him.

7 Q. Now, sir, looking at --

8 A. And, again, at the time, I was -- let me --  
9 let me clarify a little. At the time, I was presuming  
10 that he was still an adverse party, so ethically I  
11 cannot talk to him or ask him questions if he's an  
12 adverse party.

13 Q. Who told you that you cannot talk to him?

14 A. That's been my understanding all along. And  
15 even if I can, I don't, because he's an adverse party  
16 and I just -- I make it a practice not to do so.

17 Q. Okay. The -- looking at page 20, is it fair  
18 to say that the first two paragraphs are just simply  
19 your description of what you see in that photograph?

20 A. It is.

21 Q. Okay. Then in the third paragraph starting,  
22 Is there anyplace else in the facility, then you go on  
23 and you perform a calculation to determine whether  
24 there could have been -- or city water could have been  
25 used to reject that amount of heat energy, correct?

CONFIDENTIAL

Page 306

1 A. Correct.

2 Q. And based on the calculation that you  
3 performed assuming the 50 degree inlet water  
4 temperature and 130 degree water outlet temperature.

5 Now, you say sewer temperature restriction.  
6 Where did you get that information?

7 A. A lot of places use 130 degrees, well, as a  
8 sewer temperature restriction, number one, because a  
9 lot of sewer pipes are now made out of plastic, and if  
10 you put really hot water down them, they don't like it.  
11 It will destroy them or damage them. And then a lot of  
12 times, waste treatment plants, the bugs like a certain  
13 temperature, so --

14 And then Miami-Dade may be different. But  
15 most of the jurisdictions that I'm familiar with have  
16 some kind of a sewer water temperature restriction to  
17 protect their facilities and protect their -- their  
18 biological processes in the waste treatment plant.

19 Q. Is it your opinion, sir, with respect to the  
20 water flow meter that was used on the E-Cat, that  
21 additional water was being supplied from the J.M. side?

22 A. I'm -- I'm raising that as a possibility.  
23 I'm not stating it for an absolute fact because, again,  
24 our side of the litigation has not been allowed in  
25 there yet.

CONFIDENTIAL

Page 307

1 Q. Where -- where would that water have come  
2 from?

3 A. The city.

4 Q. Okay. But you checked the -- the water usage  
5 for that facility and it averaged 4.6 gallons per hour?

6 A. That's -- yeah, that's what the numbers tend  
7 to indicate.

8 Q. Okay. Would 4.6 gallons per hour of water  
9 flow be sufficient to result -- wait. Is that between  
10 1 and 1.6 cubic meters of water?

11 A. I'd -- I'd have to do the calculation. I  
12 can't answer that right now.

13 Q. Okay. So you don't --

14 A. It's a pretty simple calculation, but I can't  
15 answer it right now.

16 Q. You don't know whether 4.6 gallons of water  
17 is equivalent to 1 cubic meter of water?

18 A. I forget the conversion factor right now.

19 But, again, that -- to me, that's a trivial  
20 issue. It's a math calculation.

21 Q. Okay. So you go on and you do that  
22 calculation with respect to a fluid cooling system, a  
23 water cooling system, correct?

24 A. Correct. Some kind of a heat exchanger,  
25 yeah.

CONFIDENTIAL

Page 308

1 Q. And based on the fact that there were only  
2 4.5 gallons per hour used, you came to the conclusion  
3 that there was not enough water usage from city water  
4 to have cooled that amount of heat --

5 A. Correct.

6 Q. -- is that correct?

7 A. Yes, sir.

8 Q. Okay. So you've determined that city water  
9 was not used for that heat rejection?

10 A. Correct.

11 Q. Now, you then go down and say, where did the  
12 rejected heat go? Air cooling, no.

13 What did you base that conclusion on?

14 A. My analysis of the airflow -- a lot on  
15 Mr. Murray's -- not my analysis, Mr. Murray's  
16 analysis --

17 Q. Okay.

18 A. -- on -- on what happened, how the building  
19 would heat up, if that amount of heat will continually  
20 reject it into the facility.

21 Q. Okay. But you don't know what presumptions  
22 were made and what -- what available avenues for that  
23 heat energy were, such as the number of vents, their  
24 operational ability or whether there was a heat  
25 exchanger up on the mezzanine, as you described it, of

CONFIDENTIAL

Page 309

1 the facility?

2 A. Well, we've discussed that. Again, I'm  
3 not --

4 Q. I just want to be very specific here.

5 With respect to your conclusion that it was  
6 not done by air cooling, that was predicated upon  
7 Mr. Murray's analysis?

8 A. Primarily, yes.

9 Q. Okay. The cooling tower, no.

10 Is that predicated upon your observation of  
11 those two aerial photographs?

12 A. Of the two air photos. And then, again, in  
13 looking at the picture of the facility, go back up a  
14 page to look at the -- the photograph on page 20 of  
15 Exhibit 7, I don't see any kind of industrial  
16 equipment, I don't see -- I see there might be a couple  
17 of pipes on -- on the backs -- on that back wall where  
18 they're going up. Those could be for an  
19 air-conditioner, those could be roof drains, but I  
20 don't see any kind of serious piping, racks, anything  
21 that would indicate an industrial endeavor inside of  
22 that enclosure.

23 Q. What all -- what would you expect to see --

24 A. Well, let me -- I'm sorry. Let me finish.  
25 I'm sorry.

CONFIDENTIAL

Page 310

1           So I don't -- you know, to go up to a cooling  
2       tower and back, you're probably -- again, without doing  
3       a design calculation right now, probably looking at 6-,  
4       maybe 8-inch pipe going up and coming back.

5           Q.   How large is that pipe on the back wall in  
6       that photograph?

7           A.   I don't know. There's no scale.

8           Q.   So you don't know, it could be a 6-inch pipe.

9           A.   It could very well be.

10          Q.   It could be an 8-inch pipe?

11          A.   Possibly.

12          Q.   So you don't know, you're speculating?

13               MR. LOMAX: Objection to the form of the  
14       question.

15          A.   It's a speculation -- and speculation may be  
16       the wrong word -- based on 40 years of working in and  
17       around real industrial facilities.

18          Q.   Do you know what they were producing at J.M.?

19          A.   Nothing, I don't think.

20          Q.   And what do you base that conclusion on, sir?

21          A.   The evidence I've seen.

22          Q.   What evidence have you seen?

23          A.   There's no -- well, again, I see no evidence  
24       of an industrial facility here in the picture that we  
25       discussed.

CONFIDENTIAL

Page 311

1 Q. What is lacking from that photograph that  
2 tells you that there was no production whatsoever?

3 A. May I read to you? I've written it in the  
4 report. The second paragraph below the picture, The  
5 last interior. All right.

6 And then the second, Other than the small  
7 items along the left wall, there are no visible pipes,  
8 pipe racks, pipe drops, conduits, cable trays,  
9 transformers, switchgears and so on and so on with  
10 which one would normally associate even a small  
11 manufacturing facility.

12 And that's not exact, but I shortened it a  
13 little.

14 Q. Now, those pipe drops, conduits, pipe racks,  
15 visible pipes, cable trays, that would vary depending  
16 on what you're producing, isn't --

17 A. Oh, yeah, no argument.

18 Q. So what were they allegedly producing there?

19 MR. LOMAX: Objection to the form of the  
20 question.

21 A. I've heard various things. I've heard  
22 cooking platinum sponge, I've heard graphing. That's  
23 really all I've heard.

24 Q. Okay. But --

25 A. Let me finish the question. I'm sorry.

CONFIDENTIAL

Page 312

1 But I've seen no invoices sent out for  
2 products sold to customers. I've seen no receipts for  
3 incoming materials. I've seen no construction  
4 documents that show how the facility was constructed.  
5 So there's nothing that leads me to believe they were,  
6 in fact, producing anything.

7 Q. Okay. Your -- your evaluation with respect  
8 to that, is there any specific methodology, technique  
9 or theory that you apply to come to that conclusion, or  
10 is that just your observation?

11 MR. LOMAX: Objection to the form of the  
12 question.

13 Q. Is that just your observation or the facts?

14 A. It's real-world observation based on 40 years  
15 of industrial experience, plus all the other stuff --

16 Q. Is it your belief that a layperson would not  
17 be able to come to that conclusion on their own?

18 A. A layperson that works in a factory that  
19 understands factory would come to that conclusion,  
20 pretty much the same conclusion.

21 Yeah, they could have a small machine shop in  
22 there making widgets that wouldn't need heat with what  
23 they got there, that could -- that could happen.

24 Q. Okay.

25 A. But for anything that's a massive steam user,



CONFIDENTIAL

Page 313

1 I see no evidence of that occurring in this photograph.

2 Q. How do you -- how do you cook platinum  
3 sponge, sir?

4 A. Well, that's an interesting question. I'm  
5 glad you asked that question, you know, because I had  
6 that same question myself and --

7 Q. Are you an expert on cooking platinum sponge,  
8 sir? I've got limited time, so I'm going to try to  
9 find --

10 A. No, wait a minute. No, I'm going to answer  
11 your question. You asked me a question --

12 Q. Well, then, I'm going to strike the question  
13 because I'm not going to waste my time while you look  
14 through documents.

15 A. All right. I'll be brief then without the  
16 document.

17 The engineer, the product engineer that I  
18 sent an email to at one of the platinum facilities said  
19 he had never heard of cooking platinum sponge.

20 Q. What facility, sir?

21 A. That's why I'm looking for the piece of paper  
22 so I can give you the company.

23 Q. You know what, I don't even need it, it's  
24 hearsay.

25 So, sir, going back to your report, now,

CONFIDENTIAL

Page 314

1       you're not an expert on cooking platinum sponge or --

2           A.    If it exists, even if it -- if cooking  
3       platinum sponge is, in fact, a legitimate industrial  
4       process.

5           Q.    Sir, it sounds to me like you'd rather play  
6       the role of a jury member as opposed to an expert.

7           A.    No, but I like --

8           MR. LOMAX:   Objection.

9           Q.    You seem to be opining to areas outside of  
10      your area of expertise.

11          A.    You asked me a question.   I --

12          MR. LOMAX:   Hold on.   Hold on.   Wait for a  
13      question.   I haven't heard a question.   Until there's a  
14      question, you don't need to say anything.

15          THE WITNESS:   Sorry, gentlemen.

16          MR. LOMAX:   Is there a question?

17      BY MR. ANNESSER:

18          Q.    Sir, coming to page 21 of your report, you  
19      state, There are now but two alternatives.   And, again,  
20      we've already established that the air cooling was  
21      predicated upon Mr. Murray's findings in his study.

22                  So absent that, that the heat just vanished,  
23      and I don't think anyone has claimed that in this  
24      case --

25          A.    Okay.   We agree on something.

CONFIDENTIAL

Page 315

1 Q. -- that it never existed.

2 A. That's my contention.

3 Q. Okay. If there was a heat exchanger there in  
4 place, sir, and I know you have not seen evidence of  
5 it, but if, in fact, there was a heat exchanger as  
6 described in Dr. Wong's report, could that not have  
7 also been a source by which the heat could have been  
8 removed?

9 A. Until I know how the heat got from the  
10 serpentine exchanger in the black box to the heat  
11 exchanger -- the alleged heat exchanger in the mezz, I  
12 cannot -- I cannot give you an objective engineering  
13 answer to that question, because the heat has to move  
14 from point A to point B to point C. Nobody has told me  
15 the intermediate step.

16 Q. Okay.

17 A. So you --

18 Q. So your answer is I don't know?

19 A. No. My answer is you have posited no means  
20 for me to get -- for me -- for anybody to get the heat  
21 from the serpentine coil to the mezz. If you had --  
22 don't have a means, it didn't happen.

23 Q. Okay. If there's a -- let me give you an  
24 example. If there's a fan in there that pushes the  
25 steam along, would that --

CONFIDENTIAL

Page 316

1 A. A fan to push steam, are you serious?

2 Q. Well, okay, how would you move steam, sir?

3 A. At that pressure, you can't.

4 Q. You can't move steam?

5 A. You're going to have to have a pretty cold  
6 surface to create the pressure differential to move  
7 zero psi steam at those velocities through that size  
8 pipe. It's not going to happen.

9 Q. At what velocities, sir?

10 A. Any of them. Any that are listed in that  
11 chart in Exhibit 12, it's not happening.

12 Q. And what methodology, technique or theory do  
13 you use to come to that conclusion?

14 MR. LOMAX: Objection to the form of the  
15 question.

16 A. The same answer as before to multiple  
17 questions.

18 Q. 40 years of experience in the boiler  
19 industry?

20 A. Thank you, sir.

21 Q. I can give it myself.

22 A. Holy cow.

23 Q. Hey, I might be an expert.

24 Now, sir, you -- so how long did it take for  
25 you to do all of your research and compile your report?

CONFIDENTIAL

Page 317

1           A.    It was a period -- it was -- the time was --  
2           admittedly, the time was compressed. I want to say  
3           probably about five days just going almost flat out.  
4           And, again, that's not a hard-and-fast number. I'd  
5           have to look at my billing record, you know, my hourly  
6           numbers in my book.

7           Q.    So in five days, you did your full analysis  
8           of all those documents and generated your report?

9           A.    Of the -- of the information I had at the  
10          time, yes.

11          Q.    Did counsel, when they retained you, give you  
12          any restrictions as to your assignment?

13          A.    Well, they said to see what you can find out,  
14          you know, dig into the information and come to your own  
15          analysis.

16                And, in fact, they were -- on the -- on the  
17          initial conference call, they were pretty adamant,  
18          because -- about -- because Mr. Murray had written some  
19          stuff, they were pretty adamant about not giving me  
20          Mr. Murray's analyses so as to taint any conclusions  
21          that I would come to. They wanted me to come to the  
22          conclusions I came to not totally independent of  
23          Murray, because obviously I'm going to rely on his  
24          airflow, but pretty much independently of the other  
25          things he had concluded.

CONFIDENTIAL

Page 318

1 Q. Yet on day one, actually, in fact, the day  
2 before you were retained, you had a copy of his  
3 questionnaires.

4 Well, here's -- here's the issue that I've  
5 got, sir, is while you tell me that they wanted you to  
6 remain completely independent, on -- as of the 24th of  
7 January, I believe the day before you were retained,  
8 you had been provided a memory stick with, among other  
9 things, Mr. Murray's first queries to Engineer Penon,  
10 his spreadsheet summarizing the data from Florida Power  
11 & Light prepared by Mr. Murray, Industrial Heat's  
12 spreadsheet summarizing the data from Penon's file, the  
13 final report prepared by -- or on behalf of Mr. Murray,  
14 as well as Mr. Murray's October 31, 2016 power  
15 analysis, Mr. Murray's photographs of the Doral  
16 location, his videos of heat simulation conducted by  
17 Joe Murray, and a video and photo of the flow meter  
18 time lapse conducted by Joe Murray.

19 So on one side they're telling you, we want  
20 you to be completely independent from Mr. Murray, and I  
21 understand that, but then on another side, they've  
22 produced all this information to you the day before you  
23 were retained that results from Mr. Murray's work as  
24 opposed to your own.

25 MR. LOMAX: Is -- is there a question?

CONFIDENTIAL

Page 319

1 Q. Is that -- is that correct, sir?

2 MR. LOMAX: Objection to the form of the  
3 question.

4 Q. How -- how can I justify those two positions?

5 A. Understood. I did receive -- and it was  
6 actually two sticks, not one. But I -- I didn't get to  
7 them until a day or two. I might have stuck them on my  
8 hard drive, but I didn't do anything with them.

9 And, yeah, they did give me that information.  
10 He was looking at the meter and the -- but they  
11 didn't -- what I kind of assumed where he had done  
12 similar -- a similar expert report, so maybe it was  
13 just a miscommunication.

14 But even so, I have not looked a lot at his  
15 Florida Power & Light comparison. I looked at it, but  
16 I didn't study it. And his flow simulation, again, I  
17 looked at it, so I was relying -- because of the  
18 absence of evidence or documentation from plaintiffs, I  
19 had to rely on that.

20 So I -- and I don't know if there was other  
21 information that he had produced that is subject to  
22 their privilege in their attempt to keep me as  
23 independent as we can.

24 So, yeah, I did rely on some of his  
25 information, but you've probably already figured out,

CONFIDENTIAL

Page 320

1 I'm a pretty hard-headed guy, I make my own  
2 conclusions.

3 Oh, and I did find that email, in case you're  
4 interested. The fellow's name on the platinum sponge  
5 is Gabriel Leis. He's a product engineer with American  
6 Elements. So if you would like a copy of this, I will  
7 be more than happy to give it to you.

8 Q. Well, we're -- we're going to go through some  
9 of the stuff you brought with you today.

10 But before we do, did you do anything to  
11 prepare for your deposition today?

12 A. I did.

13 Q. What did you do?

14 A. Obviously, talked to counsel, you know, work  
15 product-type discussions. And then I've just done more  
16 research, subject to the report, obviously our  
17 discussions haven't stopped, my analysis hasn't  
18 stopped, so I've been looking at more -- more issues as  
19 I -- and, again, as my understanding comes up --  
20 because this is a complicated case, I think we can all  
21 agree to that. You know, at least from my standpoint,  
22 this is not a simple case. So, you know, as my  
23 understanding is maturing, I'm looking at more things.  
24 And I'm not saying my understanding was immature at the  
25 beginning, it's just, you know, I'm -- it's filling



CONFIDENTIAL

Page 321

1 out.

2 Q. Okay. Now, sir, you had mentioned  
3 previously, and I -- it just came back to me, that you  
4 had seen an expert report from Mr. Murray?

5 A. No, not an expert report. They -- I did not  
6 see that and they did not provide me one, and I don't  
7 know if there is one.

8 Q. Did you review any report of Mr. Murray's?

9 A. Well, before, his analysis. Now, is that a  
10 report or analysis? Semantics. Okay. His airflow  
11 simulation, a report, analysis? Again, we can quibble  
12 words. But I did not see a report similar to a typical  
13 expert report that one normally sees in litigation.

14 Q. Well, sir, I'd like to take a look at the  
15 documents you've brought with you today other than the  
16 ones that we've already marked --

17 A. Sure.

18 Q. -- to see if there's anything that I'd like  
19 to ask you about.

20 A. Certainly. All right. How do you want to do  
21 this? There's a lot of stuff here. Now, the stuff on  
22 the floor, I think we've dealt with it all. Do you  
23 want to go through it and make sure?

24 Q. If I can.

25 A. Yeah. Absolutely. Let's make sure we're

CONFIDENTIAL

Page 322

1 not -- there's enough paper flying around anyway.

2 MR. ANNESSER: Chris, do you mind if we go  
3 off the record just to take a look real quick and that  
4 way we're not shuffling papers in front of the camera?

5 MR. LOMAX: No problem.

6 THE VIDEOGRAPHER: We're off the record. The  
7 time is 1626.

8 (Recess taken.)

9 THE VIDEOGRAPHER: We are on the record. The  
10 time is 1652.

11 - - -

12 (Deposition Exhibit 13 marked.)

13 - - -

14 BY MR. ANNESSER:

15 Q. Sir, during the break, we looked at some of  
16 the documents that you brought with you today. And I'm  
17 going to mark one in particular as Exhibit 13 and ask  
18 you to identify that document for me.

19 A. Yes, sir. What this is, it's -- the top page  
20 is April of 2015. And then the other pages are various  
21 iterations. Or I'm sorry. The next page is -- I think  
22 it's from Mr. Fulviani's power readings and then with  
23 his annotations in Italian on the far right-hand  
24 column.

25 And then the rest of the document is June of

CONFIDENTIAL

Page 323

1       2015. And these are -- I believe I took these off of  
2       what were Rossi -- I think it was Rossi -- 0075 or  
3       whatever the document was. But basically, I just took  
4       his data verbatim and looked at it. And then I did  
5       some data sorts on it and some data analysis looking at  
6       various parameters.

7           Q. Okay. So to take that data, did you input  
8       that data directly into an Excel spreadsheet?

9           A. What I did -- no. What I did to avoid data  
10      corruption is something like for Mr. Rossi, I will open  
11      it up or even save it as, I'll just open it up, and  
12      then I will save it as. In this case, it's like Rossi  
13      date and then underscore RES working. That way I can  
14      play with it and then, you know, the other one goes  
15      back, I don't touch it. And I say "play," but, you  
16      know, do my thing on the data. And if I screw up the  
17      spreadsheet, it's not -- I'm not messing up the data  
18      that I had to work with.

19           So that -- that's the way I normally work,  
20      that -- you know, I have a working copy, and then the  
21      original I don't touch. I just open it, save it under  
22      another name, put it away.

23           Q. Okay. So this data was provided to you in  
24      Excel format?

25           A. Yes, sir.

CONFIDENTIAL

Page 324

1 Q. And what you've done is just simply  
2 manipulated the data pursuant to searches?

3 A. Correct, doing data sorts and, yeah, various  
4 statistical manipulations.

5 Q. Okay. And for what purpose did you do that?

6 A. Well, the reason -- what kind of piqued my  
7 curiosity was -- actually was during Mr. Penon's dep  
8 last week when Mr. Pace was questioning him, oh,  
9 probably about the -- halfway through the time he had  
10 allotted, and Pace was asking some questions about some  
11 power outages and things in the mid-June time frame.  
12 And at the time, I didn't pay a whole lot of mind to  
13 it. I was kind of, you know, more interested in  
14 listening.

15 And then my subconscious kept processing it  
16 and I thought, hey, let's take a look at this stuff,  
17 because, you know, Pace was interested in questioning  
18 off of it, let's see why.

19 So I started looking at it and just -- I  
20 guess what really piqued my interest is -- and I'll  
21 just use -- and, oh, the first sheet, this is April of  
22 2005. Again, the time -- and date and time columns are  
23 self-explanatory. I didn't -- I use those in the block  
24 to keep everything, but they're self-explanatory, so --

25 And I've got a note up here just to show what

CONFIDENTIAL

Page 325

1 the column headings are. T out, I'm assuming that's  
2 temperature out, pressure out, and then temperature in.  
3 My assumption is this is the T out from E-Cat, this is  
4 the outgoing pressure, and then this is the return  
5 water pressure.

6 Q. May I see that first, please?

7 A. Certainly.

8 Q. Now, with respect to the P out in this  
9 document, which you believe was the pressure out?

10 A. I believe that's what it was, yeah.

11 Q. Okay. Those numbers don't say zero, do they?

12 A. No, they don't. And I think -- I think I  
13 conceded that it might have been a typo, an innocent  
14 typo in Dr. Penon's report. Again, it doesn't change  
15 my opinion in the report, but I'm willing to admit,  
16 that was probably just a minor oversight on his part.

17 Q. Okay. So looking at this, sir, it appears to  
18 you that pressure was measured?

19 A. There are numbers on the sheet, yes, but I'm  
20 not going to concede the pressure was measured. I will  
21 concede that there's numbers on the sheet.

22 Q. Now, you received that in an Excel format?

23 A. Yes.

24 Q. Did you check whether there's any sort of  
25 formula or anything in this sheet?

CONFIDENTIAL

Page 326

1 A. That --

2 Q. Any formula for a calculation of anything or  
3 were these just numbers?

4 A. These are just numbers. As far as I could  
5 tell on these sheets here, they're just strictly  
6 numbers.

7 Q. All right. So the underlying data, and  
8 understandably in his report he puts 0.0 and we've  
9 marked that report --

10 MR. ANNESSER: This is your copy or is it --

11 MR. LOMAX: This is mine.

12 Q. -- we've marked that report as an exhibit in  
13 this case. But in the report, it reflects a pressure  
14 of zero. But this appears that there were calcu- --  
15 or, I'm sorry, not calculations, but measurements of  
16 pressure taken that varied from 0.0?

17 A. That is correct. There are numbers that are  
18 different than 0.0.

19 Q. Do you dispute any of the numbers on that  
20 sheet, sir?

21 A. Well, subject to the discussions we've had,  
22 yes, I do, okay, about as far as temperature goes.

23 Pressure, I'm not going to argue with too  
24 much about temperature and probably much -- T out,  
25 yeah, I'm going to -- you know, we'll go to the mat on

CONFIDENTIAL

Page 327

1 that one.

2 Q. Okay. That's -- and, again, the T out is  
3 predicated upon your belief that there could not have  
4 been that amount of temperature because there wasn't a  
5 superheater for this tank?

6 A. Well, that's part of it. That's one of  
7 several issues that I've identified that I think are  
8 the cause for the number.

9 Q. Could you summarize for me, because it's  
10 getting late in the day and I've --

11 A. Understood.

12 Q. -- I've perhaps forgotten some of the issues?

13 A. Sure. Heaters near the thermocouples, strip  
14 heaters, little electric-type heaters.

15 Q. Do you know if those existed or not? That's  
16 a possibility.

17 A. It's a possibility. I'm not saying for an  
18 absolute fact they exist, but I also am saying there's  
19 a -- there's a potential they may have been there.

20 Q. Okay. And there's a potential they may not  
21 have been there?

22 A. True, but I haven't seen it, so I'm still --  
23 I'm raising that as an issue to investigate.

24 Q. Okay.

25 A. Some kind of an electrical box between the

CONFIDENTIAL

Page 328

1 thermocouple proper and the computer to bias the  
2 signal.

3 Q. Okay. Similarly, you haven't seen this box,  
4 it may or may not have been there, you have no  
5 information --

6 A. The same answer as before, yes, sir, I'm not  
7 sure. And then, again, the data is just being made up,  
8 the temp- -- I should say the temperature numbers just  
9 being made up.

10 Q. That's a possibility, but you haven't seen  
11 anything that indicates --

12 A. There was no way I would know that because I  
13 was not there when they were doing the test. So right  
14 now there's no -- but I'm still -- I'm saying it is a  
15 potential possibility to explain the anomalies I'm  
16 seeing.

17 Q. Okay. Okay. May I see that document that  
18 we --

19 A. Sure.

20 Q. -- had just marked as Exhibit 13?

21 A. Yeah. You need the whole thing, or just --

22 Q. The whole thing. I want to keep that  
23 together.

24 A. Do you want an explanation of anything else  
25 on it, or was that it?



1 Q. No, sir.

2 A. Okay.

3 Q. Not at this time.

4 Sir, have you had the opportunity to review  
5 Dr. Wong's report in this matter?

6 A. I have.

7 MR. ANNESSER: Okay. Let's go off the record  
8 for just a moment.

9 THE VIDEOGRAPHER: We're off the record. The  
10 time is 1700.

11 (Recess taken.)

12 THE VIDEOGRAPHER: We are on the record. The  
13 time is 1703.

14 - - -

15 (Deposition Exhibit 14 marked.)

16 - - -

17 BY MR. ANNESSER:

18 Q. Sir, one of the documents you brought with  
19 you today is a document Thermodynamics for Engineers,  
20 Second Edition, by Kaufui Vincent Wong, which I've  
21 marked as Exhibit 14.

22 And, sir, you brought that document with you  
23 today?

24 A. I did.

25 Q. Okay. Is there anything within this

CONFIDENTIAL

Page 330

1 publication that you disagree with?

2 A. Well, are you talking the whole book, or just  
3 what I've --

4 Q. Well, what you've brought with you.

5 A. No. What I've brought with me, no.

6 Q. Anything in the rest of the book that you  
7 didn't bring with you that you disagree with?

8 A. No. Actually, and you can tell Dr. Wong I  
9 said so, I think it's a pretty good book. It's  
10 readable. You know, it looks like he's very rigorous  
11 in his analyses, but it's readable. I like that, so  
12 you can tell him I said so.

13 Q. Perhaps for an engineer. Some of us --

14 A. Okay. Fine. Be that way.

15 Q. All right. And I believe you said you had  
16 reviewed his report --

17 A. Yes, I have.

18 Q. -- in this case?

19 And do you take exception with any of his  
20 findings?

21 A. His calculations, I have no argument with his  
22 calculations as far as they go. But where I think  
23 his -- where his report was deficient is not getting  
24 independent confirmation of the facts that were  
25 represented to him.

CONFIDENTIAL

Page 331

1 Q. Did you obtain any independent confirmation  
2 that those facts that you're referring to were  
3 incorrect?

4 A. I've been trying to and I haven't got them  
5 yet.

6 Q. Okay. And what have you done?

7 A. Well, again, you know, the issues with the  
8 heat exchanger, we've already talked about that, and  
9 COP, so I think we have discussed those at some length.

10 Q. So -- so you would agree, sir, that if the  
11 factual predicate upon which Mr. Wong prepared his  
12 report were correct, and I know that's an if for you,  
13 but if they were correct, then you take no exception  
14 with -- and so it's Professor Dr. Wong's findings?

15 A. Do you have a copy? Could I take a real  
16 quick scan of it just to make -- I don't want to say  
17 something that I don't really intend here. And I'll  
18 be -- I'll be a real quick scan of it.

19 - - -

20 (Deposition Exhibit 15 marked.)

21 - - -

22 Q. Okay. And I'll show you a copy which we'll  
23 mark as Exhibit 15. Watch yourself on the staple.

24 A. All right. Thank you.

25 Okay. I've done a quick scan through just to

CONFIDENTIAL

Page 332

1 refresh my memory. Obviously I disagree with him on  
2 all the major points. Okay.

3 As far as his calculations go, you know, if,  
4 again, huge if, the information was -- presented to him  
5 was correct, then his calculations would be reasonably  
6 correct, yeah.

7 Q. So you said you disagree with him on all the  
8 major points. But if the information upon which he was  
9 provided is correct, then you would agree with his  
10 findings?

11 A. I would -- I would agree with his  
12 calculations. Again, I disagree with him on COP. And  
13 the one thing where he does talk about -- he's on the  
14 inverse power relationship, this is on the top of page  
15 -- the top of page 3, the inverse power relationship,  
16 that's part of what Mr. Murray looked at, so I'm -- I'm  
17 going to withhold the comment on that section.

18 But as far as using COP, I totally disagree  
19 with that. And then as -- again, as far as --

20 Q. And just -- just remind me, you're --

21 A. Yeah. I'm sorry.

22 Q. -- what you believe should have been done is  
23 to measure the energy output over the energy input into  
24 the E-Cat device?

25 A. Yes. Correct, using a -- that's more

CONFIDENTIAL

Page 333

1 standard efficiency-type calculation because it's a  
2 heat conversion device -- or energy conversion device  
3 as opposed to a work-absorbing device.

4 Q. Okay. Now, what about the sustainability of  
5 working conditions that -- your opinions on that  
6 pertain to Dr. -- I'm sorry, Mr. Murray's conclusions,  
7 correct?

8 A. Where are we at? Help me out here.

9 Q. Actually, you know what, that was in two  
10 section -- page -- bottom of page 5.

11 A. Let's see here.

12 Q. That's from Mr. Murray's opinion, not yours,  
13 correct?

14 A. Yeah, I understand. Again, right now, I  
15 guess it's more -- more work is going to have to be  
16 done either by Mr. Murray or something. Again, since  
17 I've not studied the minutia and the details of  
18 Murray's simulation, I can't comment on that. So, you  
19 know, maybe that's something he and Dr. Wong can duke  
20 it out over.

21 Q. Okay. And then, again, predicated -- you  
22 predicated it upon the facts that he relied upon being  
23 accurate, if we make that assumption, you don't dispute  
24 his finding that the heat exchanger, if -- if  
25 constructed the way that it was indicated to him and

CONFIDENTIAL

Page 334

1 referred in this report, that that would have been  
2 sufficient to remove the amount of heat necessary or  
3 the amount of heat that was produced or allegedly  
4 produced by the E-Cat plant?

5 MR. LOMAX: Objection to the form of the  
6 question.

7 Q. Let me restate that because I confused  
8 myself. All right.

9 Taking the assumption that the information  
10 provided to Dr. Wong was correct with respect to the  
11 heat exchanger that Dr. Ross claims to have existed, if  
12 we assume that that information is correct, you take no  
13 exception with Dr. Wong's calculations?

14 A. The calculations, per se. But in your first  
15 question, you mentioned the construction of the heat  
16 exchanger, and that's a huge issue.

17 Q. Well, let me -- let me come back to that.

18 A. Okay. All right.

19 Q. So the first part, you take no exception with  
20 the calculations?

21 A. As far as the calculations, per se,  
22 themselves go, stand alone, they're typ- -- they're  
23 nonremarkable engineering calculations.

24 Q. So if the -- if there was a heat exchanger  
25 that was constructed in accordance with the information

CONFIDENTIAL

Page 335

1 provided by -- provided to Dr. Wong and reflected in  
2 this report?

3 A. But it -- help me. It's not -- I don't see  
4 that the construction is -- you know, I see some  
5 details about pipes and so forth, but nothing about the  
6 box or how the pipes were arranged as far as rows and  
7 staggered and all that that is important. That's  
8 pretty critical right there. So I will -- I will  
9 respectfully disagree on that issue. I don't -- I know  
10 nothing about the construction of said alleged heat  
11 exchanger.

12 Q. Okay. What -- what would change that  
13 calculation? You agree that the calculation or the  
14 formula used is correct?

15 A. I -- I -- I appears so. Again, it's been --  
16 it's been a while since I've done air cold heat  
17 exchangers, so I'd have to go back and do a little  
18 homework of my own. But this is -- this is a very,  
19 very standard formula. All right. Yeah, that's --  
20 I've got no argument with that.

21 But as far as the specifics of the heat  
22 exchanger, yeah, we're -- we're definitely at odds on  
23 that one.

24 Q. As to whether those -- whether the  
25 information that's provided here was correct or not or

CONFIDENTIAL

Page 336

1 whether it exists?

2 A. Whether it's correct and whether -- more  
3 importantly, whether it existed or not, yes.

4 Q. Okay. But if -- if someone were to find or  
5 determine or for all intents and purposes prove that  
6 the heat exister -- or heat exchanger, sorry, existed  
7 in the same size and specifications as listed in  
8 Dr. Wong's report, you would agree that that system  
9 would be capable of removing the amount of heat  
10 purportedly produced by the E-cat?

11 A. Not really, because, again, I've got to go  
12 back to what I said about moving the heat from the  
13 serpentine exchanger in the black box to this alleged  
14 heat exchanger. We don't know anything about the flow  
15 of the fluid inside the pipe, velocity, Reynolds  
16 number, anything like that.

17 So, yeah, again, we'll go back and forth. I  
18 agree with this equation, but I disagree with your  
19 general premise, because even so, we need a lot more  
20 information than what I think has been provided to  
21 Dr. Wong.

22 Q. So but just sitting here today, and I  
23 understand you're saying you need more information, but  
24 sitting here today, you're not stating that his  
25 findings are incorrect, you're stating that you need



CONFIDENTIAL

Page 337

1 additional information to know whether they would be  
2 correct or not?

3 A. I'm saying --

4 MR. LOMAX: Objection to the form of the  
5 question.

6 Go ahead, you can answer.

7 THE WITNESS: Okay.

8 A. I'm -- yeah, I'm saying it's like on COP, I'm  
9 saying his findings are incorrect, okay, as far as how  
10 to calculate the performance of this device. I totally  
11 disagree --

12 Q. We're talking about a different --

13 A. Okay. Now, if we're on the heat exchanger --  
14 I thought it was a generic question.

15 On the heat exchanger, again, I'm going to  
16 keep going back to the specificity issue. Okay. And  
17 when you say it can be proven, you know, that's --

18 Q. Let me make this very easy.

19 Under a certain set of facts, Professor Wong  
20 -- Professor Dr. Wong's calculations may be correct,  
21 you just don't have enough information that allows you  
22 to be comfortable that it is? Is that -- is that your  
23 testimony?

24 MR. LOMAX: Objection to the form of the  
25 question.

CONFIDENTIAL

Page 338

1           A.    What he's been given is a certain set of  
2    assertions, not necessarily third party verifiable  
3    facts.

4           Q.    Okay. And if you were to assume those were  
5    correct, those assertions were correct --

6           A.    But I won't assume those. I'm sorry, I won't  
7    assume those.

8           Q.    But you don't -- you don't know one way or  
9    another whether they're correct or not?

10          A.    That is true. That is true.

11          Q.    Okay. Now, have you done any research on  
12    Professor Wong?

13          A.    A little bit.

14          Q.    Okay. Have you reviewed his report and his  
15    background?

16          A.    I -- yeah. I went through them, yes.

17          Q.    Do you believe he is qualified to opine as to  
18    these matters based on your review?

19               MR. LOMAX: Objection to the form of the  
20    question.

21          A.    Again, you know, it's really the court's  
22    determination is he qualified or not. But, you know,  
23    looking at his CV and so forth, he's got a very, very  
24    nice, wonderful academic CD -- CV, I'm sorry. You  
25    know, looking at his picture in his book, he looks like

CONFIDENTIAL

Page 339

1 a great guy.

2 But as -- you know, I don't see a whole lot  
3 of real world engineering experience here, so, you  
4 know, that -- that does cause me a little bit of  
5 concern.

6 You know, as far as doing calculations and  
7 stuff of an academic nature, no argument. But as far  
8 as real world industrial engineering experience, I  
9 don't really see any that's he's pointed out here.

10 Q. Are there any other flaws that you see in his  
11 report that you think are -- that you think are  
12 incorrect?

13 A. Not at this time. You know, again, you'll be  
14 the second person to know if I do.

15 Q. Probably the third, I think.

16 A. Yeah. Well, that's okay.

17 Q. There's a couple people at Jones Day.

18 A. That's what I meant, yeah. Thank you.

19 - - -

20 (Deposition Exhibit 16 marked.)

21 - - -

22 Q. Sir, just as a wrapping up matter, there's a  
23 number of documents that you brought with you today.  
24 This is the stack that you brought to me. We're going  
25 to mark that as composite Exhibit Number 16. I'll find

CONFIDENTIAL

Page 340

1 a way to keep those together here in a minute.

2 You've also brought with you two CDs, which  
3 you've informed me are identical; is that correct?

4 A. Yes, sir, they are.

5 - - -

6 (Deposition Exhibit 17 marked.)

7 - - -

8 Q. And pursuant to an agreement with counsel,  
9 what we will do is we will mark one with an exhibit  
10 sticker Number 17. Both Mr. Lomax and I will add our  
11 initials to it. I think initials, because if we sign,  
12 we might take up all the room, for authentication.

13 MR. ANNESSER: Do you wish to do the same  
14 with yours?

15 MR. LOMAX: Yes.

16 MR. ANNESSER: Okay. So we will initial both  
17 here. And that way we don't need the court reporter to  
18 keep a copy.

19 THE WITNESS: Chris, did you initial that  
20 one? Mr. Annesser, Chris needs to initial that one.

21 MR. ANNESSER: Oh, yes, sorry.

22 THE WITNESS: And the marker.

23 MR. ANNESSER: And unless corrected by  
24 counsel, by agreement of counsel in this case, both  
25 will be named originals for this deposition.

CONFIDENTIAL

Page 341

1 MR. LOMAX: I'm going to just ask the  
2 witness, do you agree that you made copies that are  
3 identical? Is the information on those CDs identical?

4 THE WITNESS: Yes. What I -- again, subject  
5 to any computer errors, what I did is I used my burner  
6 program to make two copies. So rather than, you know,  
7 moving the information twice, I moved it once, said  
8 make two copies, and then used two discs for the same  
9 data.

10 And then I -- after I closed the program, I  
11 just did a quick spot-check on both of them.

12 MR. ANNESSER: Okay.

13 THE WITNESS: So I did a little bit of QC.  
14 And I didn't check every file, but I will represent  
15 that they are identical to the best of my knowledge.

16 MR. ANNESSER: Okay. What we will do is the  
17 court reporter, when we're all done, will photocopy the  
18 front of these discs and maintain that as part of the  
19 record, and we will keep -- counsel and I will keep  
20 copies of these CDs.

21 - - -

22 (Deposition Exhibit 18 marked.)

23 - - -

24 Okay. And next there were the two memory  
25 sticks that you referenced earlier that we will mark as

CONFIDENTIAL

Page 342

1 Exhibit 18. And we'll ask the court reporter to take  
2 custody of those and return the original to you after  
3 copying each of them as quickly as she can.

4 THE WITNESS: No hurry.

5 MR. ANNESSER: Okay. Okay. If we can go off  
6 the record for just a moment, I think I may be able to  
7 wrap up shortly.

8 THE VIDEOGRAPHER: We're off the record. The  
9 time is 1719.

10 (Recess taken.)

11 THE VIDEOGRAPHER: We're on the record. The  
12 time is 1725.

13 BY MR. ANNESSER:

14 Q. Sir, in addition to those opinions that  
15 you've set forth on page 21 of your report, you said  
16 that there was one additional opinion that you had come  
17 to that you plan to testify on.

18 A. That's correct.

19 Q. And what was that additional --

20 A. Could I take a look at that very quickly on  
21 the exhibits as a memory jogger?

22 Q. I'd like if you can find the original  
23 exhibits so that --

24 A. What number --

25 Q. -- we can have you refer --

CONFIDENTIAL

Page 343

1 A. -- 7?

2 MR. LOMAX: It's going to be up here.

3 THE WITNESS: Sorry. Where are we at?

4 BY MR. ANNESSER:

5 Q. Let me hand you mine for a moment. Let me  
6 represent that that is a copy of Exhibit 7.

7 A. Yeah, it is. And the additional -- to answer  
8 your question, the additional opinion that I'm going to  
9 amend to the report is that if there were steam flow,  
10 if, again, big if on my part, that there's no way the  
11 steam could have transited the pipe due to the  
12 pressures and the velocities involved with the -- with  
13 the power output and the -- thermal -- excuse me, the  
14 thermal outputs that were being claimed.

15 Q. There's no way that it can transit the pipe?

16 A. They could, but the pressure drop would be  
17 extremely high. And I didn't -- the velocities would  
18 have to be just about double that are shown on that one  
19 exhibit, the spreadsheet that I made, to try to stuff  
20 that many BTUs through pipes of those size.

21 Q. Okay. And when did you come to that  
22 conclusion, sir?

23 A. That was just over the weekend after -- as a  
24 result of the discussions, you know, during Dr. Pen- --  
25 yeah, Penon's dep, and then, you know, just thinking

CONFIDENTIAL

Page 344

1 about it, my subconscious said, hey, let's look at  
2 this, too.

3 Q. Okay. Over this past weekend, like  
4 yesterday?

5 A. Yeah, like -- like -- like Saturday, yeah,  
6 like this past weekend.

7 Q. And you haven't supplemented your report  
8 or --

9 A. Not yet, no, sir.

10 Q. Okay. Did you rely upon any publications in  
11 arriving at that conclusion?

12 A. That's a -- that -- that would be a typical  
13 fluid flow, like I gave you the formula. That's just a  
14 standard fluid mechanics flow form that you can find in  
15 any good fluid mechanics book.

16 Q. Fluid mechanics or steam?

17 A. No, fluid mechanics.

18 Q. Are we talking about fluid flow, or are we  
19 talking about steam flow?

20 A. It works for both of them. Steam is a fluid.

21 Q. Did you reference any literature in arriving  
22 at that opinion?

23 A. When you say "literature," like books or --

24 Q. Did you grab a book and flip through it and  
25 say --



CONFIDENTIAL

Page 345

1           A.    Oh, that -- well, that spreadsheet is based  
2           on -- the spreadsheet that I developed is based upon  
3           the continuity equation.

4           Q.    What is the continuity equation?

5           A.    I mentioned it's mass -- mass flow equals  
6           density of the fluid times the velocity of the fluid  
7           times the flow area of the pipe.

8                   And then I also used the steam tables for the  
9           properties of the steam for that look-up -- for the  
10          look-up table for the various pressures.

11                   Because of steam -- steam -- steam being a  
12          gas, as it is compressed to high and higher pressures,  
13          the density or the specific volume, as we call it,  
14          changes. It squeezes down. Being a gas at zero psi,  
15          it may occupy -- and, again, I'm going to kind of do  
16          this for the camera -- a rather large volume. As the  
17          pressure goes up, the volume -- a pound of steam will  
18          occupy a smaller and smaller volume.

19                   Also, as if -- if indeed the steam were  
20          superheated, as the steam heats up, it also expands, so  
21          that's going to exacerbate the issue.

22          Q.    Is there a reason that you did not include  
23          that in your report?

24          A.    I didn't think of it at the time.

25          Q.    Is there any specific methodology that you

CONFIDENTIAL

Page 346

1 applied in performing those calculations?

2 A. I think I just told you.

3 Q. Well, you said that you -- that it was a  
4 basic calculation predicated upon the continuity  
5 equation?

6 A. Yes. That's -- that's a formula and a  
7 procedure.

8 Q. Is that a widely accepted equation?

9 A. Absolutely.

10 Q. Is it possible that someone could come to a  
11 contrary position with respect to whether it is  
12 possible to move that much steam through the piping?

13 A. Only if they -- excuse me. Only if they have  
14 the same steam expertise and experience that I do.  
15 People that have that expertise are going to agree with  
16 me.

17 Q. Other than that additional opinion, are there  
18 any other opinions that you plan on testifying to in  
19 this case?

20 A. I can't delineate anything specifically right  
21 now. But, again, there's more discovery coming in,  
22 more deps. We have a site visit that we just talked  
23 about off the record. So there may be other issues.  
24 Again, I can't tell you what they are right now. There  
25 may be, there may not be. I don't know.

CONFIDENTIAL

Page 347

1 Q. Is there any information that if you were to  
2 see, that would cause you to retract any of your  
3 opinions in this case?

4 MR. LOMAX: Objection to the form of the  
5 question.

6 A. It's going to be a really hard sell. I'm not  
7 saying it won't happen, but it's going to be a hard  
8 sell.

9 Q. I -- I understand you're convinced, but my --  
10 my question is, is there any information that if it  
11 were provided to you, would cause you to change your  
12 opinions?

13 MR. LOMAX: Objection to the form of the  
14 question.

15 Q. Or opinion and/or opinions in this matter?

16 A. Some of the concrete and -- issues I raised  
17 about the existence of the heat exchanger is one that  
18 comes immediately to mind.

19 Q. Anything else?

20 A. Not that I can think of right now. There may  
21 be others, but I'm just -- I'm drawing a blank right  
22 now.

23 Q. Is there anything that we've not discussed  
24 today that you think is pertinent to this case?

25 MR. LOMAX: Objection to the form of the

1 question.

2 A. It may be pertinent and it may not be, but I  
3 am concerned about some of the safety issues relative  
4 to the E-Cat. If it is a nuclear reaction, excuse me,  
5 I'm concerned about the health physics issues, if it  
6 is, in fact, a nuclear reaction.

7 And then just as general boiler issues,  
8 again, in looking at the pictures of it and so forth,  
9 I'm fearless and it scares the crap out of me.

10 Q. The E-Cat does?

11 A. It does.

12 Q. How come?

13 A. It doesn't look like a properly constructed  
14 pressure vessel. Even though there's no alleged  
15 pressure in it, there are safety devices that all  
16 boilers should have that if they're there, fine, but I  
17 didn't see any evidence of them.

18 Q. Such as?

19 A. Over-pressure, over-temperature, thermal  
20 cutouts, things like that. You know, the normal safety  
21 devices one sees in a boiler, even a small, low  
22 pressure boiler.

23 And all -- and the other -- and the other  
24 thing is that in a document in there, in my stuff that  
25 I gave you that was not provided by counsel is -- from

CONFIDENTIAL

Page 349

1 what I can tell, the State of Florida has no record of  
2 that boiler existing at that location, at least not  
3 that I've been able to determine.

4 Q. What have you done to determine that?

5 A. I checked on the state's record, their  
6 website, for boiler licenses, boiler permits, operating  
7 inspections.

8 Q. But you're aware that the State of Florida  
9 went out there and did an inspection --

10 A. Different department. No, this -- this was  
11 the radiologic department. The Florida -- the Florida  
12 boiler department, I believe, is part of Financial  
13 Services. And I think they would be very, very  
14 interested in a device that makes hot water or  
15 allegedly superheated steam. I think they would be  
16 very interested in knowing about that.

17 Q. Okay. And who have you contacted there?

18 A. I have not.

19 Q. So how did you come to the conclusion that  
20 there is no record of there being a boiler device at  
21 that location?

22 A. A website search of the State of Florida's  
23 boiler division license records.

24 Q. And what does that tell you?

25 A. That they -- that somebody did not either --

CONFIDENTIAL

Page 350

1 well, for whatever reason, did not contact the state  
2 and apply for a boiler license and inspection as is  
3 required by Florida law, at least as I understand  
4 Florida law.

5 Q. You would agree this is a nontraditional  
6 boiler, would --

7 A. It makes no difference. The heat source is  
8 irrelevant to the fact that it's a boiler. Yeah, I  
9 agree, it is nontraditional, no argument there. But  
10 from -- from the jurisdictional standpoint, they don't  
11 make that distinction that -- that we might.

12 Q. Okay. What -- at what point or what  
13 determines when you need a boiler license?

14 A. The law, the Florida law.

15 Q. Okay. But I have a water heater in my house;  
16 is that a boiler?

17 A. They're -- no. And they make specific --  
18 technically, it is a boiler. All right. Technically,  
19 all of our water heaters are a boiler. Okay. Because  
20 of the logistics involved and so forth, most all  
21 jurisdictions have a floor below which they're --  
22 they -- you know, they say, you've got to have this and  
23 that on them, but they don't require inspections.

24 Q. And what's that floor?

25 A. I don't know. But typically -- I'm going to

CONFIDENTIAL

Page 351

1 guess, okay, subject to verification with the law,  
2 typically it's about 85 gallons where you -- when you  
3 switch over from a typical -- like a 40 -- big 40, 80  
4 -- or maybe even a little higher because I have an 80  
5 gallon, maybe it's 120, but at some point you go from  
6 being a residential to more of a commercial, like for a  
7 small school, apartment building, things like that.  
8 You know, where it becomes a public occupancy is  
9 typically where that break point is made.

10 Q. Do you know what regulations apply to the  
11 E-Cat device?

12 A. As far as I know, the Florida boiler law  
13 applies because it is considered, again, depending on  
14 how we want to deal with it, a low pressure steam  
15 boiler or a hot water boiler.

16 Q. And what do you base your opinion that the  
17 Florida boiler law applies on --

18 A. Because this device is making hot water, and  
19 its size. And if it's a lot bigger -- as you  
20 mentioned, it's a lot bigger than an 80 horsepower  
21 commercial boiler, which absolutely requires a license.

22 Q. Now, commercial boilers operate under  
23 pressure, do they not?

24 A. They -- there is a -- they do operate under  
25 pressure. But the code, as I read the code -- and, you

CONFIDENTIAL

Page 352

1 know, you're a lawyer, you may read it and come to an  
2 entirely different conclusion; but as I read the code,  
3 the pressure is immaterial as far as it being a boiler.

4 There is a -- the ASME has a break point at  
5 15 PSIG. Below 15, it's a low-pressure boiler. Above  
6 15, they call it a high-pressure boiler.

7 So zero is still -- and, again, when you were  
8 -- when we were wrangling about the pressures, you were  
9 showing pressure over zero on the lower atmospheric,  
10 that is pressure.

11 Q. For -- the standard boiler is the one  
12 depicted in your report, what is the average pressure  
13 that they operate under?

14 A. Tough question to answer. If it's -- if it's  
15 a typical, again, light commercial boiler, it's going  
16 to be a low-pressure boiler under 15, they typically  
17 run them around 12.

18 If it's for an industrial -- when I say "12,"  
19 PSIG. If it would be for a commercial application like  
20 a laundry or a dry-cleaner, maybe 75, 80 pounds,  
21 something like that.

22 Q. Okay. So 12 PSIG is how many bars?

23 A. A little less than 1, because a bar is 14.7,  
24 so it's whatever --

25 Q. So it's operated under the vacuum?



CONFIDENTIAL

Page 353

1           A.    Pardon? No. No. No. No. No. That's 14  
2           -- I'm talking 15 PSIG.

3                   MR. LOMAX: Objection. At this point, I just  
4           learned that you completed the deposition in terms of  
5           time.

6                   MR. ANNESSER: Okay. Can I finish up this  
7           couple short questions?

8                   MR. LOMAX: Yeah. It's over by three minutes  
9           already.

10                  MR. ANNESSER: Nobody alerted me. I  
11           apologize.

12           BY MR. ANNESSER:

13                  Q.    Sir, do you mind --

14                  A.    No, not at all.

15                  Q.    -- just finishing the last couple questions?

16                  A.    No problem.

17                  Q.    12 PSIG you said is a little under 1?

18                  A.    1 bar gauge. 1 bar gauge. Okay. So -- let  
19           me -- I stand corrected. It would be a little under 2  
20           bar gauge. And, again, that's because I use PSIG and I  
21           get a little -- I've got to think real carefully doing  
22           the transition from gauge to bar.

23                        But that pressure would be above atmospheric  
24           at some point.

25                       MR. ANNESSER: Okay. And I am out of

CONFIDENTIAL

Page 354

1 questions, sir. Thank you very much for your time  
2 today. You have the right to read or waive.

3 MR. LOMAX: We'll read.

4 THE WITNESS: We'll read.

5 MR. ANNESSER: Okay. Thank you very much.

6 MR. LOMAX: No questions.

7 But I -- before we go off the record, sir, if  
8 we could please designate this testimony as highly  
9 confidential at this point.

10 MR. ANNESSER: On what basis?

11 MR. LOMAX: We're just talking about, I  
12 think, just to be cautious before we can actually read  
13 the transcript. I think he might have gotten into some  
14 highly confidential information.

15 Do you have an objection?

16 MR. ANNESSER: Well, I object to it, but we  
17 can figure it out later. You can make the designation,  
18 but we'll -- we will object to it at this point in time  
19 and go from there.

20 THE VIDEOGRAPHER: We're off the record. The  
21 time is 1740.

22 - - -

23 Thereupon, the testimony of February  
24 27, 2017, was concluded at 5:40 p.m.

25 - - -

CERTIFICATE

STATE OF OHIO:

SS:

COUNTY OF DELAWARE:

I, Tracy J. Schell, a Notary Public in and for the State of Ohio, duly commissioned and qualified, do hereby certify that the within-named RICK A. SMITH, P.E., was first duly sworn to testify to the truth, the whole truth, and nothing but the truth in the cause aforesaid; that the testimony then given was reduced to stenotypy in the presence of said witness, afterwards transcribed; that the foregoing is a true and correct transcript of the testimony; that this deposition was taken at the time and place in the foregoing caption specified.

I do further certify that I am not a relative, employee or attorney of any of the parties hereto; that I am not a relative or employee of any attorney or counsel employed by the parties hereto; that I am not financially interested in the action; and further, I am not, nor is the court reporting firm with which I am affiliated, under contract as defined in Civil Rule 28(D).

In witness whereof, I have hereunto set my hand and affixed my seal of office at Lewis Center, Ohio, on this 9th day of March, 2017.



Tracy J. Schell

Notary Public, State of Ohio.

My commission expires: November 5, 2018

Page 356

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ERRATA SHEET

RE : Rossi, Andrea v. Darden, Thomas

DEPO OF: Rick A. Smith, P.E.

TAKEN : 2/27/2017

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State of Florida )

County of Dade )

Under penalties of perjury, I declare that I have read my deposition transcript, and it is true and correct subject to any changes in form or substance entered here.

\_\_\_\_\_  
Date

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WITNESS NAME

CONFIDENTIAL

[&amp; - 2017]

Page 358

<b>&amp;</b>	<b>10,050</b> 178:2	<b>13th</b> 92:25 93:2	<b>1977</b> 33:18 46:23	
<b>&amp;</b> 2:3 111:3 117:16 207:16 210:5,9 212:9 318:11 319:15	<b>100</b> 9:10 23:19 54:8 120:1 144:1 216:13 222:10,16,17 229:6 229:13 232:1 234:22,23 235:6 236:14 237:17,18 268:7,8,8,11	<b>14</b> 5:7 116:10 282:13 287:8 329:15,21 353:1 <b>14.696</b> 138:4 <b>14.7</b> 352:23 <b>140</b> 73:1 <b>148</b> 4:21	<b>1979</b> 46:23 50:6 <b>1983</b> 47:2 57:21,25 <b>1988</b> 36:22 47:3 49:25 57:21 <b>1989</b> 18:1 <b>199</b> 5:3 <b>1990</b> 18:1 <b>1995</b> 41:1 <b>1:13</b> 168:3 <b>1:16</b> 1:7 6:17	
<b>0</b>	<b>100,000</b> 53:11,12 216:5,9,11 272:4	<b>15</b> 5:9 117:6 130:4 290:2,13 291:11 331:20,23 352:5,5 352:6,16 353:2	<b>2</b>	
<b>0</b> 237:17 <b>0.0</b> 233:22,22,22 326:8,16 <b>0.0.</b> 326:18 <b>0075</b> 323:2 <b>0851</b> 6:10	<b>101</b> 40:19,19,19 43:15 236:11,22 <b>102</b> 225:7 <b>103</b> 216:9,13 225:7 <b>103,000</b> 216:8,11 <b>103.9</b> 236:10 <b>104</b> 225:7 236:11 <b>1050</b> 176:16 177:3 <b>10:34</b> 90:11 <b>10:49</b> 90:14 <b>10:56</b> 95:17 <b>10:57</b> 95:20 <b>11</b> 4:12 5:3 112:18 199:21,23 <b>12</b> 5:5 113:21 219:19,24 221:9 230:8 233:3 255:1 274:6,8,15 292:6,7 292:15 316:11 352:17,18,22 353:17	<b>150</b> 54:8 55:3,4,8 <b>150,000</b> 53:19 <b>1511</b> 267:9 <b>1521</b> 267:12 <b>15th</b> 92:25 93:2 <b>16</b> 5:11 130:4 294:17 296:8 339:20,25 <b>160</b> 78:19 <b>1626</b> 322:7 <b>1652</b> 322:10 <b>16th</b> 288:5 <b>17</b> 5:12 36:1 195:7 300:14 340:6,10 <b>1700</b> 329:10 <b>1703</b> 329:13 <b>1719</b> 342:9 <b>1725</b> 342:12 <b>1740</b> 354:21 <b>17th</b> 288:6 <b>18</b> 5:13 117:15 301:3 341:22 342:1 <b>180</b> 78:19 296:3 <b>19</b> 118:4 <b>191</b> 4:23 <b>195</b> 295:3 <b>1972</b> 26:21 <b>1976</b> 29:6,20	<b>2</b> 4:9 9:21,24 125:3 125:24 248:20,23 288:2 296:4 353:19 <b>2,700,000</b> 296:14 296:16 <b>2/27/2017</b> 357:3 <b>20</b> 14:2 49:16 67:8 95:7 121:7 130:5 305:17 309:14 <b>200</b> 2:4 41:2 59:14 59:15 166:4 201:3 201:5 295:3 <b>200,000</b> 53:20 200:25 201:6 202:16 <b>200,038</b> 201:16 <b>2005</b> 324:22 <b>2006</b> 50:2 <b>2007</b> 50:2 <b>2012</b> 301:7 <b>2013</b> 12:12 <b>2015</b> 13:1,3 199:10 200:2,5 322:20 323:1 <b>2016</b> 116:11 117:3 195:7 318:14 <b>2017</b> 1:14 3:1 6:9 20:11 96:15 97:7 97:12,17 99:14	
<b>1</b>	<b>1</b> 4:7 8:12,15 9:4,6 9:14 97:24,25 101:23 102:3 106:12 109:7 123:6 125:2,24 150:9 189:19 233:24,25 234:3 240:25 241:1 241:8,14 242:20,21 242:22 247:12 248:20 270:14 290:4 307:10,17 352:23 353:17,18 353:18 <b>1,781</b> 276:23 277:20 <b>1.2</b> 244:9 <b>1.6</b> 244:9 247:12 307:10 <b>10</b> 4:23 169:19 174:23 188:17 191:5,8,13 195:10 215:16,23 216:5 218:7,10 219:5 220:15 245:14 <b>10,000</b> 139:8,19 158:6	<b>12,000</b> 272:19,21 278:4 <b>120</b> 351:5 <b>12:26</b> 167:19,22 <b>12:30</b> 167:16 <b>13</b> 5:6 106:19 279:7 322:12,17 328:20 <b>130</b> 306:4,7 <b>1313</b> 168:6		

CONFIDENTIAL

[2017 - 800]

Page 359

104:1 110:22 168:1 354:24 355:15 <b>2018</b> 355:22 <b>206,015</b> 201:16 <b>20th</b> 121:11 <b>21</b> 11:2 122:14 314:18 342:15 <b>210</b> 1:16 6:12 <b>21199</b> 1:7 6:17 <b>212</b> 294:18 295:7 <b>213</b> 149:16,18 <b>214</b> 149:17,18,25 <b>21st</b> 98:25 99:9 <b>22</b> 11:3 69:7 <b>23</b> 101:25 102:3 <b>235</b> 161:7 <b>24</b> 97:7 102:19 199:11 200:10 201:6,17,20,23,25 205:16,19 206:2 207:6,9 208:1,7,16 208:24 209:8,14,23 209:24 <b>247,000</b> 207:9 <b>2485</b> 137:10,21 <b>24th</b> 110:21 318:6 <b>25</b> 56:10 96:15 97:12 99:13 104:1 <b>25,000</b> 97:23 <b>250</b> 22:24 23:20 <b>2500</b> 177:2 <b>25th</b> 12:11 96:21 97:11,17 110:22 <b>26th</b> 110:25 <b>27</b> 1:14 3:1 6:9 168:1 354:24 <b>274</b> 5:5 <b>275</b> 22:24,24,25 23:20 <b>277</b> 129:14,15	<b>28</b> 355:13 <b>283</b> 2:4 <b>29</b> 4:13 <b>3</b> <b>3</b> 4:12 11:13,16 38:7 82:13,23 86:25 87:1,13 107:13 128:12 273:16 288:3 332:15 <b>3's</b> 83:22 <b>3,000</b> 216:15 <b>3,413</b> 272:13 278:18 289:25 290:7 <b>3-28-2016</b> 125:15 <b>30</b> 13:1 246:17 <b>30,000</b> 121:22 <b>300,000</b> 53:13 <b>3000</b> 177:2,12 <b>305.377.0086</b> 2:6 <b>305.714.9700</b> 2:11 <b>31</b> 116:10 117:3 318:14 <b>322</b> 5:6 <b>329</b> 5:7 <b>3300</b> 2:9 <b>331</b> 5:9 <b>33131</b> 2:10 <b>33134</b> 2:5 <b>339</b> 5:11 <b>340</b> 5:12 <b>341</b> 5:13 <b>35</b> 177:8 <b>35,402</b> 215:25 <b>36</b> 220:21 <b>36,000</b> 215:25 <b>366</b> 55:6 <b>375</b> 23:1,21 <b>3rd</b> 44:5,7 45:15 48:4 49:20,23	<b>4</b> <b>4</b> 4:13 29:14,16 94:11,12,14 97:23 107:3 126:6 135:21 200:5 273:16 274:8 275:6 276:21 288:4 <b>4,044</b> 277:24 <b>4.5</b> 308:2 <b>4.6</b> 307:5,8,16 <b>40</b> 32:18 151:14 177:8 218:3 226:13 228:1,16 253:13 273:11 275:9,12 282:23 292:13,24 310:16 312:14 316:18 351:3,3 <b>41</b> 1:16 6:12 138:12 138:14 <b>427</b> 19:10 104:21 104:22 <b>43061</b> 8:4 <b>43215</b> 1:17 6:13 <b>4th</b> 200:24 220:19 <b>5</b> <b>5</b> 4:14 59:14 62:16 62:19 63:4 137:8 288:6 333:10 355:22 <b>5,000</b> 23:2 <b>50</b> 106:22 176:19 178:4,7 272:4 282:23 306:3 <b>558</b> 230:23 <b>588</b> 59:14 61:9 <b>5:40</b> 354:24 <b>6</b> <b>6</b> 4:16 64:11,14 138:19 207:9 273:17,19,20 277:23 310:3,8	<b>6,000</b> 272:16 275:21,22 278:4 <b>6-10</b> 149:16,18 <b>60</b> 282:23 <b>600</b> 2:9 <b>608</b> 44:6,11 47:22 49:5 50:1 <b>60s</b> 146:9 148:14 <b>62</b> 4:14 <b>625</b> 38:24 <b>64</b> 4:16 <b>68</b> 4:19 <b>7</b> <b>7</b> 4:4,19 58:11 68:25 69:2 94:8,17 97:3 100:8 103:20 106:8 122:1 138:19 304:10 309:15 343:1,6 <b>70s</b> 148:14 <b>71</b> 106:19 <b>72</b> 106:25 <b>73</b> 107:1 148:15 <b>74</b> 148:15 <b>7400</b> 8:3 <b>75</b> 4:15 63:1 352:20 <b>780</b> 270:15 <b>79</b> 289:24 <b>790</b> 270:15 290:4 291:8 <b>8</b> <b>8</b> 4:7,20 96:3,7,10 99:17,18 138:19 139:6 229:25 292:10,11 310:4,10 <b>80</b> 20:15 290:17 291:6 292:3,18 351:3,4,20 352:20 <b>800</b> 270:16
--	---	---	--

CONFIDENTIAL

[82 - agree]

Page 360

<b>82</b> 17:23,23 19:10 104:22 105:6,24 <b>8333.3</b> 201:8 <b>85</b> 17:23 351:2 <b>8:51</b> 1:15 3:2	<b>absorbing</b> 255:16 256:4,10,14 265:25 333:3 <b>absorbs</b> 160:2 256:16 <b>ac</b> 42:6 <b>academic</b> 35:13 338:24 339:7 <b>accelerated</b> 296:9 <b>accepted</b> 17:2 23:25 99:13 137:18 346:8 <b>access</b> 71:9 182:15 194:12 265:1 <b>accommodate</b> 59:20 <b>accomplished</b> 59:9 231:6 <b>accord</b> 150:14 <b>accounted</b> 184:11 <b>accounts</b> 106:19 <b>accumulating</b> 32:25 <b>accuracy</b> 172:23 264:12 <b>accurate</b> 84:19 117:22 120:3 158:1 173:1 196:14 200:21 203:13 213:6 284:9 333:23 <b>achieve</b> 228:4 <b>achieved</b> 260:11 261:18 <b>acquired</b> 154:4 <b>act</b> 23:7 67:3 <b>acting</b> 252:10 <b>action</b> 106:10 355:12 <b>actual</b> 21:13 45:11 60:15 278:10	<b>actuality</b> 190:10 <b>adamant</b> 317:17,19 <b>add</b> 97:24 126:3,6 165:16 273:21 277:4 289:15 340:10 <b>added</b> 97:25 229:18,19 294:11 301:9,12 <b>addendum</b> 107:3 <b>addition</b> 38:9 80:22 98:9 122:16 342:14 <b>additional</b> 56:10 68:1 70:15 71:17 112:8 141:23 142:4 142:7 174:24 193:23 236:20 237:12 280:17 306:21 337:1 342:16,19 343:7,8 346:17 <b>additionally</b> 207:15 210:4 <b>address</b> 8:2,5 107:12 175:4,6 194:18 288:8 <b>addressed</b> 287:16 <b>addresses</b> 282:16 <b>adds</b> 159:17 <b>adhered</b> 174:8 <b>adherence</b> 174:1,3 174:6 175:2 <b>adjust</b> 36:18 111:25 270:19 <b>adjustment</b> 269:1 <b>administrative</b> 18:16,17 <b>admit</b> 325:15 <b>admittance</b> 25:11 <b>admitted</b> 170:14	<b>admittedly</b> 317:2 <b>adverse</b> 305:10,12 305:15 <b>advice</b> 108:2 141:7 141:10 <b>advisors</b> 40:11 <b>aerial</b> 309:11 <b>affect</b> 109:20 113:18,24 115:5,13 115:20 116:24 170:16,18 286:25 297:18 <b>affiliate</b> 25:16 <b>affiliated</b> 21:23 355:13 <b>affixed</b> 355:15 <b>aforsaid</b> 355:6 <b>afterward</b> 110:24 187:21 <b>aggravated</b> 13:10 <b>aggregate</b> 114:25 <b>ago</b> 12:8 16:1 50:2 67:9 105:17 264:24 271:3 <b>agree</b> 6:7 42:21 87:25 114:11 133:2 137:4,6 163:6 181:3 183:25 226:10 229:9,11 236:13,16,19 237:9 237:18 238:4 242:9 242:13,15 244:3 246:9 249:13 250:5 253:24 262:25 263:3 280:4 283:21 292:20 302:23 314:25 320:21 331:10 332:9,11 335:13 336:8,18 341:2 346:15 350:5 350:9
<b>9</b>			
<b>9</b> 4:9,21 138:19 140:20 148:2,4 168:12,15 220:24 233:2 <b>9,000</b> 276:18,19 277:24 278:4 <b>90</b> 216:9,12 <b>90,000</b> 216:6 <b>900</b> 46:21,22 48:11 <b>90s</b> 67:16,17 <b>96</b> 4:20 <b>9th</b> 355:15			
<b>a</b>			
<b>a.m.</b> 1:15 3:2 <b>ability</b> 86:23 297:19 308:24 <b>able</b> 38:5 123:9 242:21 243:20 312:17 342:6 349:3 <b>aboveground</b> 60:3 <b>absence</b> 319:18 <b>absent</b> 251:10 314:22 <b>absolute</b> 204:23 233:23 234:4,5,13 306:23 327:18 <b>absolutely</b> 11:22 42:7,9 126:19 145:18 148:7 184:5 203:19 242:13 248:24 262:16 277:22 321:25 346:9 351:21			



CONFIDENTIAL

[agreed - anomalies]

Page 361

<b>agreed</b> 108:15,21 109:2 204:25 212:13 254:14 284:8 <b>agreement</b> 4:20 91:9 95:24 98:9,18 99:5,20,24 340:8 340:24 <b>agreements</b> 99:10 <b>agrees</b> 148:21 <b>ahead</b> 15:21 34:23 119:11 126:12 128:15 163:5 164:15 217:18 266:22 337:6 <b>air</b> 30:6 34:1 40:19 41:15,16 42:12 54:20 60:19 62:6,7 216:17 255:17 256:5,12 294:8 295:20 296:13 297:25 298:6,6,7 300:23 308:12 309:6,12,19 314:20 335:16 <b>airflow</b> 195:5 297:9 300:22 302:17 308:14 317:24 321:10 <b>airport</b> 139:23 <b>akron</b> 13:25 72:19 73:8,10,21,22 74:14 <b>al</b> 1:7 6:15,15 71:22 71:25 86:16 <b>alaska</b> 13:24 14:4 <b>albright</b> 2:3 <b>alcoa</b> 50:8,9,11,13 55:2,11,12,22 <b>alerted</b> 353:10	<b>algebra</b> 276:6 <b>alive</b> 150:25 <b>allegations</b> 107:6 <b>alleged</b> 72:25 88:20 145:17 221:19,20 291:24 303:9 315:11 335:10 336:13 348:14 <b>allegedly</b> 77:22 93:9 135:17 137:15 236:3,5 263:12 311:18 334:3 349:15 <b>allotted</b> 324:10 <b>allow</b> 93:18 95:15 156:15 251:16 253:3 294:21,21 298:4,5 <b>allowed</b> 131:20,23 182:13,15 194:12 265:1 306:24 <b>allowing</b> 228:19 <b>allows</b> 86:11 225:14 337:21 <b>alteration</b> 288:4,25 <b>alterations</b> 102:1 <b>altered</b> 102:13 <b>altering</b> 111:19 196:8 259:16 260:6 <b>alternative</b> 133:21 <b>alternatives</b> 314:19 <b>alters</b> 286:19 <b>altitude</b> 139:17 <b>aluminum</b> 50:11 51:25 52:7,12,16 52:22 <b>ambient</b> 222:15,15 <b>amend</b> 111:25 114:9 167:6 231:15 231:16 343:9	<b>amended</b> 129:15 174:24 <b>america</b> 50:11 <b>american</b> 25:1 40:21 157:19 320:5 <b>amount</b> 19:2 54:10 106:20,22 113:1,16 161:16 162:10,14 163:9,15,23 203:22 206:19 209:11 239:6,8 240:7 241:18,20 242:6,10 242:23 244:13,19 251:23 253:25 255:20 256:6,9 258:8,9 260:8 286:9 291:7 293:18 293:25 302:24 305:25 308:4,19 327:4 334:2,3 336:9 <b>amperage</b> 284:24 <b>ampering</b> 284:24 <b>anal</b> 114:24 <b>analogies</b> 158:13 <b>analogy</b> 296:3 <b>analyses</b> 114:21 317:20 330:11 <b>analysis</b> 75:21,25 77:10,24 78:2,6 79:5 80:6 83:18,24 86:13 87:2,5,6,8 96:25 104:4,19 110:6 111:5,8 114:10,13,18,20 116:6,11 117:3,9 119:14 133:7 136:15,24 137:2 189:25 198:7 206:19 207:1 211:20 212:20	213:7 218:4 236:21 270:12 308:14,15 308:16 309:7 317:7 317:15 318:15 320:17 321:9,10,11 323:5 <b>analyst</b> 114:22 <b>analyze</b> 75:17,20 114:24,25 117:21 117:23 212:15,21 213:4 <b>analyzed</b> 202:21 <b>analyzing</b> 86:19 <b>andrea</b> 1:4 6:14,23 123:14 357:2 <b>angle</b> 264:7 <b>angles</b> 249:19 <b>annealing</b> 50:20 <b>annesser</b> 2:3 4:4 6:22,22 7:13,15 69:19,23 70:3 87:25 88:4,7,9 90:8 90:15 93:18 95:14 95:21 102:8,9 103:5,9,10 124:11 124:14,19 167:16 168:7 213:3 217:2 217:5,7,17 218:20 218:25 219:1 228:8 228:11 267:6,13 274:13,14 314:17 322:2,14 326:10 329:7,17 340:13,16 340:20,21,23 341:12,16 342:5,13 343:4 353:6,10,12 353:25 354:5,10,16 <b>annotations</b> 322:23 <b>anomalies</b> 210:13 328:15
---	---	--	--

CONFIDENTIAL

[anomaly - asking]

Page 362

<b>anomaly</b> 206:16 234:21	135:9 164:17,19,22 220:13 227:11	<b>applies</b> 54:20 137:2 138:13 139:2 140:4 140:6 295:25 351:13,17	<b>argue</b> 244:11,12 261:22 269:7 326:23
<b>answer</b> 26:3 65:13 72:10 93:19 129:16 143:5 151:20 153:1 153:22 154:21 155:13,24 156:4 159:10,20 174:24 176:11 181:20 184:12 188:11 217:18 232:14 237:14 238:19 269:22 299:7,15 301:19 307:12,15 313:10 315:13,18 315:19 316:16 328:6 337:6 343:7 352:14	238:21 239:18 246:15 252:19 274:2,3 353:11 <b>apparently</b> 88:17 112:25 118:7 207:4 245:4 <b>appear</b> 104:6 129:24 132:11,12 174:20 198:14 221:7 255:3,13 291:21 <b>appearance</b> 8:19 166:9 <b>appearances</b> 2:1 <b>appeared</b> 98:21 107:11 114:16 166:21 <b>appears</b> 114:13 126:15 135:22 176:12 178:20 190:12 193:17 209:20 293:22 325:17 326:14 335:15 <b>appendix</b> 94:7 <b>appendixes</b> 212:3 <b>apples</b> 293:6 <b>applicability</b> 48:5,7 <b>applicable</b> 25:21 42:1 65:1,8 <b>application</b> 352:19 <b>applied</b> 8:10 18:4,9 18:18 19:7,12 33:4 33:8 65:1 80:9 86:13,15 134:1 152:17 153:6,16,24 155:20 206:15 253:1 346:1	<b>apply</b> 75:12 77:7 80:8 136:4,6,8,19 137:7 205:10 217:23 218:7 219:14 228:2 312:9 350:2 351:10 <b>applying</b> 87:3 139:4 219:2 241:17 <b>appreciate</b> 59:22 <b>approach</b> 75:16,18 80:15 <b>approached</b> 24:5 <b>appropriate</b> 43:4 76:15 265:15 284:22 285:11 <b>approval</b> 89:21 <b>approximately</b> 6:10 92:24 99:24 110:25 293:17 <b>april</b> 13:1 322:20 324:21 <b>arab</b> 38:1 <b>arb</b> 277:8 <b>arbitrary</b> 277:9 <b>arbitration</b> 17:16 <b>area</b> 26:23 27:9 30:24 31:5 84:17 85:22 90:25 100:2 114:9 127:16 140:6 180:20 193:14 251:25 273:13 275:10,12 298:22 299:22 300:24 314:10 345:7 <b>areas</b> 28:6 41:11 102:12,15 133:21 237:5 314:9	<b>argument</b> 311:17 330:21 335:20 339:7 350:9 <b>argumentative</b> 223:10 <b>arithmatic</b> 198:24 <b>arkansas</b> 43:16,18 <b>armour</b> 29:21,23 31:2,11,20 32:1 <b>arranged</b> 302:17 335:6 <b>arrangement</b> 36:16 43:22 <b>arrive</b> 84:3 198:5 207:13 253:1 <b>arriving</b> 344:11,21 <b>article</b> 63:9 106:18 153:11 <b>articles</b> 62:11 153:9,13 <b>artists</b> 154:16 <b>ash</b> 158:20 <b>aside</b> 181:2 203:15 <b>asked</b> 15:8 69:21 81:16 106:5 126:3 176:2 178:13 186:9 190:8,14 197:11,13 197:16,19,22 221:23 226:6 232:6 232:13 281:13 284:16 303:12,13 303:15 304:19 305:5 313:5,11 314:11 <b>asking</b> 24:11 70:14 70:21 89:23 90:23 104:8 115:11,18 124:17,20 127:25

CONFIDENTIAL

[asking - back]

Page 363

128:1 131:17 134:7 177:22,25 184:25 187:14 218:22 229:22 236:9 246:6 246:8 253:7 254:6 270:3,7 303:7 324:10 <b>asme</b> 25:1,4 157:19 204:12 253:10 279:10 352:4 <b>assent</b> 248:6 <b>assenting</b> 236:24 250:7 <b>asserted</b> 9:17 <b>assertion</b> 133:2 <b>assertions</b> 236:15 260:25 338:2,5 <b>assignment</b> 104:2 104:10 106:5 317:12 <b>assist</b> 19:1 23:7 140:22,25 141:2 254:21 <b>assistant</b> 29:3 39:14,22 40:5,13 <b>assisted</b> 67:22 <b>assisting</b> 20:20 23:20 <b>associate</b> 25:7 311:10 <b>association</b> 25:3 <b>assume</b> 41:10 183:6 184:25 222:2 229:8 236:9 248:23 296:13 302:21 334:12 338:4,6,7 <b>assumed</b> 299:9 319:11 <b>assuming</b> 74:4 115:9 176:10 194:12 237:11	248:21 299:22 306:3 325:1 <b>assumption</b> 182:19 182:23 184:7 185:2 209:5 231:13 248:24 282:7 325:3 333:23 334:9 <b>assumptions</b> 84:18 182:17 264:4 274:24 297:13 <b>ate</b> 11:8 19:15 22:9 24:4 104:21 <b>atmosphere</b> 233:22 233:24 <b>atmospheres</b> 233:23 <b>atmospheric</b> 138:4 222:10,13,15 229:7 229:8 234:3,23 251:16 252:5 352:9 353:23 <b>atomic</b> 161:8 162:17 259:12 <b>atoms</b> 259:21 <b>attached</b> 124:4 <b>attachment</b> 107:4 <b>attempt</b> 319:22 <b>attention</b> 169:18 246:24 <b>attorney</b> 15:19 16:4 19:25 87:12 89:2,6 93:17 101:4 102:6 103:8 171:20 245:22 355:10,11 <b>attorneys</b> 6:19 10:24 23:22 89:15 93:24 102:20 103:12 143:11 171:17 245:24 <b>audience</b> 294:25	<b>audio</b> 6:6 <b>authentication</b> 340:12 <b>author</b> 123:19 148:11 168:21 169:23 175:4 195:13 207:10 213:14 214:7 219:24 221:13 287:25 288:7 <b>author's</b> 125:13,17 150:17 169:21 <b>authors</b> 67:22 <b>automated</b> 23:17 <b>automatically</b> 271:22 <b>automobile</b> 158:11 158:17 <b>automotive</b> 158:13 <b>available</b> 239:2 271:6 308:22 <b>avenue</b> 2:4,9 63:8 <b>avenues</b> 308:22 <b>average</b> 198:11,15 199:12 201:7 205:10 207:5,25 208:14,23 209:2,23 209:24 222:2 270:16 290:2 352:12 <b>averaged</b> 307:5 <b>averages</b> 28:15 <b>avoid</b> 323:9 <b>award</b> 35:25 <b>awarded</b> 36:20 <b>aware</b> 14:25 15:16 17:1,4,19,20 36:5 64:9 68:8 78:8 108:20,22 120:9 148:20 155:22 165:24 170:10	180:7,10 186:20,23 187:3,15,17 196:23 211:2 218:5,9 258:2 261:8,9,13 261:16,17 281:16 292:12 300:2 349:8 <b>awful</b> 247:19 <b>b</b> <b>b</b> 14:17 71:25 78:4 94:20 97:3 98:15 103:17,20 106:7 117:14 121:25 122:21 124:4 152:6 195:19 209:10 315:14 <b>b.v.</b> 108:15 170:10 <b>bachelor's</b> 27:7 37:15 <b>back</b> 25:18 33:21 33:23 34:24,25 35:5 36:3,3 38:8 40:21 47:15 48:15 50:4 57:5,5,21 58:14,21 59:18 60:23 61:1 65:23 68:18 70:25 76:15 79:22 89:2 94:13 100:8 101:10 103:24 112:24 115:14 123:6 124:24 126:10 137:1 143:21,22,22 144:15,24 153:4 158:3 164:18,20 176:1 180:1,2 187:13 190:22,22 205:7 210:1 219:16 219:17 229:22,24 238:1 240:10 241:24 244:2 247:7 248:19 250:9 251:2
---	--	--	--

CONFIDENTIAL

[back - belong]

Page 364

252:18,20 271:12 271:19 276:6 277:8 277:19 279:2 281:14 296:3 298:3 298:9 299:19 309:13,17 310:2,4 310:5 313:25 321:3 323:15 334:17 335:17 336:12,17 337:16 <b>backbone</b> 100:23 100:25 204:13 265:14 <b>backfilled</b> 60:23 <b>background</b> 125:12 138:25 144:15 211:2,3 338:15 <b>backing</b> 246:4 <b>backs</b> 309:17 <b>backside</b> 169:9 193:16 <b>backup</b> 47:19,21 53:17,18 157:12 <b>bad</b> 12:25 17:23 23:9 52:17 81:10 135:8,8,9 150:21 152:14 191:12 208:12 216:12 222:14 227:11 252:7,23 254:11 <b>badly</b> 127:24 <b>bajandas</b> 2:3 <b>balance</b> 20:22,25 177:4 <b>balled</b> 104:7 <b>ballpark</b> 48:17 54:9 <b>bankrupt</b> 79:14 <b>bar</b> 233:22,22,25 234:3,13 352:23	353:18,18,20,22 <b>bare</b> 91:8 <b>barrier</b> 60:17 <b>barry</b> 245:2 303:17 <b>bars</b> 352:22 <b>base</b> 32:23,25 37:18 111:9 131:5 190:5 212:12 223:18 257:24 286:14 308:13 310:20 351:16 <b>based</b> 28:14 65:9 65:13,17,17,18 70:1 75:21 83:23 89:15 104:19 110:9 111:23,25 120:5 123:12 126:5 129:23,25 134:16 152:1 167:14 182:17,18 184:22 204:14 212:10 218:14 224:11 225:19,19 248:12 255:2 260:22 264:14,17,17 306:2 308:1 310:16 312:14 338:18 345:1,2 <b>basic</b> 27:16 33:10 33:11 41:4,16 126:13 127:9 346:4 <b>basically</b> 22:10 35:11 40:1 43:14 43:14 50:19 52:3 83:20 91:15 103:2 150:13 294:6 323:3 <b>basics</b> 63:12 71:14 121:21 <b>basing</b> 84:21,23 85:8 183:13 185:9	<b>basis</b> 56:23 119:1 133:24 134:10 165:6 166:13 201:25 260:14 354:10 <b>bass</b> 183:11 270:25 272:23 273:16 <b>bass's</b> 289:10 <b>bay</b> 298:2 <b>bays</b> 299:21 <b>beer</b> 272:6,8 <b>began</b> 209:25 <b>beginning</b> 19:23 27:1 91:7 169:21 174:17 286:1 320:25 <b>begins</b> 215:12 <b>begun</b> 99:20 <b>behalf</b> 2:2,7 6:22 6:24 9:13,17 76:3 318:13 <b>belabor</b> 227:25 <b>belief</b> 170:17 171:15 186:12 233:18 238:1 257:24 262:15 281:7 312:16 327:3 <b>believe</b> 12:7,7,22 14:12 17:11,14 26:17 28:4 31:12 33:17 37:3 38:24 39:1,9,19,25 50:6 51:23 55:5 56:13 58:16 59:14 60:14 64:19 65:7 66:13 69:10 71:2,16 74:15 81:3,17 82:19 88:15 90:18 92:6,7 94:8 99:11 104:20 107:25 111:7 116:15	119:22 121:5 123:13 129:13,13 130:24 131:7,10 132:2,3 134:21,23 135:14 136:11 142:3 143:8 144:10 148:24 156:4,12 161:1,2,13,14,21 161:22,23 165:17 165:18,22 168:19 172:10 175:9 178:13,15 179:16 179:24 182:11 184:21,24 185:16 189:25 190:18 191:15,16 192:21 193:15 207:20 211:6,11 217:14 219:3 225:21,23 230:18,20,22 233:15 237:10 257:14 258:20,22 259:8 260:18,25 262:16 263:8,25 265:3,6 266:7,10 266:11 267:20 270:18 280:5,24 281:19 282:22 283:1 291:8 296:11 297:15 299:20 304:2,22 312:5 318:7 323:1 325:9 325:10 330:15 332:22 338:17 349:12 <b>believes</b> 123:19 <b>bell</b> 22:4,5,6 81:16 81:20 90:19,21,22 101:15,16 <b>belong</b> 194:8
--	--	---	--

CONFIDENTIAL

[belowground - box]

Page 365

<b>belowground</b> 60:3	294:11 304:6	91:18 137:10,21	<b>boiling</b> 139:20
<b>bench</b> 74:12,16	338:13 339:4	157:11,17,22 158:1	140:5
127:7	341:13	158:6,10,10,18,19	<b>boils</b> 224:2 294:18
<b>bernie</b> 22:6 197:12	<b>black</b> 180:17	158:22,25 159:2,6	295:1
<b>best</b> 9:8 35:25	227:22 246:23	159:7,11,13,15,16	<b>bomb</b> 42:15
86:23 119:7 122:7	303:9 315:10	159:22,25 160:2	<b>bonds</b> 162:7 262:10
140:13,19 154:20	336:13	161:10 189:10,12	<b>bones</b> 91:8
198:8 204:17	<b>blah</b> 176:20,20,20	222:7,21 223:11,13	<b>book</b> 126:25 145:9
287:21 341:15	<b>blank</b> 14:5 347:21	223:14,17,20,22,25	145:24 146:22
<b>better</b> 63:16 95:6	<b>blanks</b> 125:9	224:1,2,2,4,6,19	148:10 149:17
203:3 246:9 251:18	<b>blatant</b> 272:2	226:2 228:21 231:3	151:5 317:6 330:2
<b>beyond</b> 222:17	<b>blatantly</b> 155:2	231:3 237:16,23,24	330:6,9 338:25
225:22 229:15	<b>blind</b> 302:20	240:2 241:1,4	344:15,24
241:10	<b>block</b> 277:6 324:23	242:22 243:6	<b>books</b> 255:19,22
<b>bias</b> 225:14 268:18	<b>blocking</b> 193:22	248:21,22 257:3	344:23
269:2,14 328:1	<b>bloodbath</b> 57:25	272:3 279:14	<b>borrow</b> 29:13
<b>big</b> 53:1 84:16	<b>blowdown</b> 243:1,4	282:15 290:17,17	126:21 191:11
159:14 169:16	243:5 285:12,13	290:18,20 291:6,6	<b>boston</b> 81:18,19,20
203:17 204:16	<b>blue</b> 224:5 226:17	291:13 292:2,4,18	81:22 82:25 83:8
234:14 272:17	<b>board</b> 63:5,6 68:9	293:16 294:1	<b>bother</b> 199:5
278:25 285:23	<b>bob</b> 179:14	316:18 348:7,21,22	<b>bothers</b> 230:15
343:10 351:3	<b>body</b> 43:20,22	349:2,6,6,12,20,23	<b>bottle</b> 4:15 63:1
<b>bigger</b> 293:13	153:18 212:4	350:2,6,8,13,16,18	64:5 67:1,3,19
351:19,20	<b>bogus</b> 226:19	350:19 351:12,15	<b>bottom</b> 11:8 140:20
<b>bill</b> 23:10	<b>bohp</b> 291:6	351:15,17,21 352:3	195:10 267:19
<b>billets</b> 52:9	<b>boil</b> 240:2 241:2	352:5,6,11,15,16	268:5 272:14
<b>billing</b> 22:12 317:5	295:2,6	<b>boilers</b> 19:4,5 30:6	278:17 290:4
<b>bills</b> 22:13	<b>boiled</b> 241:12,18	31:7,8 32:2 40:19	300:16 333:10
<b>bing</b> 300:24	<b>boiler</b> 4:17 13:6	41:4,5 42:16,18	<b>bounce</b> 57:5
<b>biological</b> 306:18	19:3 20:17 37:25	43:15 46:8,14	<b>boundary</b> 163:18
<b>biothane</b> 71:22,24	38:3,5,9 41:14,15	47:20 53:9,22 54:5	<b>bowe</b> 14:17 88:10
79:9 80:2,5 81:2	41:18,19 42:14,15	54:11 55:4 56:11	<b>bowl</b> 52:20
<b>bit</b> 26:15 30:23	42:18,22,23 43:14	56:24 57:14,17	<b>box</b> 85:14,16,18,21
34:4,11 46:10	45:19,20,22 46:3,5	58:18,19 63:10	85:24 86:2,6
65:19 76:13 93:5	46:7,15 47:19,20	78:15 79:15,16	180:17 222:22
97:23 101:3,20	50:19,22 51:1,7	80:13,14 100:2	225:13 226:22
113:20 116:21,22	53:6 54:7,16,25	158:4 189:11 223:7	227:21,22 244:1
123:4,4 171:10	58:19 63:6,13,18	223:11 226:2	246:23 247:22
180:25 212:19	63:25 64:2,7,15,22	250:11 348:16	268:16,17,20,21
214:4,4 251:13	65:7 72:24 73:1,3	351:22	270:9 277:7 303:9
252:4,19 285:14	73:19 90:25 91:17		315:10 327:25



CONFIDENTIAL

[box - campus]

Page 366

328:3 335:6 336:13 <b>boxes</b> 224:5 226:17 226:21 <b>brain</b> 176:4 <b>brakes</b> 158:15 <b>break</b> 88:8 90:9,16 114:23 156:10,10 156:11 160:1 162:18 168:8 267:6 322:15 351:9 352:4 <b>breaks</b> 161:9 <b>brew</b> 272:8 <b>brewing</b> 272:6 <b>brickell</b> 2:9 <b>bridge</b> 60:2,8,25 61:1 <b>brief</b> 313:15 <b>briefly</b> 90:17 <b>bring</b> 8:25 9:6 10:6 35:17,19 53:23 87:22 330:7 <b>bringing</b> 160:6 257:18 261:4 <b>british</b> 135:22 <b>broad</b> 76:25 228:9 270:5 282:17 <b>brooks</b> 290:19 292:4 <b>brought</b> 9:2 10:23 24:16 70:12,23 71:6 88:2 121:15 144:3 258:10 320:9 321:15 322:16 329:18,22 330:4,5 339:23,24 340:2 <b>brown</b> 8:3 <b>bsme</b> 27:7 29:20 <b>btu</b> 136:8 272:2,11 273:22 278:23,24 290:7	<b>btus</b> 61:23 136:10 258:14 259:5 266:24 272:7,13 278:21 279:1 290:11,12 291:13 291:13 296:14,16 343:20 <b>bucks</b> 39:6 284:13 <b>bugs</b> 306:12 <b>build</b> 247:22 <b>building</b> 4:23 13:1 36:16 51:14,16,16 51:18 54:2,2,4,5,8 56:9 58:19,19 180:23 191:1 293:9 300:3 308:18 351:7 <b>buildings</b> 56:10 59:1 <b>built</b> 157:17 <b>bulk</b> 100:12 <b>bunch</b> 230:1 238:15 <b>buoyancy</b> 250:12 <b>buried</b> 60:23 84:13 84:14 225:10 <b>burner</b> 41:20 57:18 158:20,24,24,25 159:2 160:4 341:5 <b>burners</b> 57:17 <b>burns</b> 159:5 <b>burped</b> 13:9 76:15 <b>bury</b> 60:22 <b>business</b> 8:5 11:11 18:18,20 30:12 42:12 52:8 60:14 78:23 172:19,21 173:12 <b>busy</b> 21:16 <b>buttness</b> 85:1 <b>bv</b> 7:2	<b>c</b> <b>c</b> 7:7,19 59:19 152:6 195:19 228:5 228:20 229:6,13 234:22,24 235:6 236:22 282:24 315:14 <b>cable</b> 311:8,15 <b>cables</b> 83:13,14,14 83:22 84:7,23 <b>cadillac</b> 193:18 <b>cal</b> 86:3 266:12 <b>calcu</b> 181:16 326:14 <b>calculate</b> 61:20 139:19 218:24 265:9 266:13 337:10 <b>calculated</b> 61:21 84:10 219:6,7 245:14 255:3,14 265:6 271:22 <b>calculating</b> 219:2 <b>calculation</b> 84:19 87:2 152:23,24 202:1 207:10,12 218:8,17 278:18 286:18,24 291:15 302:19 305:23 306:2 307:11,14,20 307:22 310:3 326:2 333:1 335:13,13 346:4 <b>calculations</b> 77:7,9 80:16 84:2,4,5 146:25 181:11,17 258:11 271:4 272:14 274:19 277:12 289:20 290:17 291:11 296:24 297:6	302:14 326:15 330:21,22 332:3,5 332:12 334:13,14 334:20,21,23 337:20 339:6 346:1 <b>calibrated</b> 235:20 269:8 <b>calibration</b> 269:6 <b>call</b> 19:15 35:17,19 36:7 40:19 42:20 93:1 96:22,22,23 96:24 121:13,14 131:16 157:20 158:16,22,25 159:7 163:24 178:6 195:20 206:2 208:5 245:24,25 247:11 249:11 251:17 267:15 279:25 282:7 317:17 345:13 352:6 <b>called</b> 3:8 28:14 35:6 52:20 60:12 60:13,21 64:14 72:10 105:17 159:17 163:13 167:2 181:12 187:16 219:8,9 233:11 253:14 274:20 281:21 282:4 <b>calling</b> 245:20 <b>calories</b> 258:13,14 258:23,24 259:3,5 259:12,15,17 <b>camera</b> 192:6,7,16 192:18,25 193:1,2 322:4 345:16 <b>campus</b> 34:1,16 36:14 58:16,17,17 59:1 60:22
--	---	--	--

CONFIDENTIAL

[canada - cds]

Page 367

<b>canada</b> 14:5	67:20 68:21 69:4	183:20 185:5	242:24 243:25,25
<b>canceled</b> 198:22	71:20,21 72:6,7,14	201:17 227:19	247:10 249:3,23
<b>candidate</b> 211:5	72:16,17,19,23	236:2 237:21,23	250:5 251:6 252:8
<b>cap</b> 97:23	73:6,11,12,21,24	242:15 246:8 270:8	252:16 256:16
<b>capability</b> 56:13	74:7,10,21,22 75:8	287:2 304:4 314:24	257:3,6 258:17
57:15	75:10,13 76:4,8,11	320:3,20,22 323:12	260:17 261:15
<b>capable</b> 161:21,23	76:22,23 77:3,5,14	326:13 330:18	262:3 265:7,10
189:19 291:7,7	77:16,17,21,22,25	340:24 346:19	266:13,18 267:1,17
293:17 336:9	78:6,14 79:4,5,8,12	347:3,24	267:20 272:24
<b>capacity</b> 5:5 38:21	79:19,20,23 80:2,5	<b>cases</b> 17:6 19:9	278:11,13 279:11
56:12 171:18	80:6,9,9,17,21	20:8 22:20 63:9	279:15,21 280:14
272:18 274:16	81:15 82:1,3,4,24	69:10,14 70:4,5,15	281:8,16 287:10,12
<b>capital</b> 255:23	83:6,7,19 84:12	70:24 71:1,17	289:18,19 290:21
<b>caps</b> 302:13	85:6,13 86:14,15	73:17 74:12 75:13	291:1,21 292:12,19
<b>caption</b> 6:14 97:25	86:15,24 87:1,7,13	82:16 89:10 90:3	292:21 293:10,13
97:25 355:8	87:15,19 88:10,14	104:23,25 105:10	293:18 302:25
<b>car</b> 158:11,12,14	90:17,23,25 91:6	105:24	303:1 306:20 325:3
158:16	91:17,18 92:5,20	<b>casing</b> 245:11,12	332:24 334:4
<b>carbon</b> 74:22,25	93:3 94:21,25 95:3	<b>cast</b> 207:16 210:5	336:10 348:4,10
75:2,2,4,6	96:17,18 97:10,24	<b>casts</b> 171:10	351:11
<b>care</b> 246:25 248:9	97:25 99:21 100:9	<b>cat</b> 5:3 42:21 65:16	<b>cat's</b> 125:16
<b>career</b> 150:21	105:25 106:14	104:14 106:20	<b>catalonia</b> 2:4
202:21	107:7 108:14	107:13 112:24	<b>catalyst</b> 132:10
<b>carefully</b> 353:21	111:16 113:11,19	123:10,14,19	279:25 280:4,5,6
<b>carrier</b> 60:16 61:7	113:25 115:13	125:20 126:7,8	281:2,3,4,5
<b>carry</b> 61:19	116:24 117:4,9	129:4,18 136:16,19	<b>cats</b> 252:2
<b>carrying</b> 5:5 61:15	118:2 121:17,19	137:3,12,17 138:20	<b>causation</b> 155:25
125:2 274:16	122:10,17 123:1	145:17 156:5,13	<b>cause</b> 72:25 73:2
<b>case</b> 1:6 4:15 5:11	125:11 130:17,21	165:22,22 168:15	79:16 83:17 84:22
6:14,15,17 13:5,6	136:5,25 138:9,10	173:3 177:21,23	327:8 339:4 347:2
13:15,16 14:17,21	138:25 139:2,3,5	178:10,17,20	347:11 355:6
15:1,3,5,17,22	141:14 142:9 144:6	179:13 180:25	<b>caused</b> 79:18 88:18
16:10,14 17:1,13	144:13 145:16	181:2 188:19	171:4
17:15 19:22 20:4	149:22 151:10	189:14,18 190:16	<b>causing</b> 76:16
21:24,25 22:3,25	152:18 153:5,6,13	198:15 199:24	<b>cautious</b> 354:12
31:3,12,21,24	153:17 155:9,12,21	203:7 207:4 221:13	<b>caveat</b> 165:9
32:22 33:4,9 42:2	156:1,3 157:2,5	221:20 222:7 223:5	188:25 219:10
42:11 48:2,6 63:1	159:13 162:16	223:8,16 224:4,5,8	<b>cd</b> 338:24
63:17,23 64:3,3,7	163:22 164:25	224:10,23 227:21	<b>cds</b> 5:12 340:2
65:1,2,8,16 66:22	165:25 169:14	231:5,8 233:11	341:3,20
66:23 67:4,6,12,19	171:5 179:17	241:18,19,25	

CONFIDENTIAL

[ceiling - closed]

Page 368

<b>ceiling</b> 298:15,18 <b>cell</b> 6:4 192:24 193:2,3 214:10 215:8 219:20 220:1 220:2,24 233:7 <b>cells</b> 175:2 235:11 <b>celsius</b> 268:7,11 <b>center</b> 355:15 <b>centigrade</b> 59:21 <b>centimeter</b> 213:22 <b>central</b> 83:10 <b>certain</b> 8:25 10:6 52:10 75:14 90:1 154:8 155:23 156:6 161:16 163:15 194:6 195:12 209:7 306:12 337:19 338:1 <b>certainly</b> 128:2 175:21 178:23 204:18 243:12 270:4 321:20 325:7 <b>certainty</b> 232:2 <b>certificate</b> 49:24 355:1 <b>certification</b> 23:14 23:15 44:6 48:1,5,9 48:18,22,25 49:3,5 49:13,21 <b>certifications</b> 19:4 21:2 23:12 <b>certified</b> 7:10 <b>certify</b> 19:6 355:5 355:10 <b>cetera</b> 123:18 163:9 294:6 <b>challenge</b> 15:17,18 16:5 17:9 89:1 171:24 <b>challenged</b> 149:3	<b>chambers</b> 231:5 <b>chance</b> 153:23 251:7 <b>change</b> 163:4 165:15 167:4 184:18 186:14 192:16 193:1 231:10 238:4 266:21 267:7 294:12,16 325:14 335:12 347:11 357:5 <b>changed</b> 102:12 196:2 231:22 260:6 265:13 280:25 <b>changeout</b> 57:18 <b>changes</b> 98:1 102:1 128:4 141:3,6,9,11 262:9 345:14 357:4 357:23 <b>changing</b> 111:19 231:11 <b>character</b> 3:13 <b>charge</b> 22:22 23:19 23:20,23 50:17 <b>chart</b> 289:22 316:11 <b>charts</b> 61:18 210:23 <b>chase</b> 101:23 <b>cheat</b> 10:20 <b>check</b> 82:20 120:2 285:18 291:12,17 291:18 325:24 341:11,14 <b>checked</b> 103:16 120:21 121:3 264:3 307:4 349:5 <b>chemical</b> 123:15,16 128:8 159:3 160:6 161:25 162:1,1,3,6	162:9,15 258:24 259:14,20 260:12 279:18 281:4 <b>chemicals</b> 88:18 <b>chemist</b> 281:3 <b>cherokee</b> 6:25 <b>chillers</b> 32:2 <b>chip</b> 51:25 52:3,17 <b>chips</b> 52:14,18,23 53:5 <b>choose</b> 139:21 200:4 <b>chose</b> 254:10 <b>chris</b> 121:15 217:2 322:2 340:19,20 <b>christopher</b> 2:8 6:24 <b>chronologies</b> 92:7 <b>chunk</b> 114:24 244:14,15 <b>chunks</b> 114:24 <b>circle</b> 158:3 <b>circuitry</b> 269:13 <b>circular</b> 52:22 <b>circulate</b> 250:1 <b>circulated</b> 249:5 <b>circulating</b> 249:6 <b>circulation</b> 250:10 250:13 <b>circumference</b> 275:14 <b>circumstances</b> 67:19 75:9 76:23 79:18 <b>cite</b> 201:16 <b>cited</b> 68:4 129:1 <b>cities</b> 83:10 <b>city</b> 14:2 15:18,24 84:16 305:24 307:3 308:3,8	<b>civil</b> 355:13 <b>claim</b> 181:18 <b>claimed</b> 100:5 280:23,24 314:23 343:14 <b>claiming</b> 130:23 223:19 <b>claims</b> 104:4 174:25 334:11 <b>clarification</b> 273:24 <b>clarify</b> 110:19 205:13 305:9 <b>class</b> 43:14 44:5,8 45:15 48:4 49:21 49:23 <b>classes</b> 36:18 136:2 <b>classic</b> 211:20 <b>clean</b> 147:21 202:22,23 216:3 <b>cleaner</b> 352:20 <b>clear</b> 31:17 143:23 145:10 <b>clearly</b> 165:20 269:5 <b>cleaver</b> 290:19 292:4 <b>clerical</b> 103:17 <b>client</b> 105:9 238:22 254:13 <b>clients</b> 105:14 172:8,11,13,22,23 173:12 <b>clock</b> 209:8 <b>clomax</b> 2:10 <b>close</b> 55:10 139:16 246:24 250:21 267:21 291:19 <b>closed</b> 224:3 240:13 242:12 249:25 250:15,16
---	--	--	---



CONFIDENTIAL

[closed - comprised]

Page 369

250:18 251:18 298:12 341:10 <b>closeout</b> 157:16 <b>cma</b> 1:7 <b>coal</b> 34:13 37:25 38:3 47:18,19 157:11 160:7 161:17 162:2 279:18 <b>coast</b> 19:5 <b>code</b> 25:24 26:1,2 204:13,15 211:25 212:2,13,14 253:11 265:13,13 351:25 351:25 352:2 <b>codes</b> 25:20 157:20 <b>coefficient</b> 104:13 256:3 261:18 <b>coffee</b> 78:18,19 296:3,4,5 <b>cogenerate</b> 38:6 <b>cognizant</b> 42:17 <b>coil</b> 315:21 <b>cold</b> 61:9 316:5 335:16 <b>collected</b> 117:16 285:1 <b>collecting</b> 248:4 <b>collectively</b> 158:16 158:22 <b>colorado</b> 139:7,9 140:3 <b>columbus</b> 1:17 6:12 55:16 63:8 <b>column</b> 193:22 198:11 199:10 201:13,21 207:3,5 207:9 208:7,8 213:9 214:8,9 215:13,19 219:25 220:1,10,11,14,21	220:25 221:10 233:21,24 234:2 235:8 252:4 255:1 272:15 273:3 275:18 278:23 322:24 325:1 <b>columns</b> 195:15 196:20 235:11 271:24 272:1 324:22 <b>combination</b> 153:3 <b>combined</b> 162:4 <b>combustible</b> 258:9 <b>combustion</b> 39:18 75:2 162:5 <b>come</b> 10:19 19:22 34:24 52:14 55:19 57:2 75:21 86:11 86:21 87:3 94:13 110:8 126:10,24 134:4 139:13 155:5 155:6,11 164:18,20 165:8 170:25 173:17 180:2 201:18 205:7,11,17 206:15 209:2 216:3 217:24 219:17 226:11 244:1 246:8 247:15 250:18 252:18 277:15 278:19 279:2 289:25 307:1 312:9 312:17,19 316:13 317:14,21,21 334:17 342:16 343:21 346:10 348:12 349:19 352:1 <b>comes</b> 57:4 250:16 271:19 280:9,12 320:19 347:18	<b>comfortable</b> 337:22 <b>coming</b> 20:23 38:8 111:12 112:24 164:5,7,10,11 165:10 212:7 215:9 219:15 241:24 242:10 243:25 247:7,10,13,25 250:9 252:5,12,19 262:2 267:17 281:8 285:15,24 310:4 314:18 346:21 <b>comma</b> 141:18 <b>commander</b> 146:3 <b>comment</b> 212:10 212:12,20 332:17 333:18 <b>commented</b> 206:13 <b>commercial</b> 107:10 290:18 294:3 351:6 351:21,22 352:15 352:19 <b>commission</b> 355:22 <b>commissioned</b> 355:4 <b>common</b> 290:19 <b>commonly</b> 277:9 <b>commonplace</b> 278:6 <b>companies</b> 19:1 40:20 43:13 <b>company</b> 18:7,21 22:11 29:25 43:8 50:11 60:12 104:21 123:20 313:22 <b>compare</b> 116:15 162:14 291:1 292:18 293:8 295:10	<b>compared</b> 204:15 <b>comparison</b> 210:23 211:23 251:14 290:5 291:1 292:17 319:15 <b>comparison's</b> 293:5 <b>comparisons</b> 116:17 <b>compensated</b> 39:5 66:2 <b>competent</b> 13:20 <b>competing</b> 43:13 <b>compile</b> 316:25 <b>complaint</b> 106:9,13 106:19 107:5 169:5 <b>complete</b> 70:11 117:22 165:5 <b>completed</b> 353:4 <b>completely</b> 82:14 82:14 318:6,20 <b>complex</b> 58:20 59:3 <b>compliance</b> 9:9 <b>compliant</b> 9:11 <b>complicated</b> 320:20 <b>comply</b> 16:24 <b>component</b> 46:5 <b>components</b> 158:19 223:16 <b>composite</b> 339:25 <b>compound</b> 228:9 <b>comprehension</b> 202:8 <b>comprehensive</b> 48:12 <b>compressed</b> 317:2 345:12 <b>compressor</b> 256:13 <b>comprised</b> 136:21
---	--	--	---

CONFIDENTIAL

[computer - contained]

Page 370

<b>computer</b> 97:14 141:18 225:14,15 268:18 269:12 328:1 341:5 <b>concede</b> 171:13 325:20,21 <b>conceded</b> 325:13 <b>concentrated</b> 161:11,20 <b>concentration</b> 26:23,25 <b>concentric</b> 61:5 <b>concept</b> 54:20 294:13 295:25 <b>concepts</b> 137:7 <b>concern</b> 107:10 199:3 214:7 215:18 215:20 219:21,25 237:5,6 339:5 <b>concerned</b> 109:4 262:14 348:3,5 <b>concerns</b> 109:18 212:11 287:16,25 <b>concisely</b> 253:6 <b>concluded</b> 317:25 354:24 <b>conclusion</b> 75:21 84:3 126:6 134:4 155:9 173:17 205:12 206:16 212:8 217:25 219:15 226:12 227:18 253:2 262:2 269:24 308:2,13 309:5 310:20 312:9 312:17,19,20 316:13 343:22 344:11 349:19 352:2 <b>conclusions</b> 86:22 87:4 110:9 122:14	126:3 155:7,11 198:6 317:20,22 320:2 333:6 <b>concrete</b> 85:15 347:16 <b>condense</b> 85:18 <b>condensed</b> 166:24 <b>condensing</b> 47:16 <b>condition</b> 13:11 231:17 <b>conditioned</b> 256:7 256:8 <b>conditioner</b> 255:17 256:5,12 309:19 <b>conditioners</b> 30:6 <b>conditioning</b> 34:1 40:19 41:15,16 42:12 54:21 <b>conditions</b> 54:25 61:22 97:19 99:13 213:21 277:2 285:4 285:6 333:5 <b>conducted</b> 112:19 113:22 116:4 318:16,18 <b>conducting</b> 113:7 <b>conduction</b> 28:9 <b>conduits</b> 311:8,14 <b>conesville</b> 13:9 <b>conference</b> 317:17 <b>confident</b> 194:15 <b>confidential</b> 1:11 98:3,5 354:9,14 <b>confidentiality</b> 91:9 98:2,5,9,17 99:5,9 <b>configuration</b> 291:5 300:3 302:16 <b>confines</b> 229:1 257:17	<b>confirm</b> 133:16 194:7 283:4 <b>confirmation</b> 330:24 331:1 <b>conflate</b> 242:3 <b>conflating</b> 176:13 265:24 <b>conflict</b> 45:14 <b>confused</b> 127:13 334:7 <b>confusion</b> 87:18,21 89:14 <b>congested</b> 84:16 <b>connected</b> 252:8 <b>conrail</b> 14:17 88:11 88:16 <b>consent</b> 142:10 143:4 <b>conservation</b> 50:18 <b>conservative</b> 272:17 <b>consider</b> 31:9 33:1 37:22 87:7 110:1 138:23 162:10 258:24 262:2 <b>consideration</b> 259:6 <b>considerations</b> 64:25 65:5 <b>considered</b> 35:15 75:9 76:23 86:21 210:13 258:10 282:11 285:14 351:13 <b>considering</b> 162:8 162:19 183:10 203:15 <b>consistency</b> 288:2 <b>consistent</b> 125:24 <b>constantly</b> 247:13	<b>constrained</b> 154:13 <b>constraints</b> 174:16 175:3 <b>constructed</b> 312:4 333:25 334:25 348:13 <b>constructing</b> 51:18 <b>construction</b> 33:11 38:12 56:19 57:3 65:19 84:16 85:2,4 85:5,9,11 130:8 228:22 231:8 312:3 334:15 335:4,10 <b>consultant</b> 18:22 211:21 <b>consulting</b> 18:20 18:25 22:21 58:24 211:11 <b>consumable</b> 259:15 259:18 <b>consumed</b> 100:6 104:16 106:22 125:21 163:21 178:4,5 179:25 <b>consumes</b> 145:22 145:23 159:23 262:17 <b>consuming</b> 93:10 257:1 <b>contact</b> 92:4,12,14 350:1 <b>contacted</b> 22:2,7 90:19 92:8 93:2 254:19,19 349:17 <b>contain</b> 165:5 195:12 235:11 <b>contained</b> 9:13 63:21 66:15 98:15 124:4 135:3 146:24 148:10 149:9 162:4 164:11 196:25
--	---	---	--

CONFIDENTIAL

[contained - correct]

Page 371

292:12 301:2 <b>container</b> 292:13 292:24 <b>contend</b> 125:14 <b>contention</b> 156:19 315:2 <b>contents</b> 100:17 196:2 214:10 220:1 <b>contested</b> 66:15,18 <b>context</b> 157:10 236:16 237:18 <b>continually</b> 308:19 <b>continue</b> 6:7 103:11 175:5 247:22 <b>continued</b> 28:20 <b>continues</b> 111:23 <b>continuing</b> 26:9 28:20 40:15 48:21 <b>continuity</b> 274:20 345:3,4 346:4 <b>continuously</b> 298:8 <b>contract</b> 43:18 153:12 169:4 185:5 187:8 214:3 355:13 <b>contracts</b> 56:19 <b>contractual</b> 168:23 185:8 203:8,12 <b>contrary</b> 68:15 105:25 346:11 <b>control</b> 158:20 163:8 <b>controls</b> 176:20 <b>controversy</b> 130:20 <b>convection</b> 28:8 250:1 251:19 <b>convective</b> 223:2 <b>convenience</b> 103:17 276:10 <b>convention</b> 198:24 198:24	<b>conventional</b> 137:9 137:12,20 176:6,15 177:7,15,17,18 178:15 237:16,16 259:14 265:11 291:2 <b>conversation</b> 124:7 124:10 125:5 <b>conversations</b> 6:4 103:4,8 124:1 <b>conversion</b> 56:16 136:12 159:2 160:4 257:2,3,4 266:1,19 267:2 278:19 279:12,14,17 290:9 291:17 307:18 333:2,2 <b>conversions</b> 214:1 <b>convert</b> 57:14 128:16 195:21 196:2 229:16,17 257:6 277:10 <b>converted</b> 52:6 56:11 213:15 239:4 240:1 241:19 272:12 291:12 <b>converting</b> 57:16 160:7 279:20,24 <b>converts</b> 159:1,4 229:19 240:2 279:18 <b>conveyors</b> 52:6 53:3,4 <b>convinced</b> 222:5,7 347:9 <b>cook</b> 313:2 <b>cooking</b> 311:22 313:7,19 314:1,2 <b>cool</b> 78:20 250:3 286:10 296:5,13	<b>cooled</b> 240:9 294:4 308:4 <b>cooler</b> 250:9 <b>cooling</b> 177:5,14,16 294:8,11 295:20 296:9,10 300:17,20 300:25 301:14,16 307:22,23 308:12 309:6,9 310:1 314:20 <b>cop</b> 104:14 152:24 218:11,18,24 219:2 219:4,6,8,11 255:2 255:9,14,14,16 256:3 261:18 265:10,23,24 266:7 286:17,19,24 331:9 332:12,18 337:8 <b>copies</b> 5:12 8:15 10:24 95:25 147:18 147:23 341:2,6,8 341:20 <b>copy</b> 11:18 29:13 69:3 87:22 88:1 96:2,10 106:9 107:22 148:8 191:9 199:18,24 239:1 271:5,6,8 274:4 318:2 320:6 323:20 326:10 331:15,22 340:18 343:6 <b>copying</b> 342:3 <b>copyright</b> 68:9 <b>coral</b> 2:5 <b>corp</b> 123:20 <b>corporate</b> 55:22 <b>corporation</b> 1:4 6:23 194:5 <b>corps</b> 56:1 <b>correct</b> 9:19 11:7 12:1 18:6 26:14,18	33:19 35:9 36:25 39:12 44:13 45:16 45:25 47:4 52:1 58:10 59:17 60:1 64:17 68:22 69:12 69:13 71:2,5 72:21 73:23 76:9 79:10 87:10 90:20 96:16 97:13 99:7,14,17 99:22 104:24 106:10 108:25 119:13 120:3,17 122:15 123:11 125:18 128:6,11 132:18 135:13 136:17 139:12 140:3 148:12 149:8 152:1 156:14,14 160:6 162:11 163:1 163:10,21 164:6 170:1 173:1 174:11 178:4 180:5 182:20 183:3 184:7,8,11 188:19,20 189:10 192:4 193:21 194:10 196:9,14 198:17 199:2,4 201:2,4,7 205:4 207:23 214:11 215:1,4,17 216:19 216:23 221:6 231:15 233:19 234:5 235:12,13,17 236:18 237:3,11,13 239:15,19,21 240:6 240:7,11,12,16,17 241:2,3,9,20 244:16 247:15,16 247:20,24 248:1 254:12 256:17 258:25 259:5,19,21
---	---	--	--

CONFIDENTIAL

[correct - damage]

Page 372

259:24 260:2,6,10 260:13 264:4 266:9 267:1 268:7,9,12 274:10 276:19,22 277:21,25 280:18 283:13,15 284:4 289:21 293:20,24 294:10 296:19,25 298:15 301:4,24 302:8,23 305:25 306:1 307:23,24 308:5,6,10 319:1 324:3 326:17 331:12,13 332:5,6 332:9,25 333:7,13 334:10,12 335:14 335:25 336:2 337:2 337:20 338:5,5,9 340:3 342:18 355:7 357:23 <b>corrected</b> 205:20 268:3 340:23 353:19 <b>correction</b> 214:5 <b>correctly</b> 134:19 162:13 213:22 256:4 <b>correlated</b> 248:16 <b>correlation</b> 77:12 <b>corrosion</b> 73:2 <b>corruption</b> 323:10 <b>costs</b> 56:12 284:13 <b>counsel</b> 3:6 6:13 8:16 24:14 89:16 123:24 124:10,15 124:22 140:23 141:12 142:1 144:9 181:25 182:10 185:11 190:17 191:18,18,20,21 232:9 243:25	304:15 317:11 320:14 340:8,24,24 341:19 348:25 355:11 <b>counsel's</b> 89:21 <b>counselor</b> 17:11 <b>counterclaims</b> 174:25 <b>countersuit</b> 304:3,8 <b>country</b> 44:22 139:23 204:20 239:10 <b>county</b> 355:3 357:21 <b>couple</b> 9:7 23:17 28:15 36:17 39:6 53:2 55:14 58:9 63:9 94:5 95:8,10 98:1 127:18 144:22 216:16 226:14 284:12,13 285:21 285:22 309:16 339:17 353:7,15 <b>couples</b> 269:6,7 <b>course</b> 24:9,11 25:13 28:2,3,5,6,7 31:1 37:16 39:2,2,4 39:8,13,18,18,19 39:22,24 40:1,12 41:14 304:19 <b>courses</b> 27:13,15 27:20,23 28:1 37:1 37:4,7,14,17 38:17 40:15,17,18,20,24 41:2,3,13,15,17,18 41:24 42:4,6,8,10 43:2,12,16 <b>coursework</b> 27:12 37:10 38:13 <b>court</b> 1:1,15 6:16 7:3 11:5,25 12:3	13:19,22 14:10,14 14:24 15:7 17:15 17:16 74:1 83:1,3 100:16 175:20,23 340:17 341:17 342:1 355:12 <b>court's</b> 338:21 <b>courtroom</b> 12:13 <b>courts</b> 13:23 15:10 104:23 <b>cover</b> 28:7 53:4 100:19 169:9 304:10 <b>covered</b> 41:13 <b>covering</b> 195:4 <b>cow</b> 316:22 <b>crack</b> 82:15 <b>crap</b> 348:9 <b>create</b> 135:23 210:23 252:4 262:8 262:8 280:7 316:6 <b>created</b> 128:4 135:25 136:4 156:17 160:21 162:22 163:3 241:8 241:14,14,20 248:23 <b>creates</b> 145:21,22 150:4,5,11 <b>credibility</b> 123:4 <b>criteria</b> 114:4 115:25 <b>critical</b> 335:8 <b>critters</b> 266:2 <b>cross</b> 120:2,21 121:3 291:12,17,18 <b>crossed</b> 59:25 205:6 <b>crossing</b> 60:5 <b>crupper</b> 63:8	<b>crushed</b> 44:19 <b>crux</b> 236:23 <b>cubed</b> 213:13 <b>cubic</b> 213:14,15,19 213:22 244:9 245:7 247:12 307:10,17 <b>culmination</b> 152:19 <b>cummins</b> 55:14,16 56:2,4 57:24 <b>cup</b> 78:18,18 <b>curiosity</b> 324:7 <b>curious</b> 199:16 200:7 201:10,11,14 206:13,16 208:8 <b>current</b> 8:9 18:2 25:20 237:21,22 <b>currently</b> 82:17 112:7 <b>custodian</b> 88:16 <b>custody</b> 342:2 <b>customers</b> 272:5 312:2 <b>cut</b> 101:23 242:18 266:21 <b>cutaway</b> 179:12 <b>cutesy</b> 285:2 <b>cutouts</b> 348:20 <b>cutting</b> 52:15,18 <b>cv</b> 1:7 6:17 29:8,9 40:21 102:21 338:23,24 <b>cylindrical</b> 52:9
<b>d</b>			
<b>d</b> 2:15 4:1 6:8 7:7 8:4 195:19 355:13 <b>dacor</b> 105:18 <b>dade</b> 112:12 306:14 357:21 <b>daily</b> 207:4 <b>damage</b> 83:12,17 84:22 306:11			

CONFIDENTIAL

[damaged - depending]

Page 373

<b>damaged</b> 83:15	<b>dated</b> 97:6,6,7	<b>december</b> 92:9	61:9 116:20 151:15
<b>damaging</b> 83:22	125:15	<b>decide</b> 141:13	166:4 296:4 297:22
<b>damon</b> 172:19	<b>dates</b> 12:7	<b>decided</b> 25:19 38:2	297:23 306:3,4
<b>dangerous</b> 133:9	<b>daubert</b> 14:24	38:3	<b>degrees</b> 44:25
<b>danville</b> 67:7	15:11,17 16:5 17:2	<b>deciding</b> 286:23	59:15,16 78:20
<b>darden</b> 1:7 6:15,25	17:9,18 88:25 89:1	<b>decimal</b> 286:11,21	222:11 226:15
78:6 86:16 267:24	171:24	<b>decisions</b> 141:21	228:4,20 229:6
268:2 357:2	<b>dauberted</b> 15:3	<b>declare</b> 357:22	230:23 234:22,24
<b>data</b> 104:5,6,17,17	171:22	<b>declared</b> 223:16	235:6 268:7,11
115:3,19,23 116:16	<b>day</b> 2:8 22:7 40:25	<b>deeply</b> 41:17 188:6	282:24 294:18
116:23 117:11,16	42:20 43:15 52:17	282:22	306:7
117:21,23 118:1,5	56:23,23 57:6	<b>defective</b> 282:20,21	<b>delaware</b> 13:24
118:8,13,22 119:8	81:12,17 98:13,23	<b>defendant</b> 73:5	14:1,2 355:3
119:9,13,15,16,17	100:14 102:23	76:4 79:25 80:3	<b>delimited</b> 141:19
120:6,11,12 125:6	110:24 194:16	303:25 304:2,4	<b>delineate</b> 346:20
125:20 141:13,17	195:8 199:11 200:5	<b>defendant's</b> 155:6	<b>delve</b> 174:15
142:8,11,16,18	200:6,10,25 201:3	<b>defendants</b> 1:8 2:7	<b>delved</b> 282:22
143:7,25 144:5,8	201:5,6 206:3	4:9 6:25 108:14	283:9
146:4 170:21 190:6	207:7 208:4,6	174:24 232:9	<b>demonstrate</b> 48:10
190:11,12 195:13	209:12,22 214:9	<b>defense</b> 80:4	<b>denied</b> 14:23
195:13 196:8 198:7	222:3 296:15 318:1	<b>defenses</b> 174:25	<b>denominator</b>
198:8 202:21 203:1	318:1,7,22 319:7	<b>deficient</b> 108:1,5	198:22 265:21
206:19 207:1,17	327:10 339:17	108:24,25 262:20	<b>dense</b> 250:3,9
209:8 210:6,14,14	355:15	330:23	262:9
213:14 218:4	<b>days</b> 92:10 95:8	<b>define</b> 163:19	<b>density</b> 274:22
234:21 264:3	290:3 317:3,7	237:5	345:6,13
284:25 286:15,17	<b>dead</b> 53:17	<b>defined</b> 152:16	<b>denver</b> 43:10
286:21 318:10,12	<b>deaerator</b> 13:8	236:20 256:4	<b>deny</b> 194:7
323:4,5,5,7,8,9,16	76:14	355:13	<b>dep</b> 12:25 143:22
323:17,23 324:2,3	<b>deal</b> 78:14 169:17	<b>definitely</b> 34:15	144:4 197:15
326:7 328:7 341:9	351:14	77:23 106:23	270:25 289:10
<b>database</b> 71:12	<b>dealing</b> 30:3	138:13 141:8	324:7 343:25
<b>databases</b> 12:6	203:12	298:25 335:22	<b>department</b> 33:22
<b>date</b> 6:9 12:20	<b>deals</b> 21:2	<b>definition</b> 152:24	349:10,11,12
92:24 95:7 97:7,11	<b>dealt</b> 321:22	211:20	<b>depend</b> 54:12
141:20 143:18	<b>decay</b> 162:16 259:8	<b>definitions</b> 147:7	<b>dependent</b> 229:12
170:7 188:21	259:10,11	<b>degree</b> 26:16,19	<b>depending</b> 89:19
192:12,16,17,23	<b>decaying</b> 259:20,23	27:3,6,10,11 35:1,5	92:25 163:17
193:1,2 288:8	259:25 260:4	35:8,13,14,16,24	173:14 174:7
300:11 323:13	<b>decays</b> 161:9	35:24 36:2,4,6,8,21	292:11 294:11
324:22 357:25		36:23 37:1,5,10	301:14 311:15



CONFIDENTIAL

[depending - directly]

Page 374

351:13 <b>depict</b> 193:5 <b>depicted</b> 352:12 <b>depiction</b> 230:3 <b>depo</b> 357:2 <b>deposed</b> 10:17 67:13 87:15,17,19 <b>deposition</b> 1:11 3:7 4:8,10 6:6,11 8:12 9:21 10:10,15 11:13 12:17 15:6 17:14 29:14,16 62:16 64:11 67:13 68:25 69:15 70:6 74:24 96:7 103:21 111:17,20 135:2,12 143:25 148:2 159:10 191:5 199:21 202:4 234:15 274:6 304:15,20 320:11 322:12 329:15 331:20 339:20 340:6,25 341:22 353:4 355:8 357:23 <b>depositions</b> 11:2 15:2 23:1 111:24 131:8 134:21 <b>deps</b> 346:22 <b>depth</b> 186:19 188:11 264:6 283:10 <b>derived</b> 21:7 <b>describe</b> 42:22 230:5 238:20 266:17 281:23 294:2 300:5 <b>described</b> 80:11 266:4,12,16 281:16 308:25 315:6	<b>describes</b> 134:2 149:17 <b>describing</b> 130:25 <b>description</b> 4:6 5:1 101:22 123:9 130:5 131:22 134:3 149:19,21 229:23 302:7 305:19 <b>design</b> 18:25 19:1 20:20 22:22 23:8 23:20 25:19 33:10 58:24 105:8 310:3 <b>designate</b> 354:8 <b>designated</b> 169:7 <b>designation</b> 354:17 <b>designed</b> 203:5,7 204:16 249:20 <b>desirable</b> 167:12 <b>desired</b> 52:13 <b>desk</b> 21:5 <b>destroy</b> 306:11 <b>destroyed</b> 128:4 160:21 162:23 163:4 <b>detail</b> 92:21,22 93:5,7 121:20 261:12 288:23 <b>details</b> 34:22 52:5 333:17 335:5 <b>determination</b> 65:20 131:24 132:1 158:1 226:19 338:22 <b>determinations</b> 65:15 <b>determine</b> 84:8 86:4 108:11 125:20 157:22 181:11 203:7,22 228:3,17 240:19 254:1 275:25 305:23	336:5 349:3,4 <b>determined</b> 138:18 308:8 <b>determines</b> 175:20 259:2 350:13 <b>determining</b> 218:23 253:12 <b>develop</b> 104:14 <b>developed</b> 151:14 271:2,16 345:2 <b>device</b> 42:21 93:9 100:5 104:5 108:12 123:14 132:3 145:21 150:4 159:3 160:4 173:3 181:21 203:7,8 222:20 232:5 235:20,22 253:14 256:5,11 257:2,3,4 261:15 262:17 266:1,1,19 267:2 269:1,11,13 269:15,24 270:10 270:10 332:24 333:2,2,3 337:10 349:14,20 351:11 351:18 <b>devices</b> 235:25 266:7 348:15,21 <b>devising</b> 152:6 <b>di</b> 287:6 <b>diagram</b> 230:4 <b>diagrams</b> 231:23 <b>dial</b> 29:21,23,24 31:2,11,20 32:1 113:1 <b>diameter</b> 275:11,16 275:17 <b>diameters</b> 289:9 <b>die</b> 52:13 <b>died</b> 89:6	<b>differ</b> 155:14 <b>difference</b> 23:19 51:5 59:7 147:24 150:9,10 166:14 199:3,8 237:22 239:25 242:24 250:12 262:25 266:3,6,15 286:23 350:7 <b>different</b> 21:19 43:21,22 57:6 63:14 69:20 84:10 109:24 136:13 139:5 140:17 155:6 155:11 156:16 158:19 172:22 184:10 201:18 216:1,9,11,13 221:17 233:7,13 235:2 242:2 258:15 276:8 291:21 292:20,22,23 293:7 293:9,11,13,15 306:14 326:18 337:12 349:10 352:2 <b>differential</b> 59:5,10 316:6 <b>differently</b> 283:17 <b>difficult</b> 84:8 115:1 180:14 302:2 <b>dig</b> 109:21 114:6,10 212:16 288:15 317:14 <b>digit</b> 199:15 205:9 205:14 208:14 <b>digits</b> 201:13 <b>direct</b> 60:21 151:23 <b>directly</b> 31:20 64:1 122:6 193:17 233:17 276:20
---	---	--	---

CONFIDENTIAL

[directly - downstairs]

Page 375

323:8 <b>dirtier</b> 203:2 <b>disagree</b> 114:11,18 137:4,5 148:17,20 156:18 181:3 226:10 236:10 249:13 253:22 254:3,5 255:10 257:16 280:2,4 330:1,7 332:1,7,12 332:18 335:9 336:18 337:11 <b>disagreement</b> 203:15 257:17 266:19 275:2 <b>disagrees</b> 148:23 <b>discard</b> 24:7 <b>discharged</b> 195:1 <b>disclose</b> 16:13 110:12 <b>disclosed</b> 16:10 <b>disclosure</b> 5:9 16:18 <b>discovered</b> 51:24 52:25 53:3 <b>discovery</b> 22:25 23:21 111:23 346:21 <b>discrepancies</b> 263:9,12 <b>discrepancy</b> 212:11 <b>discs</b> 271:7 341:8 341:18 <b>discuss</b> 128:13 215:15 <b>discussed</b> 76:12 80:22 102:2 122:20 214:12 221:14 234:25 235:5 255:7 262:7 280:10 299:24 309:2	310:25 331:9 347:23 <b>discusses</b> 282:15 <b>discussing</b> 178:2 207:19 238:1 <b>discussion</b> 42:25 100:7 163:20 222:2 229:24 255:2 268:1 269:5 <b>discussions</b> 92:16 92:17 107:25 108:4 125:4 320:15,17 326:21 343:24 <b>dismissed</b> 304:11 <b>disparity</b> 278:25 <b>dispassionate</b> 169:25 <b>display</b> 196:3 <b>disposal</b> 262:1 <b>disposition</b> 238:24 <b>dispute</b> 326:19 333:23 <b>dissenting</b> 155:19 <b>dissertation</b> 36:24 211:6 <b>dissipate</b> 85:19,24 297:20 <b>dissipated</b> 86:2 181:12 303:1 <b>dissipation</b> 78:14 78:16,24 79:2 80:18 181:6 <b>distance</b> 267:20 298:23 <b>distinction</b> 263:4 350:11 <b>district</b> 1:1,2 6:16 6:17 <b>divide</b> 200:8 201:6 201:20 209:14,22 215:25 266:24	<b>divided</b> 208:7 255:19 256:8 265:22 266:8,25 267:3 290:7 <b>divides</b> 199:11 <b>dividing</b> 201:17,22 <b>division</b> 202:1 349:23 <b>dock</b> 193:9 299:19 <b>document</b> 4:12 8:17,22,25 9:25 11:16 24:3 63:3,22 64:22 69:2,21 70:1 71:13 94:20 95:5 95:22 96:14 98:9 98:22 99:6,8,16 100:12 106:18 107:15 109:9,12 125:25 131:14 146:15 148:4,5 149:10 197:8 313:16 322:18,25 323:3 325:9 328:17 329:19,22 348:24 <b>documentation</b> 44:24 65:10 70:12 71:6 93:22 188:18 189:1,8,22,23 319:18 <b>documentations</b> 70:23 <b>documents</b> 5:11 9:1 9:5 10:6 20:5 24:6 24:8,13 66:10 94:7 94:24 97:2 98:15 99:3 103:6,18,23 106:8 110:13,21 111:2,6,10 112:11 112:13,15 121:25 122:20,22 124:2,3 129:11 141:23	168:20,23 169:2,4 169:6 223:15 312:4 313:14 317:8 321:15 322:16 329:18 339:23 <b>doing</b> 18:25 25:19 25:21 31:21 32:15 37:21,23 75:24 102:24 105:7 127:15 157:22 203:13,18 205:21 210:1 211:20 215:10 218:3 257:8 286:24 293:4 304:24 310:2 324:3 328:13 339:6 353:21 <b>dollars</b> 23:13 <b>dome</b> 229:25 <b>door</b> 193:7 299:19 299:20,22 <b>doors</b> 158:14 298:3 298:12,12 299:13 <b>doral</b> 65:12,16 138:12 180:5,8 193:8,9,25 194:4 243:9 263:22 290:24 294:1 297:2 318:15 <b>dose</b> 133:12 <b>dot</b> 274:23 276:3 <b>double</b> 268:24 269:17,20,20 343:18 <b>doubt</b> 19:23 87:20 207:16 210:5 241:10 284:15 <b>downloaded</b> 238:21 <b>downstairs</b> 193:13
--	--	--	---

CONFIDENTIAL

[dozens - either]

Page 376

<b>dozens</b> 140:17,17 <b>dr</b> 5:10 6:23 40:7,8 125:15 126:25 127:1,2,3 136:9 148:21 150:18 151:24 152:11,14 161:1,2,3 167:9 169:23,24 170:14 171:3,3,5,15 173:2 178:25 179:15 181:17 185:10,19 188:25 189:4 195:1 196:12 197:13 205:18 215:15 220:8 221:1 230:11 235:15 260:25 263:14 302:9,14,22 315:6 325:14 329:5 330:8 331:14 333:6 333:19 334:10,11 334:13 335:1 336:8 336:21 337:20 343:24 <b>draft</b> 158:21 <b>drafts</b> 75:1 <b>drain</b> 243:8,9,16 247:15 248:21 <b>drained</b> 243:5 <b>draining</b> 248:8 <b>drains</b> 243:15 248:9 309:19 <b>draw</b> 13:17 163:18 227:18 <b>drawing</b> 14:5 178:18,21 347:21 <b>drawings</b> 77:10 83:25 181:16 182:4 224:13 231:24 <b>drill</b> 57:3 278:13 <b>drilled</b> 188:5	<b>drink</b> 217:10 <b>drive</b> 117:6 154:10 319:8 <b>drives</b> 94:5 97:5 103:1,15 <b>drivetrain</b> 158:15 <b>drop</b> 78:1 277:7,7 343:16 <b>drops</b> 139:17 311:8 311:14 <b>drum</b> 159:16 <b>dry</b> 52:18,19 159:19 248:22 352:20 <b>dryer</b> 51:25 52:3 52:17 <b>dual</b> 39:1 56:12 57:14 <b>duces</b> 4:8 <b>due</b> 14:3 175:3 183:12 214:4 245:9 343:11 <b>dug</b> 60:22 188:5 <b>duke</b> 333:19 <b>duly</b> 7:10 355:4,5 <b>duties</b> 22:9 32:3 34:17 50:15 56:6 <b>duty</b> 32:13 58:4	177:21,23 178:10 178:17,20 179:13 180:25 181:2 188:19 189:14,18 190:16 198:15 199:24 203:7 207:4 221:13,20 222:7 223:5,8,16 224:4,5 224:8,10,23 231:5 231:8 233:11 241:18,19,25 242:24 243:25 247:10 249:3,23 250:5 251:6 252:2 252:8,16 256:16 257:3,6 258:17 260:17 261:15 262:3 265:7,10 266:13,18 267:1,17 267:20 268:24 269:17,20,20 272:24 278:11,13 279:11,15,21 280:14 281:8,16 287:10,12 289:19 290:21 291:1,21 292:12,19,21 293:10,13,18 302:25 303:1 306:20 325:3 332:24 334:4 336:10 348:4,10 351:11 <b>e3</b> 71:21,23,24 79:8 81:1 <b>e3v</b> 80:2,5 <b>earlier</b> 24:1 40:2 76:13 153:10 157:15 206:21 229:22 230:18 268:14 277:14	341:25 <b>early</b> 20:5 92:15,17 92:23,25 93:1 105:3 143:20 146:8 148:14 159:10 <b>earnest</b> 92:16 <b>easiest</b> 136:12 <b>east</b> 58:16 <b>eastern</b> 79:13 <b>easy</b> 203:22 204:1,1 337:18 <b>echo</b> 71:24 <b>edgell</b> 72:20 <b>edition</b> 5:8 146:9 329:20 <b>education</b> 26:9,16 28:20 37:11 40:15 45:2 48:21 66:7 122:5 <b>educational</b> 211:3 <b>effect</b> 65:6 92:3 107:6 109:23 117:8 117:10,12 142:8 173:15 176:5 190:5 287:1 293:3 <b>effective</b> 213:10 220:11,22 <b>efficiency</b> 158:1,2 162:9 163:19 177:6 177:17 242:16 265:7,9 266:13 267:1 333:1 <b>either</b> 17:4,18 26:6 51:9 53:21 68:3 70:5 73:16 74:3 82:17 105:4 143:10 152:11 161:23 162:2,15 170:24 172:15,17 209:8 232:24 247:15 253:23 294:8
---	--	--	---



CONFIDENTIAL

[either - entitled]

Page 377

295:20 300:19 333:16 349:25 <b>el</b> 114:12 <b>elaborate</b> 174:14 <b>elected</b> 122:22 <b>electric</b> 178:15 <b>elective</b> 28:4 <b>electric</b> 117:25 132:7 141:17 176:16,17,19 178:16 225:12 256:12,14 257:14 257:21 265:19 268:17 284:24 327:14 <b>electrical</b> 26:1 117:23 118:1 123:17 128:9 157:25 176:21 177:3,13 256:17 257:6 261:3,3,6 279:25 280:4,10,18 281:9 327:25 <b>electricians</b> 26:1 <b>electricity</b> 34:14 51:7 257:18 279:19 285:15 <b>electromagnetic</b> 128:10 <b>electronic</b> 124:1 268:17,21,24 269:1 269:11,13,15,21 <b>element</b> 114:13,19 116:6 <b>elementary</b> 4:17 64:15 65:6 <b>elements</b> 257:12 259:11 320:6 <b>elevation</b> 138:16,17 138:18 139:8,22	<b>email</b> 122:2 303:17 313:18 320:3 <b>embargo</b> 38:2 <b>emit</b> 131:3 <b>empirical</b> 225:3 <b>emphasize</b> 219:8 <b>employed</b> 355:11 <b>employee</b> 211:10 211:19 355:10,11 <b>employees</b> 18:9,12 120:1 <b>employer</b> 8:9 <b>employment</b> 18:3 31:2 34:24 50:5 57:20 <b>enable</b> 162:11 <b>enclosure</b> 309:22 <b>endeavor</b> 309:21 <b>ended</b> 50:6 <b>energy</b> 5:3,3 50:18 54:10 93:10 100:5 104:15 106:20,22 107:14 125:21 128:3,6,13,16,19 128:25,25 129:2 130:13 133:21 138:20 145:21,22 145:23 150:4,11 158:9 159:2,3,4,23 159:23 160:4,6,8 160:10,11,12,21 161:7,11,12,20,25 162:1,1,3,6,10,15 162:25 163:3,7,9 163:20,23 164:4,5 164:7,8,9,10,11,11 168:15 176:6 177:4 177:9,20,22,23 179:25 199:11,24 199:24 200:9,12,18 200:22 201:15,23	203:23 207:3,4,7 207:22 208:2,6 209:22 214:9 220:1 235:9,19,20 244:5 256:19,22,23 257:2 257:3,4,7,7 258:11 259:3,7 260:8 262:8,9,17 266:1,8 266:8,19 279:11,12 279:14,16,17,18,20 279:24 280:1,1,7,9 280:10,15,18,18 281:8,9,9 293:18 305:25 308:23 332:23,23 333:2 <b>engage</b> 38:18 <b>engaged</b> 110:22 <b>engagement</b> 21:24 83:19 110:18,19 <b>engagements</b> 11:9 21:13 22:21 <b>engineer</b> 18:14 25:9,10 30:1 33:24 33:24 35:6,14 37:13 44:9,13 48:4 49:24 50:14,19,21 58:5,7,8 89:18 101:4 109:6,7 125:15 128:24 132:3 151:15 157:12,13,14 160:25 161:14 168:22 176:24 206:7 210:25 217:11 218:3,6 226:13 245:14,24 248:18 259:9 272:2 281:4 282:19 296:21 313:17,17 318:9 320:5 330:13	<b>engineer's</b> 44:5 226:14 <b>engineered</b> 51:24 <b>engineering</b> 8:10 18:5,10,19,20,22 19:1,8,13 20:21 22:11 26:24 27:8 27:21 28:25 33:22 35:8 37:4 45:11,13 49:21 51:2 56:9,10 56:18,20 57:14 58:24 75:14 86:18 127:14 153:18 172:16,20 226:14 253:13 255:21,23 274:21 315:12 334:23 339:3,8 <b>engineers</b> 5:7 23:8 25:2,24 80:15 152:10 153:12 154:8,11,17 157:20 230:2 329:19 <b>english</b> 118:9,10 119:3,4 120:15 213:25 273:4 290:10,10 <b>enhances</b> 281:5 <b>enrolled</b> 36:9 <b>enter</b> 251:16 280:6 281:6 296:14 357:4 <b>entered</b> 99:12 294:7 295:17 357:24 <b>entering</b> 99:23 <b>entire</b> 24:16 34:16 217:4 233:8 <b>entirely</b> 182:18 246:11,16,18 352:2 <b>entities</b> 124:8 <b>entitled</b> 4:12 69:7 111:16 126:13
--	---	--	--

CONFIDENTIAL

[entitled - exhibit]

Page 378

168:15 175:22 198:11 199:10 207:3 213:10 214:9 215:13 221:10 235:9 255:2 282:14 289:18 <b>entry</b> 207:11 <b>environment</b> 62:3 296:18 297:19 <b>epa</b> 44:6,11 47:22 49:5,7 50:1 <b>equal</b> 155:10 <b>equals</b> 198:16,18 208:1,1 220:24 248:3 274:22,23 276:3,6 345:5 <b>equation</b> 274:21 336:18 345:3,4 346:5,8 <b>equilibrium</b> 62:9 <b>equipment</b> 30:18 32:2 101:22 123:8 123:13,17 156:17 200:14,17,21 280:11 309:16 <b>equivalent</b> 37:22 307:17 <b>erika</b> 121:15 <b>errata</b> 357:1 <b>erroneous</b> 262:23 263:2 <b>error</b> 155:16 <b>errors</b> 216:2 341:5 <b>erv</b> 106:25 168:23 233:24 287:16 <b>erv's</b> 287:18 <b>escape</b> 298:4,5 <b>essay</b> 48:15 <b>essenhigh</b> 38:23 40:7,8	<b>established</b> 110:20 314:20 <b>estimation</b> 207:13 <b>et</b> 1:7 6:15,15 71:22 71:25 86:16 123:18 163:9 294:5 <b>ethanol</b> 79:13 <b>ethically</b> 305:10 <b>ethics</b> 45:7,8,9,13 <b>evaluate</b> 106:6 142:12 185:25 <b>evaluation</b> 5:4 106:13 108:6,9 125:23 183:15 199:25 312:7 <b>evaporate</b> 223:21 223:24 <b>event</b> 225:7 <b>eventually</b> 257:9 257:10 <b>everybody</b> 158:12 250:2 <b>evidence</b> 102:22 183:7 190:4 221:21 227:15,17 243:23 251:4 257:23 300:11,12 310:21 310:22,23 313:1 315:4 319:18 348:17 <b>exacerbate</b> 345:21 <b>exact</b> 12:20 25:17 89:17 138:18 199:12 201:20 207:6 208:7 240:7 293:5 302:16 311:12 <b>exactly</b> 31:16 32:19 55:3 61:18 89:17 102:16 138:16 147:11 191:24,24	243:21 289:25 <b>exactness</b> 203:6 <b>exam</b> 43:17 44:15 44:18,21,23 45:8,9 45:15 48:12,13 49:8,10 <b>examination</b> 7:12 66:21 114:16 <b>examining</b> 65:6 <b>example</b> 23:7 78:17 139:6,11,25 141:16 141:21 144:20,21 151:24 152:17 155:24 163:22 176:14 177:1 178:1 178:1 201:16 220:2 240:25 256:16 280:11 315:24 <b>examples</b> 139:6 142:22 144:22 300:14 <b>exams</b> 26:5 <b>exceed</b> 229:6 <b>exceeds</b> 268:11 <b>excel</b> 195:14,16,18 195:21 197:7,14 205:22 271:2 323:8 323:24 325:22 <b>exception</b> 256:24 267:16 330:19 331:13 334:13,19 <b>exceptions</b> 255:6 <b>exchange</b> 30:18 31:5 159:8 181:5 <b>exchanged</b> 305:2 <b>exchanger</b> 30:22 30:25 31:13,15,25 32:5,11 33:11,12 159:12 160:2 180:4 180:8 181:1,12,15 182:8,19,24,25	183:2,14,16 184:1 184:7,9,13,15,17 190:8,15 294:9 295:21 301:23 302:3,4,10 303:2,9 303:10 307:24 308:25 315:3,5,10 315:11,11 331:8 333:24 334:11,16 334:24 335:11,22 336:6,13,14 337:13 337:15 347:17 <b>exchangers</b> 28:9 30:6,7,8,8,8,11,14 31:7,8,10,11 32:1 159:11 180:13 296:9 335:17 <b>excuse</b> 38:1 89:20 93:15 100:11 150:2 296:11 343:13 346:13 348:4 <b>executed</b> 99:19 <b>executing</b> 99:4 <b>exhaustive</b> 142:21 144:23 <b>exhibit</b> 4:6,7,9,12 4:13,14,16,19,20 4:21,23 5:1,3,5,6,7 5:9,11,12,13 8:12 8:15 9:4,6,13,21,24 11:13,16 29:14,16 62:16,19 63:4 64:11,14 68:25 69:2 94:8,17,20 96:3,7,10 97:3,3 98:15 99:16 100:8 103:17,20,20 106:7 106:8 117:14 121:25 122:1,21 124:4 147:18 148:2 148:4 191:5,8,13
---	---	--	--

CONFIDENTIAL

[exhibit - facts]

Page 379

199:21,23 271:10 274:6,8,15 304:10 309:15 316:11 322:12,17 326:12 328:20 329:15,21 331:20,23 339:20 339:25 340:6,9 341:22 342:1 343:6 343:19 <b>exhibits</b> 102:21 342:21,23 <b>exist</b> 54:16 229:13 231:14 327:18 <b>existed</b> 181:15,21 182:16 196:22 302:11 315:1 327:15 334:11 336:3,6 <b>existence</b> 347:17 <b>exister</b> 336:6 <b>existing</b> 349:2 <b>exists</b> 54:18 181:19 226:16 290:21 314:2 336:1 <b>expand</b> 58:24 214:3 <b>expands</b> 345:20 <b>expansion</b> 58:12 272:18 <b>expect</b> 207:10 208:13 209:21 220:16,25 244:21 309:23 <b>expediting</b> 10:21 <b>expense</b> 38:5 <b>expenses</b> 23:2 <b>expensive</b> 272:18 <b>experience</b> 44:24 66:8 69:8 122:6 134:12 136:22 137:22 151:2	152:19 154:3 207:1 228:1,16 312:15 316:18 339:3,8 346:14 <b>experiment</b> 152:6 <b>expert</b> 4:19 5:9 13:20 14:7,9,13,16 14:21,24 15:12 16:11 17:3,19,22 17:25 19:2,8,20 20:13 21:9 22:21 23:5 24:5 67:3 69:3 69:7 74:1,5,9 75:4 81:25 82:18 84:9 88:24 89:11 91:23 94:21 101:10 104:25 105:12 114:12 116:5 127:16 151:25 168:19 170:25 171:18 172:13,18 189:10 211:9,13 223:12 226:2 313:7 314:1,6 316:23 319:12 321:4,5,13 <b>expertise</b> 127:16 131:25 314:10 346:14,15 <b>experts</b> 155:5,6 <b>expires</b> 355:22 <b>explain</b> 202:15 207:12 225:5 328:15 <b>explained</b> 303:10 <b>explanation</b> 202:4 225:9 328:24 <b>explanatory</b> 324:23 324:24 <b>expressed</b> 68:16 167:4	<b>expresses</b> 168:22 <b>expressing</b> 68:15 214:24 <b>extensive</b> 210:10 <b>extensively</b> 185:19 <b>extent</b> 31:9 93:16 113:13 124:15 134:9 <b>exterior</b> 62:7 223:6 <b>external</b> 62:3 222:21,22 226:25 227:3,4 <b>extra</b> 70:12 205:23 284:13 <b>extracts</b> 147:22 159:8 <b>extremely</b> 343:17 <b>extrusion</b> 52:7,11 52:11  <b>f</b>  <b>fabiani</b> 116:15 286:15,16 <b>fabiani's</b> 141:17 190:11 <b>fabio</b> 109:6,7 125:15 304:8 <b>facilities</b> 51:22 56:5 306:17 310:17 313:18 <b>facility</b> 53:25 65:12 88:17 117:7 123:16 131:21 136:17 163:24 164:4,6 180:5,8 184:23 193:9,11,16,25 194:5,9,13 243:10 243:14 248:5 290:24 297:2 298:3 299:17 300:23 305:22 307:5 308:20 309:1,13	310:24 311:11 312:4 313:20 <b>facing</b> 193:8 <b>fact</b> 17:8,8 29:9 34:5 74:25 93:8 115:12 125:21 127:8 135:7 149:4 165:25 169:6,10 170:13 171:14 173:2 179:24 180:3 182:18 183:14 184:1 185:18 190:7 195:3 196:12 207:25 209:17 214:13,17,17 215:10 217:11 218:6,10 225:24 226:1 236:8,10 248:25 254:13 257:1 260:3 261:15 277:23 280:15 284:8 289:13 292:24 299:1 306:23 308:1 312:6 314:3 315:5 317:16 318:1 327:18 348:6 350:8 <b>factor</b> 272:13 285:18 307:18 <b>factory</b> 54:8 312:18 312:19 <b>facts</b> 75:9,20 76:22 86:20 138:24 139:1 139:3,5 155:12,25 164:24 190:4 221:21 225:19 249:1 269:23 312:13 330:24 331:2 333:22 337:19 338:3
--	--	--	---

CONFIDENTIAL

[factual - first]

Page 380

<b>factual</b> 67:19 331:11 <b>fahrenheit</b> 55:6 59:17,19,20 230:24 294:18 <b>fail</b> 79:18 <b>failed</b> 79:15 254:7 254:10 <b>failure</b> 63:18,20 64:3,4,6,23 72:25 72:25 73:19 79:16 79:17 253:23 <b>fair</b> 19:2 136:22 175:9,12 206:19 244:13 258:9 305:17 <b>fairbanks</b> 14:4 <b>fairlawn</b> 72:20 73:8,10,21,22 74:14 <b>fairly</b> 52:19 194:15 <b>fall</b> 19:25 206:21 <b>falls</b> 130:23 <b>falsified</b> 154:24 155:3 <b>familiar</b> 68:14,17 88:6 130:18 150:16 151:2 155:19 158:12 187:11 306:15 <b>family</b> 55:15,17 <b>fan</b> 298:21,25 299:6,10 300:8 315:24 316:1 <b>fans</b> 158:21 163:16 176:19 296:10 <b>far</b> 28:18 36:5 65:10 74:2,11 96:25 100:13 108:1 109:3 118:25 122:6 129:20 131:23	143:23 195:19 230:16 260:11,14 262:13 280:15 286:24 322:23 326:4,22 330:22 332:3,18,19 334:21 335:6,21 337:9 339:6,7 351:12 352:3 <b>fashioned</b> 48:16 <b>fast</b> 269:21 317:4 <b>faulty</b> 237:10 <b>fearless</b> 348:9 <b>feasibility</b> 38:11 <b>february</b> 1:14 3:1 6:9 98:25 99:9 130:4 168:1 195:7 207:9 288:5,5 354:23 <b>fed</b> 52:23 <b>federal</b> 14:10,12,14 70:10 83:1 <b>fee</b> 48:25 97:19,23 99:12 147:14 261:18 <b>feed</b> 58:18,22 59:2 252:1 <b>feeding</b> 252:10 <b>feeling</b> 217:21 <b>fees</b> 26:12 <b>feet</b> 54:8,9 138:12 138:14 139:8 272:16,21 275:23 276:19 292:6,7,10 <b>fellow</b> 38:22 <b>fellow's</b> 179:13 320:4 <b>fellows</b> 303:13 <b>fellowships</b> 28:11 38:15	<b>felt</b> 108:1,4 <b>ferrara</b> 187:16 188:8 <b>fiberoptic</b> 83:13,14 84:7,23 <b>field</b> 131:25 150:24 228:1 <b>fifth</b> 19:11 <b>figure</b> 51:20 152:6 229:25 354:17 <b>figured</b> 319:25 <b>file</b> 5:11 24:16,21 196:13 318:12 341:14 <b>filed</b> 106:10 <b>files</b> 141:18,19 195:14 <b>fill</b> 57:6 125:6 <b>filling</b> 125:9 320:25 <b>final</b> 5:4 106:25 118:5,13 119:2,17 138:20 168:15 173:3 185:10 199:25 215:1 318:13 <b>financial</b> 349:12 <b>financially</b> 355:12 <b>find</b> 16:2 41:25 43:3 74:1 88:7 95:12 134:25 149:20 167:11 183:1 188:23 201:19 208:8 313:9 317:13 320:3 336:4 339:25 342:22 344:14 <b>finding</b> 95:4 216:23 333:24 <b>findings</b> 33:9 184:18 217:3,6,13 314:21 330:20	331:14 332:10 336:25 337:9 <b>fine</b> 103:9 217:17 244:12 249:13 293:2 330:14 348:16 <b>finish</b> 102:18 135:6 309:24 311:25 353:6 <b>finished</b> 21:5 <b>finishing</b> 353:15 <b>finite</b> 114:12,12,19 116:6 <b>fire</b> 25:2,23,24 41:20 72:8 <b>fired</b> 34:13 37:25 38:3 105:9,19 157:11 159:1 <b>firefighters</b> 25:24 <b>firm</b> 16:7,9 58:24 81:12 92:13 355:12 <b>firmly</b> 222:5,6 <b>firms</b> 20:21 <b>first</b> 7:10 8:16 10:23 14:11,11 22:2 46:17 57:20 57:24 62:25 63:3 72:2 79:19 81:13 81:14 88:23 89:8 90:18 100:20 106:7 121:10 125:1 127:19,19,21,22 128:2,2 137:8 143:17 145:10 147:7 150:3,4,10 150:11 160:20 161:4,24 162:19 168:14 172:9,9 207:19 219:18,24 229:9 235:10 249:10 273:3 279:9
--	--	---	--

CONFIDENTIAL

[first - formula]

Page 381

280:2 290:16 296:12 305:18 318:9 324:21 325:6 334:14,19 355:5 <b>firstenergy</b> 13:7 72:1 76:8 77:17,25 78:13 79:23 81:2,4 <b>fissile</b> 161:6 <b>fittings</b> 243:23 <b>five</b> 20:8 56:9 62:20 80:22 81:9,10 199:13,15 201:13 205:9,14 208:14 317:3,7 <b>fixed</b> 251:1 <b>fixing</b> 243:22 <b>fl</b> 2:5,10 <b>flame</b> 159:4,5 223:3 <b>flash</b> 94:5 97:5 103:1,15 <b>flat</b> 23:13 317:3 <b>flaw</b> 258:5 <b>flawed</b> 248:10,12 248:13 282:20,21 <b>flaws</b> 339:10 <b>fleischmann</b> 130:18 <b>flip</b> 344:24 <b>flood</b> 242:10 <b>floor</b> 8:6 180:21,23 181:13 243:17,19 321:22 350:21,24 <b>floors</b> 88:16 <b>florida</b> 1:2 6:17 111:3 117:16 123:10 129:10 131:14 133:3 134:14 207:16 210:4,9 212:8 318:10 319:15	349:1,8,11,11 350:3,4,14 351:12 351:17 357:21 <b>florida's</b> 349:22 <b>flow</b> 59:8 77:10,13 77:24 78:2,8,9 80:18 112:18,24 204:3,6 213:13 215:16 218:7 235:21 236:6 238:9 238:11,12,13,17,25 239:3,5 240:17 241:7 250:13 251:10,22 253:9,24 262:22,22,24 263:16 264:12 265:15 270:12 271:21 272:2,3,11 272:11,16,21 273:13,18,21 274:22,23 275:10 275:12,23,25 276:13 278:5,10,23 283:17 285:9,11 288:2,6,11,21,22 289:1,4,6 306:20 307:9 318:17 319:16 336:14 343:9 344:13,14,18 344:19 345:5,7 <b>flowed</b> 213:10 215:13 220:11,14 <b>flowing</b> 77:23 251:15 <b>flows</b> 61:8 <b>fluid</b> 59:8 78:3 221:12,13 253:9 307:22 336:15 344:13,14,15,16,17 344:18,20 345:6,6	<b>fluids</b> 78:16 136:7 <b>flushing</b> 52:21 <b>flying</b> 322:1 <b>focus</b> 37:9,9 41:11 <b>focused</b> 234:19 <b>follow</b> 16:12 50:4 54:1 146:13 153:4 275:8 280:15 281:14 <b>followed</b> 150:21 <b>following</b> 31:16 130:19 295:15 <b>follows</b> 7:11 <b>foot</b> 61:17,24,24 121:22 158:6 292:11,13,15,24 <b>force</b> 52:12 231:10 <b>forcing</b> 59:12 <b>foregoing</b> 355:7,8 <b>forget</b> 16:6,8 246:21 252:13 307:18 <b>forgive</b> 30:9 154:2 170:22 <b>forgot</b> 133:18 232:24 <b>forgotten</b> 327:12 <b>form</b> 15:14 33:5 66:16 69:17,25 73:13 78:25 97:20 97:22 98:7 111:21 112:4 123:25 128:4 128:16 129:21 132:19,24 154:16 154:25 156:8 159:4 160:12 161:6,20 163:4 166:15,16,17 167:9 171:6 172:3 179:3 182:21 183:21 184:3 185:6 185:14,22 187:9	189:15 192:19 196:15 197:5,7,14 203:9 205:2 206:9 206:17 209:18 211:16 214:15 215:2 216:24 217:15 218:1,12,15 220:6 228:6 229:5 229:6,6 232:10,22 234:10 239:14,17 240:21,22 247:13 248:2 254:22 256:21 268:6 279:20,20 280:10 282:9 294:22 295:13 304:25 310:13 311:19 312:11 316:14 319:2 334:5 337:4 337:24 338:19 344:14 347:4,13,25 357:23 <b>formally</b> 95:2 <b>format</b> 100:14,16 197:6 323:24 325:22 <b>formation</b> 75:6 <b>formed</b> 74:25 75:3 126:4 188:14 <b>forming</b> 85:12 106:14 116:8 151:11 152:20 <b>forms</b> 128:6,13 <b>formula</b> 86:13 152:17 215:9 219:20 220:3,5,16 235:15 255:15,16 265:20 276:2 325:25 326:2 335:14,19 344:13 346:6
---	---	--	--



CONFIDENTIAL

[formulas - gentleman]

Page 382

<b>formulas</b> 120:8 152:21,25 196:21 215:7 220:18 235:11,13 274:18 <b>formulate</b> 32:21 <b>formulated</b> 122:9 122:17 285:19 288:9,18 <b>formulating</b> 116:18 118:1 122:3 149:21 152:17,18 179:19 194:19 232:4 263:1 283:11 <b>fort</b> 19:24 <b>forth</b> 39:4 44:25 57:5 59:19 75:1 76:1 77:11 91:10 96:25 101:11 102:20 107:10 111:24 122:6 124:24 155:10 171:1,9 174:8 184:2 190:6 195:19 203:25 209:6 210:1 211:25 222:4 229:23 245:11 257:12 263:8 271:13 293:12 297:16 301:15 335:5 336:17 338:23 342:15 348:8 350:20 <b>forthcoming</b> 232:7 <b>fouling</b> 30:22 <b>found</b> 13:19 15:1 15:11 17:17 74:9 81:14 89:2 95:22 105:21,25 115:11 116:23 179:20 205:9 263:8 286:8 289:10	<b>foundation</b> 218:23 <b>four</b> 12:23 16:17,22 20:7 23:2 54:9 55:23 58:6 69:10 70:4,9 71:3 81:7 89:10 90:6 151:15 193:18 286:11 300:1 <b>fourth</b> 109:5 198:10 <b>fp&amp;l</b> 111:13 116:16 210:17,24 281:10 <b>fp&amp;l's</b> 210:14 <b>frame</b> 12:22 16:1 16:15,16 18:1 50:3 89:17 324:11 <b>frankly</b> 183:1 <b>fraudulent</b> 155:3 189:24 190:3 <b>free</b> 23:22 154:16 <b>friday</b> 135:4,15 <b>friel</b> 22:6 92:12 98:4 <b>friend</b> 55:13,13 <b>front</b> 11:18 158:25 168:10 180:22,23 191:1,9 193:6,7,8 193:13 299:21 304:10 322:4 341:18 <b>fuel</b> 47:17 56:12,12 57:14 158:15 159:3 161:18 162:4,5 164:12,14 258:9 259:10,11 <b>full</b> 7:17 9:8 252:17 317:7 <b>fully</b> 111:24 148:21 <b>fulviani's</b> 322:22 <b>fumes</b> 88:17	<b>function</b> 205:23 <b>functioned</b> 184:15 <b>functioning</b> 184:17 <b>furnace</b> 52:5 53:1 72:8,9,11 <b>furnaces</b> 50:20 <b>further</b> 41:12 45:2 85:19,19 112:2 114:16 167:11 207:16 210:5 212:15 231:15 270:18 294:5 355:10,12 <b>fusing</b> 260:4,4 <b>future</b> 175:7 <b>fuzzy</b> 217:21 <b>g</b> <b>g</b> 7:7 <b>gables</b> 2:5 <b>gabriel</b> 320:5 <b>gallon</b> 351:5 <b>gallons</b> 272:8 307:5 307:8,16 308:2 351:2 <b>gas</b> 47:18,20 159:1 159:5,6,8 160:3,7 239:16 241:2,19 258:21 279:19 345:12,14 <b>gaseous</b> 166:15 239:17 240:21 241:13 <b>gauge</b> 138:3 237:17 271:17 283:25 353:18,18,20,22 <b>gauges</b> 283:19,20 <b>gazillion</b> 161:16 <b>gen</b> 104:17 <b>general</b> 27:10,11 28:8 31:4 43:12 48:7 66:12 75:18	76:1 80:10,12 86:17 97:22 100:2 104:18 105:7 130:24 149:19 154:19 336:19 348:7 <b>generally</b> 30:5 41:7 41:11,13 44:22 63:24 75:22 100:3 128:3,20 137:18 155:7 195:12 235:24 248:1 <b>generate</b> 38:8 51:7 51:8 159:22 161:15 177:2 224:3 <b>generated</b> 116:14 135:12 177:4,20,25 181:7 235:19 254:2 259:12 297:20,24 298:7 317:8 <b>generates</b> 130:6 160:11 177:11 <b>generating</b> 38:9 158:9 189:19 204:16 <b>generation</b> 34:3,14 47:10,13 160:11 <b>generator</b> 157:23 158:2 <b>generators</b> 280:12 <b>generic</b> 91:11,12 126:15 127:5 130:25 136:3,15,18 137:2 138:23,25 139:1 140:16 229:23 281:22,25 290:19 337:14 <b>generically</b> 140:22 144:17 <b>gentleman</b> 13:7 55:18 76:13 88:15
---	---	--	--

CONFIDENTIAL

[gentlemen - gotten]

Page 383

<b>gentlemen</b> 244:22 314:15 <b>genuinely</b> 156:21 <b>germane</b> 24:19 <b>getting</b> 37:15 92:19 216:1 217:10 327:10 330:23 <b>give</b> 10:23 11:22 15:6,20 29:9 33:13 36:11 41:10 43:7 70:13 78:17 96:10 113:17 116:22 125:9 138:13 144:14,18 146:21 147:17 151:19,20 154:20 166:8 201:7 217:21 230:2 260:8 269:21 270:19 280:17 282:6 290:5 292:17 299:14 300:4 303:4 313:22 315:12,23 316:21 317:11 319:9 320:7 <b>given</b> 25:11 32:22 54:11,19 142:17,22 200:9 239:7 271:21 271:21 272:19 276:13 338:1 355:6 <b>gives</b> 121:4 149:19 <b>giving</b> 20:12 63:12 181:3 185:3 270:1 317:19 <b>glad</b> 221:23 313:5 <b>glass</b> 195:4 299:23 <b>glorified</b> 132:7 <b>go</b> 6:7 12:8 14:3 15:21 19:5,24 20:1 34:25 35:5 36:16 36:18 41:17 43:4 52:19 57:5 59:18 62:1,24 88:5 89:20	95:14 98:6 101:10 102:17 106:16 119:11 122:19 126:13 128:12,15 128:24 139:5,17 143:21,21 149:25 156:23 159:16 163:5 164:15 165:23 177:14 193:25 201:13 204:13 212:22,23 213:5 217:18 220:18,19,22 222:3 233:23 238:25 242:8,11 243:7,17 249:23 250:17 251:8 260:13 266:22 268:15 270:23 271:4,12 273:20 277:23,24 278:17 293:22 294:2,13,17 295:23 296:1,2,6,11,16 298:14 300:5,7 305:22 307:21 308:11,12 309:13 310:1 320:8 321:23 322:2 326:25 329:7 330:22 332:3 334:22 335:17 336:11,17 337:6 342:5 351:5 354:7 354:19 <b>goes</b> 24:10 53:17 62:5 181:5 195:20 229:24 233:17 238:1 242:7 250:16 250:18 262:5,5 271:18 277:23 286:24 302:18 323:14 326:22	345:17 <b>goesinta</b> 242:4,7 <b>goesintas</b> 242:6 285:3 <b>goesouta</b> 242:3 <b>goesoutas</b> 242:5 285:3 <b>going</b> 8:14 9:23 10:2 11:16 19:23 20:1 31:6 34:23 37:12,13 42:19 50:4 52:16 61:10 61:14 62:18 64:13 65:21 69:2 78:12 78:20 83:25 85:22 87:19 88:4 91:23 92:10,11 93:16,18 94:13 95:7,7,11 96:2 98:19 100:6 102:5 103:3 108:3 111:18 116:22 123:6 127:8 132:8 133:1,1,8,22 135:21 137:5 142:10 143:4,4,22 143:23 144:15 145:2 149:12 152:7 153:22 161:11 164:4,9 166:8,10 168:9 176:24 177:4 177:7 179:22 180:1 181:19 183:6 190:13 191:7 192:23 199:8 204:11 208:16,19 210:1,20 215:23 219:4,9,17 226:7 230:3 237:14,14 238:19 242:22 246:22 247:13,14 248:2,6,19 249:11	249:25 250:8 251:13,16,17,19 252:16 253:21 254:12 255:11 256:13 267:15 272:7 276:15 277:19 279:2 280:7 282:12 286:11,25 294:24 295:3,4,8,9 296:5 297:25 298:6 298:7,8,8 299:3 300:6 301:25 309:18 310:4 313:8 313:10,12,13,25 316:5,8 317:3,23 320:8 322:17 325:20 326:23,25 332:17 333:15 337:15,16 339:24 341:1 343:2,8 345:15,21 346:15 347:6,7 350:25 352:15 <b>goings</b> 202:6 234:18 <b>golly</b> 67:8 <b>good</b> 7:14 26:12 40:11 48:18 49:13 91:25 122:19 150:18,21,23 154:20 167:17 196:10 198:7 200:6 202:7 212:1,17 244:15 272:17 282:23 330:9 344:15 <b>google</b> 300:24 <b>gotcha</b> 220:4 287:14 <b>gotten</b> 21:15 101:5 264:23 354:13
--	--	---	--

CONFIDENTIAL

[gown - heat]

Page 384

<b>gown</b> 278:17	<b>h</b>	319:8 320:1 347:6	123:2 132:6,7
<b>grab</b> 344:24	<b>h</b> 7:20 71:25	347:7	136:7 150:1 152:22
<b>grabbed</b> 144:24	<b>hackman</b> 14:20	<b>harder</b> 215:6,9	159:4,8,11,11,17
<b>grade</b> 28:15	89:3,5	<b>hazards</b> 42:16	160:2,3,8 161:9,9
<b>grading</b> 39:4	<b>half</b> 43:15 49:12	<b>head</b> 41:23 61:20	161:10 170:9
<b>graduate</b> 29:2,4	280:3	113:5,9 142:21	177:12,14,16 180:4
38:18 39:14,22	<b>halfway</b> 324:9	145:4 249:16,21,24	180:4,7,13 181:1,3
40:5,10,13 151:15	<b>hand</b> 8:16 83:12	<b>headed</b> 320:1	181:4,4,5,7,8,11,12
<b>graduated</b> 29:6,19	107:12 145:21	<b>heading</b> 18:22	181:14 182:7,19,23
<b>grain</b> 133:23	192:13 270:24	<b>headings</b> 325:1	182:24 183:2,14,16
<b>gram</b> 213:23	272:15 296:12	<b>health</b> 88:18 348:5	183:25 184:7,9,13
<b>graph</b> 140:1,7	322:23 343:5	<b>hear</b> 197:17 202:4	184:14,17 185:11
<b>graphical</b> 230:3	355:15	290:23	190:8,14 195:1,14
<b>graphing</b> 311:22	<b>handelman</b> 101:19	<b>heard</b> 130:9 150:19	204:25 211:8,11
<b>gravity</b> 250:14	102:24	176:10 185:16	214:4 222:24 223:1
251:10	<b>handelson</b> 121:15	243:22 269:4	223:2 224:23
<b>gray</b> 182:13 246:22	<b>handled</b> 248:5	311:21,21,22,23	225:22 226:25
<b>great</b> 288:23 339:1	<b>handleman</b> 16:21	313:19 314:13	227:4 229:18,19
<b>greater</b> 106:21	<b>handles</b> 18:15	<b>hearsay</b> 131:16	242:17 245:1,4
<b>greatly</b> 286:19	<b>handwritten</b> 4:12	313:24	246:19 250:2,2
291:21 292:20,22	<b>happen</b> 93:12	<b>heat</b> 7:1 27:23 28:3	251:19 255:17,20
293:7,9	131:22 225:3	28:6,8,9 30:4,6,7,7	255:21,24 256:5,6
<b>greek</b> 28:23	312:23 315:22	30:7,8,8,11,14,18	256:9,14 257:18,20
<b>gritty</b> 121:24	316:8 347:7	30:20,21,25 31:5,6	258:9,12 259:10,11
<b>gross</b> 176:16	<b>happened</b> 63:13,13	31:8,10,10,12,14	265:25 267:2
<b>grossly</b> 154:19	103:14 130:19	31:15,25 32:1,4,8	277:11 278:14
<b>ground</b> 61:1	140:18 231:21	32:10 33:11,12	284:16 287:10,12
<b>grounds</b> 69:23	247:2,5,6 249:6	37:7 51:14,16,18	289:19 293:23,25
<b>growing</b> 58:21	270:17,21 301:20	51:24 52:18 53:4,7	294:3,6,8,13
<b>guaranteed</b> 106:21	308:18	60:19,20 61:8,10	295:17,20 296:1,6
185:4	<b>happening</b> 109:16	61:15,16,23,25	296:9 297:11,12,20
<b>guard</b> 19:5	230:5 316:11	62:5,7,8,9 78:14,16	297:20,24 298:4,7
<b>guess</b> 31:15 61:4	<b>happens</b> 257:10	78:22,24 79:1,2,4,5	298:14 299:5,12
95:6 115:14 203:3	293:23	80:6,17,17,18	300:8 301:23 302:3
210:11 304:6	<b>happy</b> 254:20	83:12,15,21 84:6	302:4,10,11,24
324:20 333:15	320:7	84:25 85:18,23	303:2,6,8,9 305:25
351:1	<b>hard</b> 16:9 71:10	86:2,5,8 100:2	307:24 308:4,9,12
<b>guy</b> 16:5 129:10	95:4 120:20 134:25	108:15 113:21	308:19,19,23,24
153:2 154:9 170:22	181:19 183:7	114:5 115:4 117:15	312:22 314:22
171:22 292:11	234:18 269:21	117:18 118:4,21	315:3,5,7,9,10,11
320:1 339:1	299:15 300:4 317:4	119:6,16 120:10,20	315:13,20 318:16



CONFIDENTIAL

[heat - illinois]

Page 385

331:8 333:2,24 334:2,3,11,15,24 335:10,16,21 336:6 336:6,9,12,14 337:13,15 347:17 350:7 <b>heat's</b> 118:18 119:20 120:13 318:11 <b>heated</b> 54:23 85:23 222:17 224:9 229:15 240:20 250:6,8 298:8 <b>heater</b> 73:3 132:7 159:8 227:6 257:15 261:4,6 350:15 <b>heaters</b> 75:1 225:9 225:12,12 227:13 268:16 327:13,14 327:14 350:19 <b>heating</b> 33:25 34:13,15 47:9,11 51:4,8,9,16,22 72:3 74:6 231:6 <b>heats</b> 78:21 85:18 222:22 224:20 345:20 <b>height</b> 292:9 <b>held</b> 6:11,16 <b>help</b> 31:15 46:2 63:13,15 89:19 102:18 115:22 119:15 131:13 140:19 160:1,15 162:18 164:8 193:12 194:2 287:11 333:8 335:3 <b>helpful</b> 10:21 <b>helping</b> 91:2 101:19	<b>hereinafter</b> 7:10 <b>hereto</b> 355:11,11 <b>hereunto</b> 355:14 <b>hey</b> 55:18 91:25 92:10 304:24 316:23 324:16 344:1 <b>higgins</b> 179:14 <b>high</b> 1:16 6:12 14:3 231:1 249:14 270:2 297:25 343:17 345:12 352:6 <b>higher</b> 273:12 345:12 351:4 <b>highest</b> 139:22,24 <b>highlighted</b> 272:22 <b>highly</b> 91:1 262:9 354:8,14 <b>hold</b> 8:18 12:4,9 81:8 83:13 208:19 210:21 222:12 257:5 273:1 314:12 314:12 <b>holding</b> 252:1 <b>holds</b> 68:9 <b>hole</b> 253:19 <b>holiday</b> 73:19 <b>holy</b> 316:22 <b>home</b> 8:2,7 24:20 72:8 <b>homework</b> 335:18 <b>honest</b> 155:14 <b>honorary</b> 28:25 <b>honors</b> 28:11 38:14 <b>hood</b> 158:14 <b>hope</b> 176:7 227:23 243:11,12 289:25 <b>hopefully</b> 249:20 <b>horsepower</b> 290:17 291:6,13 292:4,18 351:20	<b>hospital</b> 58:20 59:3 <b>hot</b> 13:9 19:4 51:8 52:19 53:21,23 61:9 73:2 76:14 78:15 159:5,6,19 166:7 223:21,24 224:3 281:24 295:9 295:24 296:1 298:6 306:10 349:14 351:15,18 <b>hotter</b> 295:8 296:2 <b>hour</b> 23:1,2,11,19 49:12 53:11,12,14 53:20 55:16,17 186:3 198:16,18,20 205:10 208:1,5 209:8 239:11,12 244:10,16 245:7 247:12 272:7 275:19,20,21 276:18 277:1,3,20 277:24 290:12 291:9 296:15,16 307:5,8 308:2 <b>hour's</b> 244:19 <b>hourly</b> 22:23 201:7 201:25 317:5 <b>hours</b> 23:17 36:18 46:21,22 48:11,11 48:17 186:6,7,8 198:16,18,20,21,22 198:22,25 199:1 208:6 290:7 <b>house</b> 50:20,22 54:7 211:19 350:15 <b>huge</b> 38:5 133:12 133:23,23 210:9 302:13 303:3 332:4 334:16 <b>hugely</b> 238:5 293:14	<b>huh</b> 29:18 32:9 93:20 119:21 121:9 127:20 137:11 145:25 178:8,14 199:13 209:13 233:4 255:4 296:22 <b>human</b> 203:17 <b>hundred</b> 23:11 36:17 39:6 61:24 90:1 161:17 177:2 228:4,20 252:15 <b>hundreds</b> 286:22 <b>hung</b> 60:7 <b>hurry</b> 342:4 <b>hydraulic</b> 52:12 <b>hydraulics</b> 253:9 <b>hydride</b> 258:19 <b>hydrides</b> 281:2 <b>hydrogen</b> 258:4,7,8 258:8,21 261:4 265:18 281:2 285:24 <b>hypothetical</b> 241:15,16 242:20 244:3 248:19 <b>i</b> <b>ice</b> 4:18 64:16 <b>idea</b> 132:6 140:10 146:8 275:11 303:19 <b>identical</b> 43:23 264:1 340:3 341:3 341:3,15 <b>identified</b> 9:5 100:9 327:7 <b>identifies</b> 175:1 <b>identify</b> 6:20 153:15 196:20 322:18 <b>illinois</b> 29:22 44:3 44:20 45:4
--	--	--	--

CONFIDENTIAL

[illustrate - input]

Page 386

<b>illustrate</b> 139:12 140:14 216:17 294:18 295:23 <b>illustration</b> 140:19 177:1 290:18 <b>illustrations</b> 126:23 <b>image</b> 135:22,23 136:3 192:18 <b>imagine</b> 66:18 122:12 152:10,11 256:1 <b>imbalance</b> 248:3 <b>immaterial</b> 352:3 <b>immature</b> 320:24 <b>immediately</b> 201:21 243:2 347:18 <b>immense</b> 260:8 <b>impact</b> 287:3,4 <b>implemented</b> 56:21 <b>import</b> 203:17 204:22 <b>important</b> 258:24 335:7 <b>importantly</b> 336:3 <b>impossible</b> 84:12 84:20 86:4 150:6 224:25 225:2 <b>impression</b> 70:8 <b>improper</b> 88:20 188:9 201:23 202:1 270:20 <b>inability</b> 253:23 <b>inaccurate</b> 115:4,7 115:9,12,15,17 <b>inadvertently</b> 9:9 <b>inception</b> 19:12 <b>inch</b> 273:16,17,19 273:20 274:8 277:23 310:4,8,10	<b>inches</b> 273:6 275:6 275:11 <b>inclination</b> 283:8 <b>include</b> 71:3 98:3 122:5 199:17 235:20 345:22 <b>included</b> 126:5 129:12 289:7 <b>includes</b> 235:23 <b>including</b> 36:1 <b>income</b> 21:7,12 <b>incoming</b> 73:1 312:3 <b>incompressible</b> 214:3 <b>inconsistent</b> 207:15 210:4,7,17 212:8 <b>incorporate</b> 182:5 <b>incorrect</b> 116:23 152:1 331:3 336:25 337:9 339:12 <b>increases</b> 277:21 <b>independence</b> 200:5 <b>independent</b> 104:4 110:9 131:9,12,24 170:23,25 211:9,13 211:21 213:7 317:22 318:6,20 319:23 330:24 331:1 <b>independently</b> 133:16 283:4 317:24 <b>indiana</b> 50:9 55:16 <b>indicate</b> 156:17 234:16 239:3,6 257:24 270:8 276:12 307:7 309:21	<b>indicated</b> 132:11 218:6 225:6 241:23 272:23 333:25 <b>indicates</b> 130:2 251:4 270:13 328:11 <b>indicating</b> 113:1 <b>indicative</b> 196:13 <b>indifferent</b> 150:22 <b>indulge</b> 126:2 <b>indus</b> 278:7 <b>industrial</b> 7:1 18:24,24 42:13 108:14 117:15,18 118:4,18,21 119:6 119:16,20 120:10 120:13,19 123:2 170:9 185:11 195:14 204:25 211:8,11 243:14 245:1,3 284:16 296:8 309:15,21 310:17,24 312:15 314:3 318:11 339:8 352:18 <b>industry</b> 17:25 204:19 253:11 272:20 278:7 316:19 <b>inferring</b> 111:18 253:16 <b>inflation</b> 24:2 <b>influence</b> 75:1 <b>inform</b> 185:12 <b>information</b> 15:20 16:3 63:21 94:6,23 103:19 104:3 106:7 109:25 111:12 112:1 117:11 119:12 122:2,7 123:13,23 124:14	124:20,25 126:15 138:15 139:14 140:2 142:4 146:10 146:14 148:17,22 149:9 165:8,10,13 170:17 179:18 189:24 190:16 210:15 232:9 238:21 249:2 263:11 271:7 278:9 302:22 306:6 317:9 317:14 318:22 319:9,21,25 328:5 332:4,8 334:9,12 334:25 335:25 336:20,23 337:1,21 341:3,7 347:1,10 354:14 <b>informed</b> 107:20 107:23 204:24 205:4 340:3 <b>infrared</b> 84:25 <b>initial</b> 109:6 110:17 317:17 340:16,19 340:20 <b>initially</b> 118:16,23 280:24 <b>initials</b> 340:11,11 <b>injuries</b> 91:19 <b>inlet</b> 306:3 <b>inn</b> 73:19 <b>inner</b> 61:6,14 <b>innocent</b> 234:7 325:13 <b>input</b> 119:12,16 120:11 157:24 163:23 241:21,24 242:18,19 245:20 245:25 246:2 248:15,17,18 252:20,22,24 253:2
---	---	--	---

CONFIDENTIAL

[input - issued]

Page 387

253:14,15,15,17,25 256:17 257:7 258:2 258:7,8,11 265:19 266:8,25 267:3 268:3 269:12 271:17 280:8 284:21 323:7 332:23 <b>inputs</b> 246:20 265:18,21,22 284:23 <b>inputted</b> 277:7 <b>inserted</b> 227:12 <b>inside</b> 13:8,13 60:16 73:2 76:13 131:21 176:25 224:14,16 226:16 227:8,22 231:12 247:22 251:6 256:7 309:21 336:15 <b>inspect</b> 123:10 <b>inspection</b> 65:12 143:1,16,17,19 167:10 349:9 350:2 <b>inspections</b> 349:7 350:23 <b>inspectors</b> 63:7,14 <b>install</b> 301:15 <b>installed</b> 184:14 301:24 <b>instant</b> 63:23 64:3 64:3 65:2,8 67:20 72:17 75:10,13 77:21,22 <b>instruct</b> 9:12 103:3 <b>instructed</b> 10:5 <b>instructing</b> 103:7 <b>instructor</b> 38:18 <b>instrument</b> 285:4 <b>instrumentation</b> 203:25 204:5 279:5	282:15,19 <b>instruments</b> 282:17 285:7 <b>insulated</b> 61:7,17 <b>insulation</b> 60:16,18 61:3 62:5,6 225:10 <b>insurance</b> 18:16 <b>integrity</b> 155:10 286:21 <b>intellectual</b> 91:9 <b>intend</b> 331:17 <b>intended</b> 104:15 176:12 <b>intentionally</b> 221:14 <b>intents</b> 336:5 <b>interactions</b> 259:13 259:13 <b>interchangeable</b> 128:14 <b>interchangeably</b> 51:10 <b>interest</b> 45:14 324:20 <b>interested</b> 25:22 91:2 272:10 320:4 324:13,17 349:14 349:16 355:12 <b>interesting</b> 15:21 199:9 200:8 202:18 205:9 258:3 286:7 286:13 313:4 <b>interfere</b> 6:6 <b>interior</b> 311:5 <b>intermediate</b> 315:15 <b>internal</b> 71:12 176:18 250:13 275:11,11,15,15,16 280:13 300:3	<b>international</b> 7:2 108:15 170:10 <b>internet</b> 133:11,18 134:24 138:1 140:8 169:22 170:3,6 178:18 179:10 188:23 <b>interpretation</b> 131:15 <b>interpreter</b> 202:7 <b>interrupt</b> 208:19 <b>interval</b> 231:19,20 231:20 <b>interview</b> 55:20 <b>interviewed</b> 56:2 <b>interviews</b> 121:7 <b>introduction</b> 100:21,22 125:25 <b>introductory</b> 121:14 <b>inval</b> 197:6 <b>invalid</b> 246:11,16 246:18 248:14 262:14 <b>invalidate</b> 173:3,8 196:25 197:6 202:19 206:8,12 214:14 216:23 217:3,5,12,20 234:9 <b>invalidates</b> 214:25 <b>invented</b> 123:14 <b>invention</b> 284:11 <b>inverse</b> 332:14,15 <b>investigate</b> 327:23 <b>investigating</b> 263:7 <b>investigation</b> 32:15 32:17 125:17 130:6 263:16 <b>investment</b> 7:1	<b>inviabile</b> 148:25 <b>invisible</b> 166:23 <b>invoiced</b> 21:14 <b>invoices</b> 24:19 312:1 <b>invoicing</b> 21:11,18 22:12 <b>involve</b> 30:11,18 34:2 <b>involved</b> 30:23 42:16 47:10 65:11 84:11 105:3,10 127:10 129:8 143:24 211:7 343:12 350:20 <b>involvement</b> 28:21 <b>involves</b> 63:24 <b>ionizing</b> 130:7 131:4 133:4 <b>iph</b> 7:1 108:15 170:9 <b>iphone</b> 192:22,23 <b>irrelevant</b> 350:8 <b>ish</b> 41:1 53:20 95:8 111:1 292:8,11 295:3 <b>isolated</b> 13:13 76:18 <b>issue</b> 13:12 14:12 31:3 32:10 42:11 42:13 63:22 67:2 76:17 79:15 83:12 102:7 109:3 169:13 207:20 219:20 237:6,7 296:12 303:22,24 307:20 318:4 327:23 334:16 335:9 337:16 345:21 <b>issued</b> 49:23
---	--	--	---

CONFIDENTIAL

[issues - know]

Page 388

<b>issues</b> 15:1 24:20 31:12 42:1,23 49:3 49:5 65:11 72:14 72:16,16 73:2,10 73:12 76:21 80:15 83:17 84:9 86:19 88:18 93:11 107:9 107:12 109:17 127:10,13 143:24 167:14 173:22,25 175:1,3,4 203:12 263:9,13 264:10,18 265:24 283:6,8 288:1,8 320:18 327:7,12 331:7 346:23 347:16 348:3,5,7	<b>italian</b> 118:9,11 119:3 120:14 186:22 261:14 322:23	<b>italy</b> 187:15,16 188:8	<b>item</b> 109:5 130:5	<b>items</b> 311:7	<b>iterations</b> 322:21
<b>j</b>					
<b>j</b> 1:20 7:4 355:4,20					
<b>j.m.</b> 123:16,16,21 125:7 136:16 193:7 193:11 194:5 248:7 288:7 306:21 310:18					
<b>janitor</b> 88:15					
<b>jannesser</b> 2:5					
<b>january</b> 92:15,18 92:23 95:8 96:15 96:20 97:7,12,17 99:13 104:1 110:21 110:22 121:11 318:7					
<b>jargon</b> 127:15					
<b>jd</b> 92:11 98:4					
<b>jerew</b> 72:3 73:4 74:6,15					
<b>jmp</b> 300:7					
<b>job</b> 22:8,9 32:3,13 34:17 40:11 50:13 50:15 55:19 56:3,4 58:4,4 63:15 204:5 212:1,17					
<b>jobs</b> 11:10 57:6 71:13,14					
<b>joe</b> 109:14,14 113:22 151:1 191:15 212:1,17 283:1 287:15 318:17,18					
<b>jogger</b> 342:21					
<b>john</b> 2:3 6:22,25 7:15					
<b>join</b> 25:23					
<b>jone</b> 102:23					
<b>jones</b> 2:8 22:7 81:12,17 98:13 100:14 102:23 339:17					
<b>jonesday.com</b> 2:10					
<b>joseph</b> 112:19 116:10					
<b>joules</b> 136:11					
<b>jpeg</b> 192:15					
<b>judgment</b> 15:20					
<b>july</b> 33:18 46:23 200:2,5,24 220:19					
<b>jumping</b> 126:12					
<b>june</b> 57:21 199:9 200:1 322:25 324:11					
<b>jurisdiction</b> 13:20					
<b>jurisdictional</b> 350:10					
<b>jurisdictions</b> 14:8 306:15 350:21					
<b>juror</b> 183:19					
<b>jury</b> 74:12,14,15 127:7 314:6					
<b>justify</b> 319:4					
<b>k</b>					
<b>k</b> 7:19					
<b>kaufui</b> 5:8,10 329:20					
<b>keenan</b> 144:20 146:6,16 277:15,16					
<b>keep</b> 11:23 53:23 60:19,19 165:9 234:19 252:5,16 296:14 319:22 324:24 328:22 337:16 340:1,18 341:19,19					
<b>keeps</b> 150:13					
<b>kenneth</b> 127:3 151:5					
<b>kept</b> 324:15					
<b>kettle</b> 272:8					
<b>keyes</b> 144:20 146:6 146:16 277:15,16					
<b>kilo</b> 199:6					
<b>kilogram</b> 213:22					
<b>kilograms</b> 213:15 213:20					
<b>kilowatt</b> 199:1 202:10,13 290:12 291:8					
<b>kilowatts</b> 199:7 200:14 201:3,5 290:7 291:9,12					
<b>kind</b> 10:19 16:9 34:12 37:21 42:14 42:18 43:5 52:11 63:12 71:13 76:1 89:19 91:11 93:25					
98:21 104:16 119:8 121:21,22 125:8,10 130:23 150:3,3 154:12 158:3,11 169:8,11,17 195:4 202:14 203:18 215:20 219:9 229:25 249:20 253:5,12 258:18 269:18 278:7 281:2 285:2,10 286:7,10 293:11 306:16 307:24 309:15,20 319:11 324:6,13 327:25 345:15					
<b>knew</b> 37:12 40:11 81:18,18 89:1 100:1 110:6 241:18 302:16					
<b>knock</b> 23:17					
<b>know</b> 11:1 14:25 15:2 21:4 24:1 25:6 25:17 28:18 30:7 30:17,19 31:5,7,14 31:19 34:21,21 37:17 38:4 40:4,25 41:7 42:20,21 46:11 49:16 54:10 55:21,23 56:25,25 57:3,6 61:23,24 62:7 63:14,15,25 65:3,11,13 66:24 68:11,13 70:10,13 71:13,13 74:2,3,9 74:11,25 81:14 83:3 86:1 87:12 89:3 91:8,15,15 92:20,23 93:11 94:1 95:5,9 98:20 98:23 99:23 100:15 101:2,4,5,9,9					

CONFIDENTIAL

[know - layperson]

Page 389

102:12,15,21	196:4,6 197:11,13	300:9,19,20,21	<b>I</b>
103:12 105:1 107:9	197:19,21,22 199:7	301:6,20 302:1,3	<b>I</b> 130:9
110:14 111:16	200:13,13,16,17	302:13,18 303:14	<b>labeled</b> 195:15
112:7 113:3,6,16	201:25 202:21,24	303:15,16 304:11	212:5 233:25
114:4,15,17 115:10	203:5,11,20 204:1	304:13 307:16	<b>labels</b> 195:20
115:10,16,16 116:3	204:4,15,21 205:7	308:21 310:1,7,8	<b>lack</b> 95:6 251:18
117:11,19 118:24	205:18,25 206:2,20	310:12,18 313:5,23	<b>lacking</b> 311:1
119:12,18,24 120:1	208:4,16 209:5,7	315:4,9,18 317:5	<b>lafayette</b> 50:9,9
120:19 121:18	210:10,12 211:5,7	317:14 319:20	<b>laid</b> 57:25 218:23
123:3,4 125:7,8	211:22 213:6,25,25	320:14,21,22,25	<b>language</b> 118:10
127:14,23 129:17	220:5 221:1,5,6	321:7 323:14,16,20	126:21
129:20 130:19	222:3 223:4,7,7,9	324:13,17 326:25	<b>lapse</b> 112:19,25,25
131:18 132:16,17	223:11 224:7	327:15 328:12	113:7 318:18
133:17 134:3,5,10	225:24 226:1,5,16	330:10 331:7,12	<b>large</b> 13:8 30:10,10
134:10 138:1	227:1,2 230:14	332:3 333:9,19	52:8 53:9,25 54:2
139:18,18 140:9,11	231:10,20,21 232:4	335:4,9 336:14	56:9 76:14 79:15
142:15 143:10,13	232:8,8,13 235:14	337:1,17 338:8,21	83:9 114:21,23
143:15,23 144:15	235:17 236:9 237:8	338:22,25 339:2,4	251:14 287:3 298:2
144:21 145:9,16	241:7,20 242:22	339:6,13,14 341:6	310:5 345:16
148:13,16,20 149:2	243:19 245:1,3,6	343:24,25 346:25	<b>larger</b> 142:23
149:4,7 150:21,23	245:13 246:3,25	348:20 350:22,25	277:21
150:25 151:4,7	247:4,6,7 248:1	351:8,10,12 352:1	<b>late</b> 20:4 67:16
152:3,4,5,7,14,22	249:15,16,17,19	<b>knowing</b> 10:24	148:14 327:10
152:23 153:1 154:8	251:3 252:11	184:12 232:1	<b>latent</b> 277:11
154:12,13,15,19	253:21 255:8	241:12 299:7	278:24
155:3,5,8,9,14	257:11,15 258:14	349:16	<b>lateral</b> 267:20
161:14,18 165:4,9	258:16 259:10	<b>knowledge</b> 9:8	<b>laundry</b> 352:20
165:16 166:11	260:16 261:2,5	32:23,25 33:7 36:1	<b>law</b> 81:12 127:19
169:6,6,8,10,16,17	264:7 267:14,16,23	37:18 43:21,22	127:21,22 128:3
170:5,9,12 171:9	267:25 269:6	61:20 66:12 68:4	145:11 150:5,11,12
171:12,19 172:6,25	273:14,19,19 280:3	80:13,14 85:2	160:20 161:4,24
173:10,11,13	280:22 281:21,22	122:7 131:10,12	162:19 350:3,4,14
178:11,12,14,19	281:24 282:16	132:22 136:22	350:14 351:1,12,17
179:7,8 180:14	283:7 284:16,18,25	154:4 283:2 341:15	<b>laws</b> 148:24 150:15
182:2,14 183:4	285:9 286:7 287:18	<b>known</b> 110:5 138:7	225:3 228:21,23
184:16 186:17	289:9 291:23,24	138:8 155:15	262:5,15
187:21 188:3,22	292:1 293:5,8,10	260:11	<b>lawsuits</b> 19:9
191:16,17,19,22,24	293:13 295:5	<b>knows</b> 42:15	<b>lawyer</b> 248:17
191:24 192:9,11	296:23 297:2,13,17		304:21 352:1
193:22,25 194:3,14	298:7,11,17,17,24		<b>layperson</b> 312:16
194:25 195:2,18	299:1,2,4,9,11		312:18



CONFIDENTIAL

[lbm - load]

Page 390

<b>lbm</b> 276:18 277:24	<b>legitimate</b> 225:17	<b>liked</b> 40:9 142:5,25	344:21,23
<b>leads</b> 189:25	314:3	202:8	<b>litigation</b> 24:4,9,12
270:18 312:5	<b>legitimately</b> 156:22	<b>limit</b> 49:11 272:19	24:12 66:24,25
<b>leadville</b> 139:7,9,15	<b>leis</b> 320:5	<b>limitations</b> 198:9	67:1,2 81:19,22
139:18,21 140:3	<b>lends</b> 85:5	<b>limited</b> 236:16	83:16 91:2 105:3,4
<b>leak</b> 85:20 86:10	<b>length</b> 206:20	270:12 313:8	105:5 155:4 186:9
166:2,5,9 244:18	331:9	<b>limiting</b> 143:5	306:24 321:13
251:13,13,15,23	<b>lenr</b> 130:9,24,24	145:3	<b>little</b> 19:21 20:10
281:17,21,23,24	157:1,5,6 170:5	<b>line</b> 58:12,25 60:24	21:20 26:15 30:23
<b>leakage</b> 243:23	175:25 280:25	61:15 84:22 85:15	34:4,10 41:1 43:21
<b>leaks</b> 85:16 166:8	<b>leonardo</b> 1:4 6:23	130:5 157:15 173:1	46:10 63:16 76:12
242:13 243:1,22	123:20 194:5 248:8	188:4,4 212:22,22	76:25 77:1 92:7,19
245:7,11,12 248:22	<b>lessen</b> 171:15	213:5,5 252:9	92:20,21 93:5
250:25 251:1,3	<b>letter</b> 255:22	264:17 265:3	97:21,22 101:3,20
252:17	263:14 288:1	267:15,16 268:12	104:7 109:24,25
<b>learn</b> 33:2 34:19	<b>level</b> 38:4 39:1	269:25 357:5	113:12,14,15,16,20
<b>learned</b> 88:23	53:13 82:13,23	<b>linear</b> 154:18	114:2 115:23
353:4	83:20,22 86:25	<b>lines</b> 83:8,10 84:7	116:19,21,21,22
<b>learning</b> 55:22	87:1,13 138:5,12	84:14 230:1 256:13	121:1 123:3,4
<b>leave</b> 55:12 57:24	138:14 158:6 229:9	<b>liquid</b> 166:15	125:10 132:12
82:21 159:15 206:2	249:10,14,16,21,24	228:25 229:5,6	139:18 154:9
210:22 212:11	295:8	239:4 240:10	156:10 174:14
294:7 295:18	<b>levels</b> 228:4	249:22 268:6	183:1,11 192:25
<b>leaves</b> 224:8 296:17	<b>lewellyn</b> 40:22	294:22	212:19 214:3,4
<b>leaving</b> 59:13,16	43:10	<b>list</b> 72:3 94:23	215:5 237:15
92:11 137:10,20	<b>lewis</b> 355:15	107:13 109:5	242:20 251:13,15
221:13,20 222:8	<b>license</b> 44:5 46:13	112:16 124:4	252:14,14,19
<b>led</b> 258:20	49:15 226:14	142:21,23 144:14	285:14 294:11
<b>left</b> 9:10 33:18 81:3	349:23 350:2,13	144:25 145:3 233:2	305:2,9 311:13
193:19 201:21	351:21	282:12 287:24	327:14 335:17
208:8 241:4 249:3	<b>licensed</b> 18:14	<b>listed</b> 40:21 57:20	338:13 339:4
249:4 271:25	<b>licenses</b> 43:24 44:1	69:10 70:4,18 71:4	341:13 351:4
272:15 298:3 311:7	226:15 349:6	71:18 72:19 74:17	352:23 353:17,19
<b>leg</b> 285:16,17	<b>licensing</b> 43:17	76:7 97:2 103:19	353:21
<b>legal</b> 1:15 17:24	<b>life</b> 55:25	121:25 122:16	<b>live</b> 139:24 230:16
19:9 98:21 100:14	<b>light</b> 111:3 117:16	129:11 288:19	<b>lived</b> 55:25
101:4,5,11 105:7	207:16 210:5,9	316:10 336:7	<b>lives</b> 55:15,17
<b>legally</b> 45:18 47:25	212:9 318:11	<b>listening</b> 324:14	<b>llc</b> 7:1
304:21	319:15 352:15	<b>literally</b> 250:20	<b>lmb</b> 275:19
<b>legit</b> 114:16	<b>lights</b> 163:8 299:23	<b>literature</b> 68:14	<b>load</b> 53:19 54:13
		144:11 153:15,20	

CONFIDENTIAL

[loaded - lot]

Page 391

<b>loaded</b> 97:14	310:13 311:19	300:3 309:14	254:25 262:12
<b>loading</b> 193:9	312:11 314:8,12,16	313:13 317:5	270:23 271:25
299:19 301:15	316:14 318:25	321:14 322:3	272:5,24 274:1,8
<b>loads</b> 53:19	319:2 322:5 326:11	324:16 342:20	275:5,18 277:19
<b>local</b> 138:4	334:5 337:4,24	344:1 345:9,10	278:13 282:13
<b>located</b> 6:12 54:6	338:19 340:10,15	348:13	287:8 290:13 304:9
63:7	341:1 343:2 347:4	<b>looked</b> 40:25 78:7,9	305:7,17 309:13
<b>location</b> 194:4	347:13,25 353:3,8	86:20 111:7 112:21	310:3 313:21
318:16 349:2,21	354:3,6,11	114:7,15 118:23	319:10 320:18,23
<b>logger</b> 209:8	<b>long</b> 17:24 23:15	140:13 141:16,17	323:5 324:19
213:14	25:10,12 26:3,12	141:18 144:24	325:17 338:23,25
<b>logic</b> 271:9	30:16 34:20 36:9	147:11 149:7 179:5	348:8
<b>logical</b> 154:11	48:13 49:10 54:9	186:13,18 188:10	<b>looks</b> 8:19 95:1
<b>logistics</b> 350:20	84:13,15 105:17	194:16,16 206:13	107:4 132:6 178:20
<b>lomax</b> 2:8 6:24,24	106:18 159:20	211:25 212:14,18	190:7 208:3 229:25
15:14 33:5 66:16	163:19 185:25	212:20 226:3,3	249:19 278:1
69:17,20,25 73:13	238:23 246:3	261:23 263:8,13,25	292:10 330:10
88:3,6 93:16,20	270:16 271:3 292:2	264:5,9 286:20	338:25
94:4 97:6 102:5	292:6,7,15 293:1	288:12 291:16	<b>lookup</b> 271:18
103:1,3,7 111:21	316:24	298:20 300:22,23	277:12
112:4 121:23 124:9	<b>look</b> 56:20 63:14	300:23 319:14,15	<b>loop</b> 242:12 249:25
124:13,17 129:21	68:19 75:17,20	319:17 322:15	250:10,15,16
132:19,24 143:10	77:9 89:13,16	323:4 332:16	251:20
154:25 156:8	93:22,25 94:19	<b>looking</b> 12:5 16:20	<b>lose</b> 61:10,12,15
166:17 171:6 172:3	95:15 97:13,15	16:21,22 57:19	<b>loss</b> 61:16,23 245:9
175:24 179:3	104:3,12,16 111:13	68:18 70:23 75:5	304:6
182:21 183:21	114:8 115:19	75:25 78:2 83:24	<b>losses</b> 60:20 240:14
184:3 185:6,14,22	116:14 129:15	83:25 86:18 94:8	281:11,12
187:9 189:15	131:21 137:24	94:10,11,17 100:8	<b>lost</b> 40:5 61:25
192:19 196:15	142:11 144:2	106:17 125:25	124:23 219:22
197:12 203:9 205:2	145:11 148:22	135:21 137:8	<b>lot</b> 10:24 18:15
206:9,17 209:18	149:1,13 151:25	138:19 147:6	20:10 21:21 25:6
211:16 214:15	170:21 178:24	151:21 168:14	25:19 57:2 60:5,22
215:2 216:24 217:3	188:4 198:8 200:1	169:2 174:23 190:6	77:10 83:9 94:5
217:15,18 218:1,12	200:11 215:8,8	190:10,11 193:4,17	102:24 105:1,1,2
218:15,22 220:6	227:22 231:24	195:10 196:24	107:9 111:8 117:5
228:6,9 232:10,22	253:25 271:11,20	198:10 200:7,24	125:4 126:14
234:10 240:22	272:15 276:15	201:11,24 207:2	133:11,20,22
254:22 263:17	283:2 289:11,24	208:4 213:8 215:6	142:11,16 169:18
274:3,11 282:9	291:10 292:5	219:18 221:24	170:4 172:18,19,20
295:13 304:25	293:12 298:13	243:22 248:14,15	190:10,12 202:21

CONFIDENTIAL

[lot - mean]

Page 392

203:1 210:10 212:16 247:19 263:6 271:3 276:11 286:8 297:25 306:7 306:9,11 308:14 319:14 321:21 324:12 336:19 339:2 351:19,20 <b>lots</b> 42:16 158:19 172:20 214:18,19 218:3 <b>loud</b> 214:5 <b>low</b> 130:13 280:15 283:25 348:21 351:14 352:5,16 <b>lower</b> 161:12 218:11,17 219:5,7 352:9 <b>luck</b> 198:2 <b>lugano</b> 186:16,21 186:25 187:1,4,12 261:8 <b>lunch</b> 168:8 176:2 <b>luncheon</b> 167:21	149:7,18 163:8 <b>magazine</b> 62:11 153:11 <b>magnitude</b> 284:12 <b>main</b> 193:8 271:24 <b>maintain</b> 24:8,13 43:24 48:18,22,25 49:13 61:7 341:18 <b>maintains</b> 150:23 <b>maintenance</b> 30:2 56:8 57:11,12 <b>major</b> 26:22,25 264:18 332:2,8 <b>making</b> 110:8 127:11 165:9 177:10 185:3 198:23 206:24 209:5 282:7 312:22 351:18 <b>malfunction</b> 63:18 <b>malfunctioned</b> 4:17 64:15 <b>malfunctioning</b> 65:7 <b>man</b> 151:3 166:21 282:5 292:5 299:20 <b>managed</b> 58:11 <b>management</b> 41:20 <b>manager</b> 38:11,12 56:5 <b>manholes</b> 84:1 <b>manipulate</b> 270:4 <b>manipulated</b> 324:2 <b>manipulations</b> 324:4 <b>manner</b> 22:19 76:22,25 78:7 109:20 154:14 166:21 170:18 181:4 211:8 237:10 247:21	<b>manometer</b> 283:23 283:24,25 <b>manufactured</b> 156:21 <b>manufacturers</b> 61:21 <b>manufacturing</b> 311:11 <b>march</b> 355:15 <b>marine</b> 56:1 <b>mark</b> 9:23 11:16,20 29:14 62:19,25 69:2 96:3,5,9 147:24 148:4 191:8 191:13 199:23 322:17 331:23 339:25 340:9 341:25 <b>marked</b> 8:12,14 9:21 11:13 29:16 62:16 63:3 64:11 64:13 68:25 94:20 96:7 99:16 103:20 148:2,5 191:5 199:21 274:6 321:16 322:12 326:9,12 328:20 329:15,21 331:20 339:20 340:6 341:22 <b>marker</b> 340:22 <b>market</b> 23:22 <b>marketing</b> 18:16 <b>marshals</b> 25:24 <b>marysville</b> 46:15 47:6 <b>mass</b> 213:20 260:14 274:22 275:20,21 345:5,5 <b>massive</b> 245:6 312:25	<b>master's</b> 35:11,15 35:24 36:4,6,7 <b>mat</b> 326:25 <b>match</b> 221:8 <b>material</b> 153:7 <b>materials</b> 43:1 88:20 130:7 131:4 132:11 312:3 <b>math</b> 19:10 21:19 201:25 222:4 265:19,20 307:20 <b>matter</b> 7:16 13:14 41:3 43:19 44:23 75:8 83:5 88:13 91:22 99:24 100:7 130:16 162:17 163:3 173:4 183:14 221:17 233:7,13 242:2,2 247:9 329:5 339:22 347:15 <b>matters</b> 24:4 31:3 41:8 42:1,11 63:22 68:1 102:2 283:12 285:20 288:10,19 338:18 <b>maturing</b> 320:23 <b>maximum</b> 53:19 <b>mccracken</b> 58:15 58:25 59:2,16 <b>mcdonald's</b> 296:4 <b>mclaughlin</b> 16:6 171:22 <b>me425</b> 39:25 <b>me625</b> 39:1 <b>mean</b> 9:9 35:10 54:15 59:6 86:3,15 114:20 115:8 126:19 150:20 152:15 154:7 162:22 165:1
<b>m</b>			
<b>m</b> 2:8 7:20 109:7 274:23 276:2 <b>machine</b> 52:9,11 104:14 145:15,19 150:2,8,13 188:18 188:24 189:1,4,8,9 189:11,22,23 190:25 218:19 219:13 225:25 226:19 242:17 244:5 246:19,22 255:17 262:7 263:5 312:21 <b>machinery</b> 209:6 <b>machines</b> 145:11 145:13 147:8,9			



CONFIDENTIAL

[mean - midwest]

Page 393

171:20 177:22	236:17,18 237:2,9	<b>mentioned</b> 14:4	75:15 77:8 80:8,10
183:23 195:17	255:7 262:21 286:9	41:22 79:8 100:4	80:12 86:14,17
198:19 203:24	326:15	143:19 169:15	87:3 113:6 114:7
213:18 221:6	<b>measures</b> 283:25	182:25 183:2	133:25 146:11
227:25 251:25	<b>measuring</b> 219:11	188:22 204:21	151:10,23,25 152:1
254:11 256:10	235:20 241:23	205:14 222:20	152:3,5,7,9 153:5,8
260:14 268:11	242:18,19 246:1,2	228:24 250:22	153:16,24 154:22
282:8,8	255:9 258:15	261:7 268:14 321:2	154:23 155:2,15,24
<b>meaning</b> 164:7	262:13 286:12	334:15 345:5	156:4,15 173:16,18
<b>means</b> 45:18 47:24	<b>mechanical</b> 25:1,8	351:20	198:5 205:11
224:12 242:8	25:10 26:24 27:7	<b>merely</b> 291:1	206:14,25 211:22
250:19,23 284:1	27:11 28:25 35:6,8	<b>mess</b> 147:21	214:20,21 217:22
296:10 315:19,22	50:14 58:7,8 128:9	<b>messing</b> 323:17	217:24 219:14
<b>meant</b> 233:24	128:25 153:18	<b>met</b> 151:3 152:11	226:11 228:2
234:13 339:18	157:19 296:10	282:5	246:19 247:6
<b>measure</b> 200:14,18	<b>mechanics</b> 75:6	<b>metadata</b> 192:15	248:10 252:25
203:6 238:11	344:14,15,16,17	<b>metallurgical</b>	253:10 312:8
240:18 242:16,17	<b>medical</b> 13:10 75:4	165:2	316:12 345:25
242:21 244:6	127:14	<b>meter</b> 112:19,24	<b>methods</b> 155:20
246:20,20 252:20	<b>megawatt</b> 38:7	113:2,4 116:16	<b>metric</b> 59:21
252:24 253:16,19	109:8 189:19	204:6 213:13	213:21,25 219:12
253:24 254:4,7	270:14 278:14,18	238:12,13,18 239:3	255:9 290:10,10
255:14 263:5	278:21 279:1 290:4	240:17 241:7 245:7	<b>mezz</b> 180:17,19,19
265:15,17 266:7,8	<b>megawatts</b> 176:16	263:7 264:8,12	315:11,21
266:20,23 267:1	176:17,19,21 177:2	265:16 283:7,9,17	<b>mezzanine</b> 180:20
284:22 285:13	177:3,12,13 178:2	284:6,7,14,17	181:13 302:5
286:11 332:23	272:12	285:11 306:20	303:10 308:25
<b>measured</b> 54:12	<b>melter</b> 52:20,20	307:17 318:17	<b>mg</b> 210:24
157:23,25 200:14	<b>member</b> 24:22 25:5	319:10	<b>miami</b> 2:10 5:3
221:12 227:10	25:7,8,11,16 26:6	<b>metering</b> 209:6	90:25 98:12 107:14
236:1 239:9 246:5	26:10 28:16,17	<b>meters</b> 204:3	112:12 138:12,12
252:22,24 258:7	314:6	213:13,14,15,19	163:25 199:24
325:18,20	<b>membership</b> 25:17	244:10 247:12	306:14
<b>measurement</b>	<b>memorize</b> 146:4	264:1,1 307:10	<b>microphones</b> 6:2,5
213:19,20 218:18	<b>memorized</b> 55:9	<b>method</b> 228:18	<b>microsoft</b> 71:9,10
237:12 248:1 253:2	<b>memory</b> 5:13 55:5	250:6 251:9	<b>mid</b> 67:16,16 92:9
253:4,23 265:25	59:15 89:23 109:13	<b>methodical</b> 154:13	92:25 93:1 324:11
284:1	318:8 332:1 341:24	<b>methodologies</b> 66:5	<b>middle</b> 7:25 149:25
<b>measurements</b>	342:21	66:14,21 253:8	276:15
109:7 136:9 156:6	<b>mention</b> 204:12	<b>methodology</b> 64:25	<b>midwest</b> 58:17 59:1
217:5 221:22 225:6		65:5 66:14 75:12	

CONFIDENTIAL

[miles - nature]

Page 394

<b>miles</b> 14:3 <b>miller</b> 22:6 92:11 98:4 105:17 <b>million</b> 58:11 278:20 296:4 <b>min</b> 221:10 230:16 <b>mind</b> 12:9 19:15 71:10 89:22 104:8 118:25 120:22 173:6 199:19 243:3 296:14 305:4 322:2 324:12 347:18 353:13 <b>mine</b> 152:12 185:9 238:22 326:11 343:5 <b>minimis</b> 287:6 <b>minimize</b> 56:12 <b>minimum</b> 23:2 60:20 221:10 230:9 230:12 <b>minor</b> 166:2 325:16 <b>minus</b> 95:8 209:10 281:11,12 <b>minute</b> 65:22 98:16 106:16 173:20 259:17 267:25 272:16,21 275:23 276:19 304:7 313:10 340:1 <b>minutes</b> 253:6 353:8 <b>minutia</b> 54:17 333:17 <b>mis</b> 23:6 <b>miscellaneous</b> 5:11 <b>miscommunication</b> 319:13 <b>misleading</b> 70:1 <b>misread</b> 56:14	<b>missouri</b> 183:17 <b>misstating</b> 176:7 <b>mistaken</b> 230:23 <b>misunder</b> 288:17 <b>misunderstood</b> 23:9 <b>mix</b> 257:12 <b>mobile</b> 72:8 <b>model</b> 257:18 <b>moderately</b> 198:7 <b>modification</b> 97:21 <b>modified</b> 157:19,21 <b>modify</b> 65:13 101:14 <b>modifying</b> 165:10 204:14 <b>module</b> 224:5 250:5 262:4 <b>modules</b> 174:19,20 286:1,2 293:10 <b>molecular</b> 161:8 162:7 259:13 262:10 <b>molecules</b> 239:21 259:16 <b>molted</b> 52:16 <b>molten</b> 52:22 <b>moment</b> 12:4,10 51:17 95:15 108:3 167:17 236:7 279:3 329:8 342:6 343:5 <b>monday</b> 3:1 168:2 <b>money</b> 25:12,14 44:23 45:1 49:22 <b>monoxide</b> 74:22,25 75:3,5,6 <b>montgomery</b> 29:21 <b>month</b> 264:24 290:2 <b>months</b> 57:1 198:18,25	<b>morning</b> 3:1 7:14 17:5 168:2 288:5 <b>motion</b> 52:22 145:11,13,15,19 147:8,9 149:7,18 150:2,8 262:7 <b>motor</b> 158:14 <b>motors</b> 256:14 <b>mounted</b> 300:8,14 301:17 <b>move</b> 179:7 201:8 256:9,14 315:13 316:2,4,6 346:12 <b>moved</b> 24:2 30:23 59:4 255:19 256:6 265:25 341:7 <b>movement</b> 298:1 <b>moving</b> 336:12 341:7 <b>multiple</b> 5:3 95:25 180:12 199:25 228:24 316:16 <b>multiplied</b> 205:19 208:24 <b>multiplies</b> 207:6 <b>multiply</b> 205:16 207:25 208:15 209:24 278:18 <b>murray</b> 107:25 108:4 109:14,14,17 110:6,9,11 112:19 113:7,22 114:13 119:22 120:20 121:3,8,10,15 140:25 151:1 152:13 182:10,12 191:15,17 210:10 210:18,19 263:6,12 263:19 283:1 287:16,20,23 288:1 288:14 296:21	297:7,13 298:11 299:9,25 303:13 317:18,23 318:11 318:13,17,18,20 321:4 332:16 333:16 <b>murray's</b> 114:10 115:4 116:10 117:2 211:2 212:10 300:6 308:15,15 309:7 314:21 317:20 318:9,14,15,23 321:8 333:6,12,18 <b>mw1</b> 5:3 107:13 138:20 168:15 199:24
<b>n</b>			
<b>n</b> 4:1 7:7 8:4 71:25 130:9 <b>name</b> 6:8,17 7:14 7:17,25 15:22 16:7 16:8 40:6 43:8 67:6 82:3 179:13 192:7 320:4 323:22 357:25 <b>named</b> 16:5 38:22 245:2 304:2,5 340:25 355:5 <b>names</b> 16:9 <b>nap</b> 176:3 <b>narrative</b> 125:13 <b>narrowly</b> 176:11 <b>national</b> 25:2 26:1 40:22 43:8 63:5,6 68:9 <b>native</b> 118:10 <b>natural</b> 250:1,10 251:19 279:19 <b>nature</b> 13:5 18:18 30:12 72:5,22 74:20,23 76:10			

CONFIDENTIAL

[nature - number]

Page 395

79:11 129:17 132:17 173:10,13 179:23 201:16 339:7 <b>navy</b> 133:2 134:13 166:6 <b>near</b> 225:9 268:16 268:20 327:13 <b>nearest</b> 200:12 202:9 <b>nearly</b> 208:1 <b>nebraska</b> 79:14 <b>nebulous</b> 132:12 <b>necessarily</b> 75:15 104:25 156:21 161:3 166:12 188:25 214:25 222:21 231:18 262:20 282:16 287:3 291:3 295:11 338:2 <b>necessary</b> 334:2 <b>need</b> 12:19 21:5 25:4 82:5,10,13 96:1 111:14 112:6 115:16 127:8 141:20 142:11 159:14 163:15 165:4 167:15 180:14 237:12 272:7 273:24 283:14 285:1 288:15,23 289:11 312:22 313:23 314:14 328:21 336:19,23,25 340:17 350:13 <b>needed</b> 144:23 <b>needs</b> 167:13 340:20	<b>negate</b> 184:1 <b>negative</b> 150:19,20 <b>neglected</b> 12:6 <b>neighborhood</b> 244:9 <b>neither</b> 65:24 128:4 160:21 163:3 <b>nestle's</b> 46:14 47:5 47:6,8 <b>net</b> 176:21 <b>never</b> 12:9 15:8 37:12 89:9 126:7 150:19 151:3 152:11 162:22 182:24 185:12 229:4 231:23 253:13 282:3,5 313:19 315:1 <b>new</b> 16:6 92:13 172:23 <b>newer</b> 47:20 <b>news</b> 15:3 17:5 <b>nfpa</b> 25:2,15 26:1 <b>nice</b> 141:19 202:23 238:24 272:3 338:24 <b>nickel</b> 258:18 281:1 <b>night</b> 36:13 288:5 <b>nitty</b> 121:24 <b>nod</b> 46:11,11 <b>nom</b> 273:3 <b>nomad</b> 55:22 <b>nominal</b> 273:4,4 275:6,10 <b>non</b> 132:3 260:21 261:1 <b>nondisclosure</b> 98:8 98:18 <b>nonnuclear</b> 45:19 45:20	<b>nonremarkable</b> 334:23 <b>nontechnical</b> 109:3 <b>nonthesis</b> 35:11 <b>nontraditional</b> 350:5,9 <b>normal</b> 127:16 348:20 <b>normally</b> 22:24 59:19 138:4 203:1 259:15 272:16 311:10 321:13 323:19 <b>north</b> 14:3 <b>northern</b> 83:9 <b>notary</b> 3:10,13 355:4,21 <b>note</b> 6:2 235:10 324:25 <b>notes</b> 3:11 82:5,6,6 <b>notice</b> 4:7,10 6:2 135:5 <b>noticeable</b> 244:20 <b>nova</b> 60:13,13 <b>november</b> 355:22 <b>ntt</b> 43:8 <b>nuclear</b> 27:20 37:4 45:22 128:9,19,23 128:25 129:1,1,2,5 129:8,20,24 130:3 130:13 131:6 132:2 132:3,23 133:5,7,7 134:16,24 160:16 160:23,25 161:3,13 161:21 162:10,16 163:6,23 176:6,24 177:7,9,11,15,17 177:18 259:6,9,11 259:25 260:21 261:1 262:8 280:9 280:15 348:4,6	<b>nuclei</b> 259:22,23 260:1,6 262:9 <b>nuke</b> 161:17,22 176:15 <b>nukie</b> 133:3 134:13 166:5 <b>number</b> 9:24 11:2 11:10 21:12,12,13 28:3 38:24 61:23 81:7 88:3 97:3,24 97:25 99:17 100:8 101:24 103:20 106:6,12 107:13 112:18 113:21 116:10 117:6,15 118:4 121:7 126:6 137:23 138:17 139:5 175:2 186:21 199:10,12 200:9,10 201:11,18,20 202:16 207:11,14 208:7,14,17 209:3 209:25 214:10,13 215:19,22 216:4,7 216:9,10,10,11 219:7,19 220:2 221:24,25 222:1,2 222:6 233:2 259:3 261:13 263:4,6 270:2 272:7,17 273:12,19,20 274:15 275:9 276:20 277:20 278:19,20,21 287:5 287:24 288:3,15,24 289:20 290:3,6,8 300:4 304:10 306:8 308:23 317:4 327:8 336:16 339:23,25 340:10 342:24
--	---	--	---

CONFIDENTIAL

[numbered - okay]

Page 396

<b>numbered</b> 220:22	166:17 171:6 172:3	46:13 100:6,19	64:5 67:16 81:6,8,8
<b>numbers</b> 75:25	175:24 179:3	101:2 102:19,21	82:11 92:9,15
116:14,15 120:7,15	182:21 183:21	117:10 125:4	94:10 108:8,8
120:17 146:3,21,23	184:3 185:6,14,22	135:15,20 170:13	128:2 133:17 135:8
156:20 171:1 178:9	187:9 189:15	171:8 193:14	163:11,13 171:19
200:11 201:15,17	192:19 196:15	203:11 234:6	171:19 172:18
202:5 205:24	203:9 205:2,6	257:15 271:3	186:11 191:12
206:21 207:21	206:9,17 209:18	317:23 320:14,16	192:21 220:19
208:4,5 210:2	211:16 214:15	332:1	252:22 285:24
214:19 215:21	215:2 216:24 217:2	<b>occasion</b> 16:8	287:14 288:17
216:1,13,16 217:12	217:15 218:1,12,15	<b>occasions</b> 10:15	290:25 292:3
221:7,16 225:8,15	218:20 219:11	225:7	311:17 320:3 324:8
233:5 235:13,16,19	220:6 228:6,8	<b>occupancy</b> 351:8	324:21 340:21
255:3,13 265:5	232:10,22 234:2,10	<b>occupy</b> 345:15,18	345:1
268:18 272:23	240:22 254:22	<b>occur</b> 162:11	<b>ohio</b> 6:13 8:4 13:9
273:18 275:3,5	263:17 282:9	<b>occurring</b> 78:25	13:24 14:1,2 35:4
276:8 277:9,14,15	295:13 304:25	79:2 132:5 260:16	35:21,22,23 38:13
278:5,8 289:25	310:13 311:19	313:1	38:17 44:3,5,7,15
290:5 307:6 317:6	312:11 314:8	<b>occurs</b> 199:9	45:15,19,23 46:10
325:11,19,21 326:3	316:14 319:2 334:5	<b>october</b> 12:11	46:17,20 47:13
326:4,6,17,19	337:4,24 338:19	57:21 116:10 117:2	48:4 49:4,23 57:21
328:8	347:4,13,25 353:3	318:14	58:1 83:9 157:11
<b>numerator</b> 198:21	354:15	<b>od</b> 275:16	355:2,4,15,21
<b>numerical</b> 176:14	<b>objections</b> 4:9 9:12	<b>odd</b> 201:14,19	<b>oil</b> 19:4 38:2 47:18
198:23 293:5	9:16 10:6	<b>odds</b> 335:22	47:21 52:15,19
<b>numerically</b> 19:11	<b>objective</b> 169:24	<b>offense</b> 176:12	160:7
<b>nuts</b> 154:10	173:1 254:17	<b>offered</b> 14:13,16,21	<b>okay</b> 8:9,20 10:2,9
<b>o</b>	315:12	39:20 43:2	10:22 11:4,15,20
<b>o</b> 7:7 8:4 14:17	<b>objectivity</b> 171:16	<b>offering</b> 107:17	12:4,8,11,16,18
71:25	<b>obligations</b> 185:9	174:12	14:19 18:7 19:15
<b>obey</b> 161:4	<b>obliquely</b> 237:15	<b>office</b> 98:12 180:20	19:18 20:11,19
<b>object</b> 93:16 102:5	<b>observation</b> 309:10	193:14 299:22	21:1,20 23:4 24:8
124:13,18 132:19	312:10,13,14	355:15	25:4 26:5 27:12,15
354:16,18	<b>observations</b>	<b>officer</b> 134:13	28:6,13 29:6,25
<b>objected</b> 185:12,21	125:12	<b>official</b> 3:12 131:13	30:3 31:23 32:20
<b>objection</b> 15:14	<b>observed</b> 170:6	131:14 133:3	33:2,17 34:10 35:3
33:5 66:16 69:17	<b>obstruction</b> 85:22	<b>officials</b> 25:25	35:15 36:20 37:4
69:19,24 73:13	<b>obtain</b> 33:7 331:1	<b>oh</b> 1:17 12:25 15:21	38:13,21 39:11,21
111:21 112:4 124:9	<b>obtains</b> 207:6	15:23 21:3 23:6,9	41:9,24 42:6,8,14
129:21 132:24	<b>obviously</b> 13:23	24:15 42:7 46:1	43:15 44:12,18
154:25 156:8	19:2 20:4 24:2 39:3	47:15 51:19 61:18	45:2,15 46:3,6,17

CONFIDENTIAL

[okay - ongoing]

Page 397

47:2,13,22 50:1	142:15 144:20	233:12,17,20 234:8	302:4,6,11,21,21
51:17,23 53:25	147:9,17,18,21	235:2,14,18 236:1	303:15 305:17,21
54:20 55:1,11 58:8	149:20,24 150:10	236:6,11,12,17,17	307:4,8,13,21
60:9 61:5,16,25	151:1,23 152:6,14	237:1,10,20 239:14	308:8,17,21 309:9
62:3,13 64:21	152:23 156:12,23	240:1,13 241:12,17	311:24 312:7,24
65:21 67:10 69:9	157:10 158:3,23	241:22 242:1,5,19	314:25 315:3,16,23
71:17,20 72:2,4,14	159:12 160:19	243:1,9,16,18	316:2 321:2,10
72:24 73:8,10	161:4,19 162:8,21	244:7,22 245:1,9	323:7,23 324:5
75:23 76:3,21	163:2,22 164:1,13	245:12,18 246:6,7	325:11,17 326:22
77:13,16,19,21,24	164:14,15 165:5,14	247:25 248:19,20	327:2,20,24 328:3
78:1,5,10 79:1	168:12,14 169:10	249:1,10,22 250:14	328:17,17 329:2,7
80:16,20 81:4,8,11	169:11 170:8,16	250:22 251:5,21	329:25 330:14
81:21,25 82:3 83:7	173:13,21 174:5	252:18,25 254:15	331:6,22,25 332:2
83:18 84:2,21 85:4	175:14,18 176:10	254:16,25 255:11	333:4,21 334:18
86:1,10 88:10	176:18,22 177:20	255:14,21,25	335:12 336:4 337:7
89:25 90:8 91:5	178:9 179:22 180:1	256:16,19,23	337:9,13,16 338:4
92:14,17 93:2,13	180:15,24 181:4,6	257:10,13 258:16	338:11,14 339:16
94:8,16,22 95:4,11	181:10,22 182:4	258:22 259:19,23	340:16 341:12,16
96:22 97:2,9,16	183:4,8,13,19	260:5,15,19 261:10	341:24 342:5,5
98:8 99:19 100:17	184:9 185:3,17	262:11,18 263:23	343:21 344:3,10
101:21,23 102:8,12	186:20,24 187:3,18	264:7,16 265:5	349:17 350:12,15
102:17 103:9,14,23	188:13 189:3 190:2	266:6,11 267:3,5	350:19 351:1
105:16,22 106:4,12	190:13,21 191:2	267:23 268:20	352:22 353:6,18,25
106:17,24 107:17	192:2 193:4 194:11	269:15 270:3,6	354:5
107:20 108:13,20	194:14 195:24	272:9 273:8,8,17	<b>oklahoma</b> 15:18,23
109:5,19,23 110:15	196:4,7,12,24	274:8,13,24 275:2	<b>old</b> 48:16 52:4,4,5
110:25 112:7 113:3	197:7 198:25 200:3	275:7,14,18,25	157:18
113:13,18,21 114:2	200:20,24 201:5,22	276:4,14,20 277:3	<b>older</b> 47:20 71:21
114:4,19 116:2,7	202:3,18 203:4	277:17 278:2,9,15	157:13
116:10,17 117:1,1	206:23 208:10,18	278:16 279:8,13,15	<b>omnidirectional</b>
117:14 119:2,5,10	209:11,16,21 210:3	279:21 280:16,17	250:3
120:14 121:11	210:15,20 211:7,13	282:13 283:5,11,22	<b>once</b> 44:21,21,22
123:7,12 124:18	212:12 213:2	284:3,7 286:6,14	49:15,17 171:18
126:10,12,17	215:10,12 216:14	287:2,8,14,14,24	172:1 295:6,7
128:16,19 129:25	216:22 217:23	289:6 290:6 291:4	341:7
130:4,12 131:2,9	218:5,25 220:4,15	291:14,20 292:15	<b>one's</b> 82:12,12
131:16 132:4	221:4,9,21 222:12	293:2,16 295:10	<b>ones</b> 14:6 68:10
133:10 134:15,22	224:16 226:20	296:7,20 297:5	285:23 300:1
135:25 136:3,9,14	227:24 228:14	298:6,14,17 299:1	321:16
137:24 138:14	229:4,5,9,19 231:1	299:9,16 300:5,18	<b>ongoing</b> 20:22
140:9 141:19	231:12 232:19	301:9,12,17,23	81:23 82:12 126:5



CONFIDENTIAL

[ongoing - pace]

Page 398

151:16 195:6 <b>online</b> 137:25 <b>onset</b> 110:17,19 <b>open</b> 53:1 224:1 250:17 251:25,25 252:1 298:3,12 323:10,11,21 <b>opening</b> 55:19 299:12 <b>operate</b> 45:18 46:6 46:7,8 51:3 163:7 351:22,24 352:13 <b>operated</b> 46:14 47:12 48:11 232:5 352:25 <b>operating</b> 46:12,19 302:19 349:6 <b>operation</b> 156:5 189:3 288:3 294:3 299:10 <b>operational</b> 51:1 308:24 <b>operator</b> 46:16 <b>opine</b> 156:15 165:21 175:10,13 175:17,21 189:13 190:8 288:23 338:17 <b>opined</b> 264:20 289:5 <b>opining</b> 173:21,22 173:24,25 175:25 181:6 186:24 187:24 189:3,18,20 200:20 262:21 264:11 314:9 <b>opinion</b> 42:24 84:10,19,21 85:8 85:12 91:23 107:17 108:23 113:11,18 113:24 114:9 115:5	115:20 116:24 118:1 126:4 132:22 134:11,15,17 144:12 145:18 156:20 165:23 168:22 171:2,14 174:5,12 175:15,22 182:18 183:13 185:3 188:2,14 190:5,14 194:20 210:16 214:24 231:7 232:4 238:4 262:19 263:1 282:18 283:12 288:10 297:18 306:19 325:15 333:12 342:16 343:8 344:22 346:17 347:15 351:16 <b>opinions</b> 32:22 33:9 94:1 101:21 106:15 107:7 109:20 111:9,15,17 111:19,25 112:3,8 115:13 116:8,18 117:4 119:1 122:9 122:13,16,17 123:8 142:8 149:22 151:9 151:11 152:18,20 164:24 165:6 167:3 170:19 184:2 187:2 285:19 288:19 333:5 342:14 346:18 347:3,12,15 <b>opportunity</b> 329:4 <b>opposed</b> 105:7 118:11 120:7 125:6 130:25 160:12 161:8 166:15 215:7 219:20 220:2	235:11,13 248:7 252:21 253:20 259:13 262:10 295:24 314:6 318:24 333:3 <b>orally</b> 122:2 124:25 <b>oranges</b> 293:6 <b>order</b> 57:1,4 177:8 242:9 <b>orderly</b> 76:1 154:12,14 <b>orders</b> 56:18 <b>organization</b> 25:5 28:17,19,21,24 <b>organizations</b> 24:23,25 26:7 <b>oriented</b> 36:4 <b>original</b> 11:22 118:22 143:2,6 167:9,10 175:2 288:13 323:21 342:2,22 <b>originally</b> 304:5 <b>originals</b> 142:18 340:25 <b>ostrander</b> 8:3 <b>osu</b> 39:9 40:3 159:14 230:21,22 <b>outages</b> 324:11 <b>outbound</b> 129:3 <b>outer</b> 60:17 61:14 275:16 <b>outflow</b> 254:8 <b>outgoing</b> 325:4 <b>outlet</b> 227:13 233:10,11 306:4 <b>output</b> 157:25 176:21 202:24 241:21,25 242:18 244:6 245:21,25 246:1,5,21 248:15	248:16,17,18 252:21,24 253:4,14 253:15,15,16,19 254:5 257:19 262:13 265:15,16 265:16,16 266:8,24 267:3 268:24 272:24 284:20 291:2,24,24,25 332:23 343:13 <b>outputs</b> 246:20 265:22 284:23 343:14 <b>outside</b> 16:15 58:23 175:22 194:16 227:8,9,23 256:7 298:20 314:9 <b>overall</b> 294:12 <b>overcome</b> 250:14 251:10,22 <b>overhead</b> 301:9 <b>oversight</b> 325:16 <b>overview</b> 125:10 <b>overwhelmed</b> 127:13 <b>owner</b> 72:12 <b>owns</b> 18:7
<b>p</b>			
<b>p</b> 7:7 211:5 325:8 <b>p.e.</b> 1:12 3:8 4:4,13 4:19 6:18 7:9 19:4 21:2 23:12 44:2,3,4 44:12,20,22,23 45:4 226:15 355:5 357:2 <b>p.l.</b> 2:3 <b>p.m.</b> 167:22 168:3 354:24 <b>pace</b> 96:15 99:19 121:15 143:24 144:3 197:11,12,16			

CONFIDENTIAL

[pace - penon's]

Page 399

197:22 324:8,10,17 <b>packaging</b> 294:5 <b>page</b> 4:3,6 5:1 57:20 69:6 100:19 100:20 101:23,24 102:3,19 106:19 117:14 122:14 123:6 125:2,2 128:12 129:14 135:21 137:8 139:6 140:20 149:16,17 149:25,25 168:12 168:14 169:19,19 174:23 188:17 192:13 195:10,11 219:18,24 221:9 225:8,16 229:25 230:8 233:3 255:1 271:19 279:6,7 282:13 287:8 290:13,13 291:11 294:17 296:8 300:13,18 301:3 304:10 305:17 309:14,14 314:18 322:19,21 332:14 332:15 333:10,10 342:15 357:5 <b>pages</b> 94:19 129:15 138:19 294:16 322:20 <b>paid</b> 89:9 <b>pan</b> 224:1 295:2 <b>panel</b> 17:17 <b>paper</b> 82:10 120:7 147:15 313:21 322:1 <b>papers</b> 62:10,12 322:4 <b>paragraph</b> 97:23 100:21 107:3	124:21 125:2,24 137:8 140:2 168:14 168:18 195:11 198:10 207:2 210:21,22 213:8 214:23 215:12 219:18,19,24 221:9 230:8 233:3,20 235:8,18 255:1 282:14 287:9,15 288:19 290:16 293:21 295:11,16 296:7,20 305:21 311:4 <b>paragraphs</b> 210:20 305:18 <b>parameters</b> 286:12 323:6 <b>paraphrase</b> 198:3 <b>parasitic</b> 163:13 178:6,6,7 <b>pardon</b> 353:1 <b>parenthesis</b> 150:3 <b>part</b> 16:11 27:12 32:23,24 36:12 37:19 38:3 58:15 85:9 89:14 106:23 107:11 115:5 122:21 130:21 136:2 143:5 157:16 165:8 187:7,7 194:4 202:25 207:19 245:16 258:4 280:2,4 289:3 290:23 325:16 327:6 332:16 334:19 341:18 343:10 349:12 <b>partial</b> 270:25	<b>partially</b> 255:8 <b>particular</b> 42:1 52:7 63:17 83:7 170:8 195:2,3 234:2 285:4,7 322:17 <b>particularly</b> 133:20 136:4,6,14 <b>parties</b> 3:7 6:7,20 21:24 168:23 185:5 187:7 254:14,16 355:10,11 <b>partners</b> 7:1 <b>party</b> 105:25 169:25 170:23 174:25 304:16 305:10,12,15 338:2 <b>pass</b> 23:3 49:16 173:19 270:14 277:2 278:25 <b>passed</b> 47:24 270:22 <b>passes</b> 159:6 <b>passing</b> 113:2 169:15 239:6 270:2 <b>patent</b> 178:25 179:2 <b>paths</b> 78:2,8,9 <b>pay</b> 23:23 25:12 26:12 48:24 49:22 169:17 246:24 324:12 <b>paying</b> 22:12 <b>pbylaw.com</b> 2:5 <b>pdf</b> 120:6,7,9,15 142:19 195:14,22 196:2,8,13,18,24 197:4,6 198:9 215:6 220:17 271:8 <b>pdfs</b> 196:20	<b>pedestrian</b> 60:8 <b>peer</b> 62:13 65:25 151:6,7 <b>pen</b> 343:24 <b>penalties</b> 357:22 <b>pending</b> 20:6 24:12 82:24 104:23 135:7 176:9 <b>penon</b> 109:6,7,16 116:14 118:17 125:15,22 143:14 168:19,22 169:7,23 169:24 170:14 171:3 173:2 174:8 185:19 186:1 195:11 196:7,12 197:13 205:1,18 206:7 207:13,20 208:18 210:25 215:15 217:11 218:6 220:8 221:1 235:15,15 245:14 246:23 248:9 263:14 269:5 282:19 286:18 303:20,24 304:8 318:9 <b>penon's</b> 118:5,13 119:2,17 120:6,11 136:9 142:18 143:2 143:7,22 144:5 167:9 171:5,15 185:10,12 188:25 189:4 197:2,3 202:3 207:17 210:6 210:14 225:6 230:11 265:6 288:13 304:14 318:12 324:7 325:14 343:25
---	--	---	--

CONFIDENTIAL

[people - placed]

Page 400

<p><b>people</b> 13:13 25:7 25:25 36:1 43:17 51:9 57:10 75:5 102:23 118:10 131:10 133:9 139:24 154:15 155:10,14 181:18 230:2 295:2 303:22 339:17 346:15</p> <p><b>percent</b> 9:10 20:15 90:1 120:1 144:1 177:8 215:16,23 216:5,9,12 218:7 218:10 219:5 220:16 232:2 236:14 237:19 245:14 246:17</p> <p><b>percentage</b> 19:7,19 20:12,16,19 21:1,4 21:7 30:11 113:17 116:22 285:14</p> <p><b>perfect</b> 244:2</p> <p><b>perfectly</b> 240:13 242:12</p> <p><b>perform</b> 32:16 87:2 114:5 115:25 164:23 181:10 305:23</p> <p><b>performance</b> 104:13 106:21 125:16 157:20 185:4 204:13 244:4 253:10 256:3 261:19 263:5 265:13 337:10</p> <p><b>performed</b> 80:17 83:18 84:2 136:16 136:24 186:21 187:7,15 188:8 261:15 286:18 296:21 306:3</p>	<p><b>performing</b> 211:23 219:4 346:1</p> <p><b>period</b> 48:14 209:8 209:9,10 223:20 230:13 290:2 317:1</p> <p><b>peristaltic</b> 252:15</p> <p><b>perjury</b> 357:22</p> <p><b>perlman</b> 2:3</p> <p><b>permits</b> 349:6</p> <p><b>permitted</b> 175:20</p> <p><b>perpetual</b> 145:11 145:13,15,19 147:7 147:9 149:7,18 150:2,8 262:6,7</p> <p><b>person</b> 38:23 81:20 127:16 339:14</p> <p><b>personal</b> 166:25</p> <p><b>personally</b> 245:23 254:11</p> <p><b>perspective</b> 109:25 171:10</p> <p><b>pertain</b> 31:12 63:22 91:23 333:6</p> <p><b>pertained</b> 31:20,23 79:4</p> <p><b>pertains</b> 31:24 64:22 174:6</p> <p><b>pertinent</b> 146:10 146:14 347:24 348:2</p> <p><b>ph.d.</b> 211:5</p> <p><b>phase</b> 284:24</p> <p><b>phasing</b> 284:25 285:16,17,17</p> <p><b>phenomenal</b> 286:9</p> <p><b>phenomenon</b> 131:1</p> <p><b>phone</b> 20:3 96:22 96:23,24 192:24 193:2,3</p> <p><b>phones</b> 6:4</p>	<p><b>photo</b> 112:18 113:1 113:10 191:7,14 318:17</p> <p><b>photocopy</b> 341:17</p> <p><b>photograph</b> 4:23 192:3,17 194:23 305:19 309:14 310:6 311:1 313:1</p> <p><b>photographs</b> 126:23 193:10 301:5 309:11 318:15</p> <p><b>photos</b> 117:6,8 226:3 300:23 301:1 301:2 309:12</p> <p><b>phrase</b> 170:22</p> <p><b>phrased</b> 79:6</p> <p><b>phraseology</b> 101:6 101:12</p> <p><b>phys</b> 291:23</p> <p><b>physical</b> 165:1 291:3,25</p> <p><b>physically</b> 56:17 65:18 83:25 224:25 225:2 230:4 263:18 266:18 270:17</p> <p><b>physics</b> 225:3 348:5</p> <p><b>pi</b> 28:14,23</p> <p><b>pick</b> 6:3 140:18</p> <p><b>picked</b> 20:4,7 140:12 277:8</p> <p><b>picky</b> 282:1</p> <p><b>picture</b> 188:23 190:23 191:2 243:24 281:15 290:19 292:4 309:13 310:24 311:4 338:25</p> <p><b>pictures</b> 112:23 181:15,23,24</p>	<p>184:23 190:23 213:12 223:6 224:18 249:18 250:23 265:2,3 298:19 348:8</p> <p><b>piece</b> 82:10 313:21</p> <p><b>pin</b> 243:20</p> <p><b>pipe</b> 5:5 60:14,15 60:16,17,21,21,23 61:5,6,6,6,11,13,14 62:1,2,4,8 227:8,13 227:21 239:7 249:7 249:8,8,9,10,11,23 251:11 253:20,21 267:19,21 268:5 271:16,21 272:19 272:24 273:4,5,11 273:11,14 274:9,15 275:6,12,13,16 276:21 277:2,21,23 278:25 288:6 289:1 289:9 310:4,5,8,10 311:8,8,14,14 316:8 336:15 343:11,15 345:7</p> <p><b>pipes</b> 61:4 270:13 270:14,22 271:2 272:17 302:17 306:9 309:17 311:7 311:15 335:5,6 343:20</p> <p><b>pipng</b> 60:9 61:17 86:11 123:17 309:20 346:12</p> <p><b>piqued</b> 324:6,20</p> <p><b>place</b> 6:5 133:9 139:6 177:21 178:13 179:23 244:1 315:4 355:8</p> <p><b>placed</b> 267:15 269:14</p>
--	--	--	--



CONFIDENTIAL

[places - power]

Page 401

<b>places</b> 139:24 201:9 286:11,22 306:7 <b>plains</b> 16:6 <b>plaintiff</b> 6:14 73:5 73:7,9 76:4,6 79:24 80:1,3 123:14 <b>plaintiff's</b> 4:7 155:6 <b>plaintiffs</b> 1:5 2:2 3:9 4:10 6:23 7:15 125:14 232:7 319:18 <b>plan</b> 31:19 107:14 107:18,21 108:7,16 108:21 109:1 112:2 112:8 174:1,6 175:2 185:9,13 186:1,10,13 187:3 188:7 189:7 204:25 218:6 241:23 247:1 254:13,21 258:6 262:20 264:11 286:4 342:17 346:18 <b>planning</b> 33:22 <b>plans</b> 157:4 178:17 178:19 <b>plant</b> 5:3 13:8 18:23 28:5 30:17 34:6,8,11,12,13,15 34:18,22 36:17 39:1,19,21 45:24 46:4,5,6,20 47:7,10 47:11 50:18 51:1,3 51:4,4,6,7,8,11 53:6,9,23 55:2 58:15,25 59:13,16 65:16 76:19 79:13 107:2,4 109:8,15 129:2 136:16,16,20	137:9,12,13,14,20 137:22 138:20 152:23 160:11,11 160:17,24 161:17 162:9,10,16 163:6 163:7,10,15,17,21 163:23 168:15 176:6,15,20 177:7 177:12,15,18 178:2 199:24 203:23 224:14,17 226:13 242:7,8 244:8,23 267:17 278:11 279:16,17,18 280:9 280:11,13 281:8 290:21 297:21 299:13 306:18 334:4 <b>plants</b> 18:24 27:24 34:3,4 83:10 157:7 157:8 161:3,21,22 162:1 306:12 <b>plastic</b> 52:11 306:9 <b>plat</b> 107:14 <b>platinum</b> 311:22 313:2,7,18,19 314:1,3 320:4 <b>play</b> 86:21 187:2 294:24 314:5 323:14,15 <b>players</b> 125:8 <b>pleasantries</b> 305:2 <b>please</b> 6:2,4 7:17 8:2 19:17 29:18 58:13 62:23 69:6 85:7 115:24 124:23 135:6 156:11 160:15 164:16 175:5 176:8 180:6 183:18 191:11 228:15 252:6	296:14 301:25 325:6 354:8 <b>plexiglass</b> 195:4,4 <b>plugged</b> 286:17 <b>plugging</b> 30:22 <b>plumbing</b> 72:20 <b>plus</b> 95:8 312:15 <b>pmm1</b> 150:3,6,7 <b>pmm2</b> 150:6,7 <b>point</b> 23:16 28:15 60:13 78:3,4 90:9 103:13 109:22 118:14 138:20 139:12,20 151:24 153:21 159:24 163:24 167:17 173:11 175:15 183:17 216:17,19 227:25 229:15 246:8,25 256:6 258:3 277:5 278:12 278:13 288:9 315:14,14,14 350:12 351:5,9 352:4 353:3,24 354:9,18 <b>pointed</b> 339:9 <b>points</b> 127:11 332:2,8 <b>poisoning</b> 74:22 <b>policies</b> 24:3 <b>pons</b> 130:18 <b>pool</b> 247:23 <b>pop</b> 67:11 243:2 <b>populating</b> 220:10 220:11 <b>portal</b> 22:25 23:1 <b>portion</b> 100:17 113:11 144:4 198:4 222:7	<b>portions</b> 129:13 <b>posited</b> 315:19 <b>position</b> 30:15 31:11 32:21 33:3,3 33:8,18 34:2 56:7 172:6 281:7 346:11 <b>positions</b> 319:4 <b>positive</b> 261:18 <b>possibility</b> 224:10 306:22 327:16,17 328:10,15 <b>possible</b> 72:11 129:1 154:23 229:3 263:18 301:11,15 301:19 346:10,12 <b>possibly</b> 165:10 270:14 310:11 <b>postgraduate</b> 35:1 <b>potential</b> 203:16 204:22 327:19,20 328:15 <b>potentially</b> 77:15 142:16 <b>pound</b> 239:22,22 239:23,23,23,24,24 240:1,2,4,5,14,25 241:1,8,14 242:20 242:21,22 248:20 345:17 <b>pounds</b> 53:11,12,14 53:20 161:17 237:17 239:10,12 248:20,23 272:4 275:20,21 277:1,3 277:20,24 352:20 <b>pour</b> 248:20 <b>power</b> 5:6 13:8 18:23,24 27:24 28:5 34:3,4,6,8,11 34:12,13,22 36:17 38:8 39:1,19,21
---	---	---	--

CONFIDENTIAL

[power - probably]

Page 402

45:24 46:3,5,6,19 47:7,10,13 51:3,4,6 58:15,25 59:16 111:3 116:11 117:3 117:16 129:2 137:9 137:12,14,18,20,22 152:22 157:7,7 160:16,23 161:16 163:6,13,14,15,16 163:23 177:3,17,18 178:6,7 189:19 198:11,15 199:12 203:23 205:10 207:5,16,25 208:14 208:23 209:3,23,24 210:5,9 212:8 226:13 253:11 256:14 265:12,13 265:19 279:16,17 279:18 280:9,13 285:18 298:20 318:10,14 319:15 322:22 324:11 332:14,15 343:13 <b>practice</b> 19:9 303:21 305:16 <b>precise</b> 197:5 203:19 <b>precisely</b> 210:3 <b>precision</b> 199:15 201:13 205:9,14 286:9 <b>preclude</b> 195:5 <b>predicate</b> 331:11 <b>predicated</b> 140:1 141:6,9 184:6 289:22 290:1 309:6 309:10 314:21 327:3 333:21,22 346:4	<b>predominant</b> 47:19 147:6 <b>predominantly</b> 85:14 101:15 261:5 <b>preference</b> 209:1 <b>preferred</b> 208:23 214:20,20 <b>preheat</b> 53:5 <b>premature</b> 72:24 <b>premise</b> 254:3 336:19 <b>premised</b> 255:5 <b>preparation</b> 43:17 <b>prepare</b> 9:12 73:16 73:19 100:10 320:11 <b>prepared</b> 70:8 89:11 90:4 100:11 100:12 117:17,19 140:7,9 197:20 210:17 288:20 318:11,13 331:11 <b>preparing</b> 66:5 67:23 140:23,25 197:23 <b>presence</b> 3:12 355:7 <b>present</b> 2:14 6:19 89:15 233:16,18 242:15 300:19,20 <b>presented</b> 332:4 <b>presently</b> 142:6 <b>preserve</b> 169:11 <b>president</b> 22:10 <b>pressure</b> 38:4,8 47:15 54:13,19,19 54:25 55:7 59:5,7 59:10,12 63:7,11 63:19,25 64:2,6 78:1 137:10,21 138:3,4 139:17,19	202:24 204:4,8 214:2 222:14,15,16 229:1,7,8,13,17 233:2,7,11,21,21 234:13,23 235:21 236:4 251:16 252:5 252:12 265:16 271:17,17,20 277:6 282:23 283:25 284:1,1 285:11 295:4 316:3,6 325:2,4,5,9,18,20 326:13,16,23 343:16 345:17 348:14,15,19,22 351:14,23,25 352:3 352:5,6,9,10,12,16 353:23 <b>pressures</b> 284:22 343:12 345:10,12 352:8 <b>presuming</b> 305:9 <b>presumption</b> 242:25 <b>presumptions</b> 296:23 308:21 <b>presumptive</b> 275:8 <b>pretty</b> 16:4 28:16 34:19 43:20 55:10 61:10 72:7 78:24 93:23 94:5 122:19 170:14 187:23 188:2 198:3 202:22 202:23 203:17 204:19 211:6 212:18 246:23,24 250:21 253:6 278:24 286:10,13 287:5 291:18 307:14 312:20 316:5 317:17,19,24	320:1 330:9 335:8 <b>previously</b> 80:11 173:2 255:7 321:3 <b>primarily</b> 18:23 309:8 <b>prime</b> 157:13,14 <b>principles</b> 87:3 <b>print</b> 62:11 <b>printed</b> 43:1 271:13 <b>prior</b> 8:22 21:23 39:13,23 56:21 70:9 96:17 97:9,16 99:4,4 111:17 130:17 135:12 142:25 144:5 147:2 157:1,4 169:22 170:7,10,17,23 171:2,14 172:1 173:9 181:17 186:9 187:20 197:23 237:7 <b>private</b> 6:3 <b>privilege</b> 319:22 <b>privileged</b> 124:15 <b>privy</b> 110:8 185:24 <b>prizes</b> 28:11 38:14 <b>probable</b> 281:25 <b>probably</b> 25:16 26:4 53:11 54:8,9 54:17 59:18 94:11 95:9 97:14 98:12 126:8 137:4 152:12 182:2,11 184:19 197:11 204:11 232:1 234:6 254:24 256:1 257:16 261:5 269:7 272:23 282:12 285:22 292:5,11 294:11 302:15 310:2,3
--	---	--	--

CONFIDENTIAL

[probably - publications]

Page 403

317:3 319:25 324:9 325:16 326:24 339:15 <b>problem</b> 53:23 56:15 202:2 207:8 207:24 230:11 234:14 239:2 245:18,20 247:5 250:6 322:5 353:16 <b>problems</b> 75:16 115:1 <b>procedure</b> 206:21 279:10 346:7 <b>proceed</b> 7:5 <b>process</b> 51:9 76:2 129:4 130:6 150:5 151:14,17 157:16 162:5,15 181:5 257:1 258:5 260:21 261:1 294:12 296:8 314:4 <b>processes</b> 152:12 306:18 <b>processing</b> 123:15 244:8 294:5 324:15 <b>produce</b> 104:15 126:8 156:13 166:4 176:6 179:25 262:17 279:16 <b>produced</b> 106:20 111:2 112:11 118:17 125:21 126:7 203:23 235:9 235:18 240:20 242:23 302:25 303:1 318:22 319:21 334:3,4 336:10 <b>produces</b> 84:25 137:15 145:23 176:15 259:11	<b>producing</b> 93:10 137:18 157:8 165:18,18,22 177:1 177:10,13 192:24 242:17 244:5 246:19 279:11 310:18 311:16,18 312:6 <b>product</b> 93:17 102:6 212:4 257:19 294:4,7,7 295:17 295:18 296:8,13,15 296:17 313:17 320:5,15 <b>production</b> 4:11 123:15 311:2 <b>productive</b> 298:13 <b>products</b> 71:10 123:16,16 248:7 288:7 312:2 <b>prof</b> 5:9 <b>profession</b> 131:16 <b>professional</b> 24:22 35:8 36:21 37:10 40:14 42:24 43:24 44:12 <b>professor</b> 37:12 127:4 147:3,23 150:18 256:1 331:14 337:19,20 338:12 <b>professors</b> 38:22 186:22 255:19,22 261:14 <b>program</b> 36:10 341:6,10 <b>progression</b> 224:7 <b>project</b> 20:23 30:1 30:19 32:8,14 33:24 35:12 37:20 37:20,23,24 38:11	38:12 51:24 56:5 58:12 170:8 172:12 <b>projections</b> 297:6 <b>projects</b> 157:1 179:15 230:19 <b>promoted</b> 58:6 <b>proof</b> 3:12 115:15 <b>proper</b> 15:20 33:11 33:12 54:7,16 100:13,16 101:3,5 101:11 104:13 108:11 118:17 159:7 160:2 173:23 188:24 199:6 204:5 218:18 219:3,11 222:21 255:9 266:20,23,25 269:10 285:3 328:1 <b>properly</b> 13:12 76:18 176:11 255:3 255:13 269:8,10 348:13 <b>properties</b> 72:20 73:11 146:3,17,17 146:18,20 271:19 345:9 <b>property</b> 91:9 192:13 <b>proprietary</b> 257:12 <b>propriety</b> 107:18 <b>protect</b> 306:17,17 <b>protection</b> 25:2 <b>protective</b> 98:21 <b>protocol</b> 173:23,23 174:22 175:1 187:18 254:14 262:19 263:24 <b>prove</b> 336:5 <b>proven</b> 337:17 <b>provide</b> 44:24 67:12 92:22 93:7	104:4 232:20 321:6 <b>provided</b> 81:25 82:17 87:16,20 93:5 94:24 97:4 99:3 103:2,6,24 104:3,18,19 106:6 106:8,9 107:22 112:1 119:6 122:7 122:25 123:13,24 124:15,20,25 125:6 141:24 144:8 148:18 195:14 204:25 232:17,18 232:20 235:19 243:24 271:7 289:23 302:22 318:8 323:23 332:9 334:10 335:1,1,25 336:20 347:11 348:25 <b>providing</b> 77:4 <b>provisions</b> 148:9 <b>prudent</b> 232:3 282:6 <b>psi</b> 55:4,8 59:14 316:7 345:14 <b>psia</b> 138:4 277:10 <b>psig</b> 277:6,9 278:22 352:5,19,22 353:2 353:17,20 <b>public</b> 351:8 355:4 355:21 <b>publication</b> 4:14,16 63:4,5 64:14,18 146:11 149:3 151:4 330:1 <b>publications</b> 65:23 65:24 66:2,4,6,11 67:23 68:3,7,16 144:12 148:16,19 344:10
--	---	---	--

CONFIDENTIAL

[published - questions]

Page 404

<p><b>published</b> 62:10 146:5,7 148:13 153:7</p> <p><b>publishing</b> 106:25</p> <p><b>pulled</b> 140:8 178:18 179:10</p> <p><b>pulling</b> 216:16</p> <p><b>pump</b> 48:16 251:10 252:10,11 255:17 256:6</p> <p><b>pumping</b> 252:16</p> <p><b>pumps</b> 40:19 176:19 250:11 252:14,15</p> <p><b>punctilious</b> 21:20</p> <p><b>purchase</b> 47:25 56:18 57:1</p> <p><b>purchased</b> 264:1</p> <p><b>purdue</b> 26:17,20 27:4,12 29:19 33:21 39:25 40:1 50:5,8 55:14,18 127:4</p> <p><b>purely</b> 103:16 173:12</p> <p><b>purported</b> 123:15 131:22 293:19</p> <p><b>purportedly</b> 130:13 279:21 302:25 336:10</p> <p><b>purports</b> 96:14 97:12 179:12 279:15</p> <p><b>purpose</b> 52:17 78:10 108:10 109:11 121:13 123:19 125:17,23 127:5,6 137:15 169:1 324:5</p> <p><b>purposes</b> 196:3 336:5</p>	<p><b>pursuant</b> 10:6 14:24 17:18 88:24 324:2 340:8</p> <p><b>pursued</b> 105:5</p> <p><b>purview</b> 105:7</p> <p><b>push</b> 316:1</p> <p><b>pushes</b> 315:24</p> <p><b>put</b> 37:25,25 38:2,7 47:15 52:6,10,15 52:25 53:3,7 54:10 71:8 100:5,15,15 113:4 119:18 134:12 144:24 147:16 157:11 159:19 163:8,10 169:8 178:2 199:17 204:3,4 235:15 241:1 267:18,21 268:23 269:24 270:9 274:16 278:14 280:18 281:9,9 284:14,17 286:3 289:2 290:25 293:19,25 295:2,7 296:23 306:10 323:22</p> <p><b>puts</b> 159:9 192:7 256:19,22,23 326:8</p> <p><b>putting</b> 54:14 100:13 136:7,8 160:8 177:23 181:2 237:16 247:3 291:7 291:8 293:18</p>	<p><b>qualitative</b> 87:5,8 117:12 155:17,18</p> <p><b>quality</b> 235:21 236:6,8,14,19,21 237:12,18 238:8 265:17 284:6,7,10 284:14,17</p> <p><b>quantify</b> 260:15</p> <p><b>quantitative</b> 87:6,8 117:13 155:18</p> <p><b>quantities</b> 247:11 255:24</p> <p><b>quarter</b> 39:11 40:14</p> <p><b>quarters</b> 20:14 39:10</p> <p><b>quasi</b> 251:18</p> <p><b>queries</b> 109:6 110:3 318:9</p> <p><b>question</b> 15:15 16:12 23:4,9 26:3 29:18 31:16 33:2,6 46:2 48:15 49:1 66:17 69:18,25 72:10 73:14 79:1,3 79:7 101:13 102:19 104:8 111:22 112:5 120:22 129:22 132:20,25 135:7,11 146:13 153:2 154:21 155:1,13 156:3,9 160:1 166:18 171:7 172:4 172:7 173:6 176:2 176:3,5,7,9,11 177:24 179:4 182:22 183:22,23 184:4 185:7,15,23 187:10 188:11 189:11,16 192:20 196:16 203:10</p>	<p>205:3 206:10,18 209:19 211:17 214:16 215:3 216:25 217:8,16 218:2,13,16 219:17 220:7 221:23 228:7 228:12 232:11,23 234:11 236:24 237:15 238:17,19 240:23,24 246:10 253:5 254:23 264:11 270:5 279:9 280:3 282:10 284:10 288:16 290:6 293:14,23 295:14,15 303:5 305:1 310:14 311:20,25 312:12 313:4,5,6,11,11,12 314:11,13,13,14,16 315:13 316:15 318:25 319:3 334:6 334:15 337:5,14,25 338:20 343:8 347:5 347:10,14 348:1 352:14</p> <p><b>questioned</b> 185:19</p> <p><b>questioning</b> 15:2 42:19 170:15 324:8 324:17</p> <p><b>questionnaires</b> 318:3</p> <p><b>questions</b> 10:19 41:12 102:6 109:14 109:15,17 155:23 181:20 262:24 263:1 303:7 304:18 304:19,22 305:5,11 316:17 324:10 353:7,15 354:1,6</p>
--	---	---	--

CONFIDENTIAL

[quibble - recorded]

Page 405

<b>quibble</b> 321:11 <b>quick</b> 65:24 176:14 322:3 331:16,18,25 341:11 <b>quickly</b> 342:3,20 <b>quit</b> 130:19 <b>quite</b> 41:18 43:12 90:5 110:4 142:19 152:13 155:11 183:1 185:19 <b>quits</b> 53:22 <b>quote</b> 55:8 213:24 <b>quotes</b> 289:3 <b>quoting</b> 127:23	<b>rapidly</b> 61:10 <b>rate</b> 22:23 23:13 155:16 278:10 288:2,11,21,22 297:25 <b>rates</b> 24:2 273:22 <b>ration</b> 245:19 <b>rationale</b> 245:17,20 <b>rattling</b> 176:3 <b>reac</b> 176:23 <b>reach</b> 228:19 <b>reached</b> 167:16 <b>reaches</b> 62:9 78:21 85:21 <b>reaction</b> 129:5,8,17 130:14 131:6 132:4 132:7,8,18,23 133:5,8 134:24 162:11 164:8 176:24 177:9,11,21 178:12,16 179:23 259:4,14,20,25 260:12,16 262:8 280:7,15,22 281:5 348:4,6 <b>reactions</b> 258:25 260:5 <b>reactor</b> 176:25 288:3,15 <b>reactors</b> 288:24 <b>read</b> 10:2 89:18 109:21 121:5 127:25 129:7 132:21 133:6,10,11 149:13,15 166:3 211:4 258:18 261:10 264:9 289:10 311:3 351:25 352:1,2 354:2,3,4,12 357:23	<b>readable</b> 330:10,11 <b>reading</b> 245:16 268:6,10 270:10,20 <b>readings</b> 5:6 322:22 <b>reads</b> 213:13 <b>real</b> 64:1 65:23 127:10 237:24 288:16 290:16 310:17 312:14 322:3 331:15,18 339:3,8 353:21 <b>realloyed</b> 52:24 <b>really</b> 51:4 55:24 73:15 93:11,12,12 97:15 149:4 227:20 227:21 228:13 239:20 247:8 272:5 272:10,20 280:6 282:11 288:12 295:5,10 306:10 311:23 324:20 331:17 336:11 338:21 339:9 347:6 <b>realm</b> 52:7 175:21 <b>rear</b> 299:13 <b>reason</b> 16:10,13 21:14 30:21 70:7 140:12 148:25 151:12 184:24 192:5 196:11 229:21 232:16,21 244:5 262:4 264:22 270:4 324:6 345:22 350:1 357:5 <b>reasonable</b> 302:15 <b>reasonably</b> 166:6 194:6 332:5 <b>reasons</b> 120:4 165:6 268:13 270:1	<b>recall</b> 14:15 30:16 34:14 39:25 46:22 53:5 70:24 105:15 186:2,4 200:16 234:17 245:16 268:1 281:18 <b>recalled</b> 273:16 <b>receipts</b> 312:2 <b>receive</b> 24:9 27:3 28:10,13 38:14 122:1 190:19 319:5 <b>received</b> 24:13 97:9 97:13 98:14 103:19 110:21 122:22,24 325:22 <b>recess</b> 90:12 95:18 167:21 267:10 322:8 329:11 342:10 <b>recognize</b> 35:22,23 36:6 <b>recognized</b> 74:5 204:19 <b>recollection</b> 287:22 <b>recommended</b> 81:20 91:1 <b>record</b> 6:1,7 7:18 11:17,23 21:22 65:4 88:5 90:10,13 95:14,16,19 143:23 144:2 167:18 168:5 197:17 267:8,11 274:12 317:5 322:3 322:6,9 329:7,9,12 341:19 342:6,8,11 346:23 349:1,5,20 354:7,20 <b>recorded</b> 156:16,19 156:22 210:24 245:15
<b>r</b>			
<b>r</b> 7:7,19 8:4,4 130:9 <b>race</b> 203:17 <b>racks</b> 309:20 311:8 311:14 <b>radiant</b> 223:2 <b>radiation</b> 28:9 130:7 131:4 133:4 134:13 <b>radioactive</b> 130:7 131:4 <b>radiologic</b> 349:11 <b>radiological</b> 129:10 166:12 <b>raise</b> 258:3 <b>raised</b> 263:13 347:16 <b>raises</b> 120:22 173:6 263:9 264:18 <b>raising</b> 306:22 327:23 <b>ram</b> 52:12 <b>ran</b> 60:24 61:1 171:23 <b>random</b> 201:15 <b>range</b> 20:15			



CONFIDENTIAL

[recording - report]

Page 406

<b>recording</b> 6:6 <b>records</b> 89:20 192:18 207:16 210:5,8,17,24 349:23 <b>recovery</b> 51:24 <b>reduce</b> 162:6 215:22 216:5 243:6 <b>reduced</b> 3:10 215:13,15 220:13 220:15,23,23,25 273:13 355:6 <b>reduction</b> 218:7,10 219:5 245:14 <b>redundant</b> 30:9 <b>refer</b> 66:20 96:12 148:5 226:17 295:11 296:20 342:25 <b>reference</b> 66:10 126:25 127:1 145:20 294:15 344:21 <b>referenced</b> 182:6 213:9 302:4 341:25 <b>referred</b> 148:9 168:19,21 210:12 334:1 <b>referring</b> 11:21 41:4 96:3 105:6 238:7 302:3 331:2 <b>refers</b> 235:8 279:5 <b>refined</b> 203:3 <b>reflect</b> 192:17 <b>reflected</b> 112:9 192:14 302:23 335:1 <b>reflects</b> 326:13 <b>refractories</b> 37:16 <b>refresh</b> 332:1	<b>refrigerants</b> 47:25 <b>refrigeration</b> 46:15 47:9,11 <b>refrigerator</b> 256:5 <b>refused</b> 88:24 89:3 <b>regard</b> 132:15 158:18 297:7 <b>regarding</b> 63:17 80:17 88:19 92:5 93:3 107:20 124:7 165:15 173:22,25 175:1 180:3 188:19 214:9 220:1 223:15 278:10 <b>regardless</b> 43:19 127:8 137:3 181:1 257:16 259:9 269:2 <b>regards</b> 152:12 155:18 <b>register</b> 113:1 <b>regular</b> 25:8 30:7 166:13 <b>regulations</b> 351:10 <b>reinforced</b> 58:21 59:2 <b>reiterate</b> 153:22 <b>reject</b> 297:19 305:25 308:20 <b>rejected</b> 152:22 296:17 300:8 308:12 <b>rejection</b> 287:10,13 289:19 308:9 <b>rejoin</b> 25:20 <b>relate</b> 30:6 63:22 <b>related</b> 63:10 72:15 72:15 90:25 91:17 91:18 123:17 153:19 175:3 283:9 <b>relates</b> 19:8 31:2 236:24	<b>relating</b> 20:12,16 45:11 91:20 140:3 <b>relation</b> 19:20 94:24 102:2 104:23 122:25 124:16 145:16 <b>relationship</b> 169:22 170:2,11,18,24 171:3,9,14 172:2 173:11,12,13 332:14,15 <b>relative</b> 42:10 348:3 355:10,11 <b>release</b> 162:6 <b>released</b> 162:15 164:8 250:23 259:3 259:4 <b>releasing</b> 162:5 166:21 <b>relevance</b> 117:3 <b>relevant</b> 33:1 42:24 141:15 226:18 284:25 <b>reliance</b> 117:2 <b>relied</b> 85:12 106:14 116:7 122:3 135:16 146:24 149:10 151:11 152:20 166:1 194:23 206:23 333:22 <b>relief</b> 46:15 <b>rely</b> 66:4 113:10,13 116:17,20 117:25 118:12,20 122:23 123:1 131:18 133:14,14 134:9 146:1 147:10 179:18 194:19 198:5 212:7 317:23 319:19,24 344:10	<b>relying</b> 32:20 273:15 319:17 <b>remain</b> 294:22 318:6 <b>remelted</b> 52:23 <b>remember</b> 15:23 16:9 28:2 30:19 32:18,24 52:4 53:7 55:3 61:18 67:8 102:16 113:5,8 125:5 140:12 143:12,18 144:1 170:7 197:15 202:14 243:21 246:24 <b>remind</b> 332:20 <b>remote</b> 58:18 224:11 <b>removal</b> 158:21 <b>remove</b> 21:22 284:14 300:8 334:2 <b>removed</b> 299:5,12 302:12 315:8 <b>removing</b> 336:9 <b>rendered</b> 68:21 69:4 115:5,21 142:9 164:25 <b>rendering</b> 112:2,8 141:24 142:5 143:1 144:6,12 <b>renew</b> 49:18,20 <b>rep</b> 140:13 <b>repeat</b> 172:8,18,21 172:22 217:9 228:14 <b>rephrase</b> 65:3 259:19 <b>replace</b> 72:13 <b>replicated</b> 120:11 <b>report</b> 4:19 5:4 16:11 22:14,18
--	---	---	--

CONFIDENTIAL

[report - result]

Page 407

68:21 69:3,7 70:9 71:18 73:16,20 81:3,5,25 82:4,18 87:17,20,22 88:1 89:11 90:4 94:21 97:3 100:9,10,12 100:15 101:10 102:3 107:1 112:9 115:6,21 118:5,13 119:2,18 122:1,4 122:14,21 123:6 124:5,16 125:3,15 126:5 127:25 128:12 129:7,9,12 129:23 130:1,2,4 131:2,13 134:2,5 134:12,17 135:6,12 135:17,22 138:21 140:21,23 141:1,4 141:12,25 142:5 143:1 144:6 146:24 165:5,7,11,15,17 167:3 168:9,16 170:13,18 173:4 174:23 175:4 181:17 182:25 184:2,6,11,18 185:10,10 187:21 188:16,17,25 189:5 196:18 197:1,2,20 197:23 198:4 199:25 202:19 203:21 205:16 207:12,17 210:6,12 211:24 214:14 217:4,6,13,20 221:15 225:6 234:9 258:5,6 261:8,23 263:10 265:6 279:4 283:16 289:7,14,15 290:14 293:3	302:23 311:4 313:25 314:18 315:6 316:25 317:8 318:13 319:12 320:16 321:4,5,8 321:10,11,12,13 325:14,15 326:8,9 326:12,13 329:5 330:16,23 331:12 334:1 335:2 336:8 338:14 339:11 342:15 343:9 344:7 345:23 352:12 <b>reported</b> 1:20 125:22 155:25 207:13 221:25 233:22 234:22 245:6 261:17,21,21 263:12 284:9 288:2 <b>reporter</b> 7:3 212:24 213:2 340:17 341:17 342:1 <b>reporting</b> 1:15 171:5 355:12 <b>reports</b> 71:11 172:24 186:16,25 195:12 210:17 243:18,22 300:6 <b>represent</b> 6:21 7:15 221:17,18,20 233:6 233:9,14 276:25 341:14 343:6 <b>representation</b> 142:19 <b>representative</b> 245:2 <b>represented</b> 278:14 302:9 330:25 <b>representing</b> 6:8 7:4	<b>represents</b> 233:12 233:15 <b>reprint</b> 68:6,12 <b>reputation</b> 150:17 151:2 <b>request</b> 88:3 141:3 141:23 142:1 143:6 143:9,17 144:5 190:16 267:24 <b>requested</b> 12:22 68:6,11 102:1 143:13,25 231:23 <b>requests</b> 4:11 8:25 9:13 <b>require</b> 350:23 <b>required</b> 163:7,16 185:5 350:3 <b>requirements</b> 26:10 203:8 <b>requires</b> 351:21 <b>res</b> 323:13 <b>research</b> 36:3 68:1 130:15 133:12 167:11 316:25 320:16 338:11 <b>resembled</b> 300:25 <b>reserve</b> 65:13 82:20 111:13,24 112:6 165:3 167:15 175:19 264:13 283:13 <b>reserves</b> 175:6 288:7 <b>reservoir</b> 150:1 <b>residential</b> 351:6 <b>resistance</b> 257:22 261:4,6 <b>resistor</b> 178:16 269:18,19 <b>resolved</b> 30:20	<b>respect</b> 22:2,22 24:4 30:14 32:4,14 34:18 66:11 77:4 77:25 82:23 83:19 99:21 103:12 105:10 124:21 125:1 132:22 134:15 149:6 151:9 153:7 156:5 164:24 183:12 200:21 205:8 210:16 214:8 230:7,19 235:5 255:1,6 262:22 280:14 289:6 306:19 307:22 309:5 312:7 325:8 334:10 346:11 <b>respectfully</b> 335:9 <b>respective</b> 3:7 <b>response</b> 111:2 112:11 129:14 287:22 <b>responses</b> 287:18 <b>responsibilities</b> 32:4 34:17 50:16 56:6 <b>responsibility</b> 30:14 32:14 <b>responsible</b> 83:21 168:20 <b>rest</b> 34:24 55:25 76:19 177:14 322:25 330:6 <b>restate</b> 156:2 217:19 334:7 <b>restriction</b> 306:5,8 306:16 <b>restrictions</b> 317:12 <b>result</b> 207:11 209:25 218:11,17 219:5,7 247:14
--	--	--	---

CONFIDENTIAL

[result - round]

Page 408

307:9 343:24 <b>resulted</b> 156:6 <b>results</b> 156:16,19 171:11 196:14,25 246:11 318:23 <b>resume</b> 4:13 33:17 35:7 51:23 57:19 68:18 273:13 <b>retained</b> 17:21 81:12 95:2 97:10 104:1,21,22 106:1 121:19,21 264:24 317:11 318:2,7,23 <b>retainer</b> 4:20 23:2 95:24 <b>retention</b> 24:3 90:17 96:17 97:4 <b>retract</b> 167:5,6,7 183:24 347:2 <b>retrofit</b> 33:25 <b>return</b> 265:18 285:10 325:4 342:2 <b>returned</b> 58:1 <b>returning</b> 58:3 <b>returns</b> 240:10 <b>reveals</b> 169:22 <b>review</b> 97:16 106:7 107:15 109:9 112:13,15,20 141:13 144:8,11 186:10,16 187:18 321:8 329:4 338:18 <b>reviewed</b> 8:22 62:13 65:25 102:22 103:18 142:25 151:6,8 157:4 178:24 187:20,21 210:16 330:16 338:14 <b>reviewing</b> 103:23 109:11	<b>reynolds</b> 336:15 <b>rhetorical</b> 49:1 293:22 303:7 <b>rhodes</b> 72:3 73:4 74:6,15 <b>richard</b> 2:15 6:8 <b>richmond</b> 74:17 76:4 <b>rick</b> 1:12 3:8 4:4,12 4:13,19 6:18 7:9,19 355:5 357:2 <b>rid</b> 177:16 298:1 <b>riding</b> 203:18 <b>right</b> 20:14,15 32:12 38:25 42:17 44:2 48:12 54:23 55:10 56:14 57:17 62:5 64:20 65:13 66:23 67:8,21 68:6 70:20 72:7 77:6 78:19,21 81:9 82:19,20 89:23 93:4,6 95:5,7,11 99:1,2 100:13 102:16 105:23 106:2 109:2 110:23 111:11,13,25 112:6 112:10 113:8 114:13 123:3 131:21 133:19 135:20 137:14 141:17,20 144:18 144:19 145:4 147:22,24 152:8,24 154:8,11,16 155:4 158:10,11,16,17 159:2,25 160:22 165:3,23 167:7,15 175:6,10,19 178:3 179:7,16 188:12,15 192:12,13 193:6	195:19 201:1 202:10 206:5 209:4 209:17,25 212:19 215:14,23 220:20 221:23,24 224:21 225:8 227:20 230:9 230:25 237:8 241:5 241:6 244:3 247:23 248:7 250:2,7 262:5 263:4 264:13 264:25 269:6,8 270:23 271:23 272:1,6 273:25 275:6,7 277:18 278:1,21 283:14 285:23 288:7 292:5 294:25 295:25 299:4 307:12,15,18 310:3 311:5 313:15 321:20 322:23 326:7 328:13 330:15 331:24 333:14 334:8,18 335:8,19 346:20,24 347:20,21 350:18 354:2 <b>righty</b> 29:12 279:8 <b>rigorous</b> 204:23 282:1 330:10 <b>ringing</b> 20:4 <b>rise</b> 298:9 <b>rises</b> 250:2 298:6 <b>rising</b> 298:14 <b>river</b> 50:10 58:16 58:25 59:25 60:2,5 230:20 <b>road</b> 8:3 <b>robert</b> 38:22 <b>rocket</b> 4:15 63:1 64:5 67:1,4,19	<b>rods</b> 163:9 164:12 176:20 <b>roebuck</b> 74:18 76:5 <b>role</b> 38:19 50:24 314:6 <b>rolled</b> 205:25 <b>rollover</b> 105:20 <b>rollup</b> 119:8 <b>roof</b> 300:8,14 301:14,17 309:19 <b>room</b> 6:20 53:2 78:20,21 155:4 272:18 296:5,5 340:12 <b>ross</b> 334:11 <b>ross's</b> 260:25 <b>rossi</b> 1:4 6:14,23 78:6 86:15 87:9 123:15 129:7 130:23 131:7 135:2 135:17 169:23 170:24 171:3 179:15 183:11 245:5 268:1 280:21 280:22 286:16 323:2,2,10,12 357:2 <b>rossi's</b> 123:20 134:18 135:12 178:25 257:12,17 <b>rotor</b> 264:18 <b>rough</b> 92:7 198:2 270:24,25 <b>roughly</b> 12:19 17:23 100:1 186:5 292:1 <b>round</b> 37:11,18 52:8 203:19 205:22 205:22 206:1 215:24,25 216:2,8
--	---	--	--



CONFIDENTIAL

[rounded - see]

Page 409

<b>rounded</b> 200:12 201:12 202:5,9,12 205:19 206:7 207:11,21 208:18 214:10,13,25 215:19,22,23 216:4 216:7,10,20,21 217:11 287:2 <b>rounding</b> 214:25 215:4 216:14,22 <b>routing</b> 78:2 <b>row</b> 273:20 274:23 276:3 <b>rows</b> 272:22 335:6 <b>rubric</b> 130:24 <b>rule</b> 355:13 <b>ruled</b> 118:24 <b>rules</b> 70:10 148:17 <b>run</b> 22:10 51:2 53:16 123:16 163:15,17,21 164:16 166:19 174:18 280:11 352:17 <b>running</b> 53:18 73:1 83:8,11 150:13 157:17 174:19 268:5,12,25 299:1 <b>runs</b> 171:1 256:13 <b>rust</b> 264:17 265:3,3	<b>sake</b> 222:1 276:14 293:5 <b>sales</b> 18:16 <b>salt</b> 133:23 <b>samples</b> 132:9 <b>sarco</b> 238:22 <b>saskatoon</b> 14:5 <b>satisfied</b> 203:8 <b>satisfy</b> 15:11 17:17 <b>saturated</b> 54:14,16 54:18 140:5,5 146:18 229:14,17 229:20 <b>saturation</b> 54:24 55:5 159:18 222:23 222:25 224:22,24 229:2 234:22 <b>saturday</b> 344:5 <b>save</b> 101:24 323:11 323:12,21 <b>saw</b> 166:5 188:23 211:24,24 212:2,14 231:8 243:24 249:18 250:22 251:4 264:18 265:2 265:3 281:15 289:10 300:24 <b>saying</b> 51:17 83:20 85:1 93:24 115:16 115:16 129:25 173:6 180:13 183:16,17 195:1 201:22 202:14 207:24 208:9,22 221:4,5 234:19 251:22 281:1 283:15 289:21 293:15 320:24 327:17,18 328:14 336:23 337:3,8,9 347:7	<b>says</b> 7:11 11:8 33:18,25 35:7 51:23 56:8 57:20 84:9 117:15,18 131:19 137:9 138:11,20 139:7 193:7 200:24 205:18 221:9,15 230:8 233:20 235:18 250:2 290:17 <b>scale</b> 114:21 310:7 <b>scan</b> 331:16,18,25 <b>scanned</b> 179:6 261:11,24 <b>scares</b> 348:9 <b>scenario</b> 241:1 <b>scepticism</b> 133:13 <b>schedule</b> 97:19 99:13 147:14 273:9 273:11,12 274:1 275:9,12 <b>schell</b> 1:20 7:4 355:4,20 <b>school</b> 4:17 34:20 34:25 36:13 64:15 65:7 67:2 351:7 <b>science</b> 27:7 <b>scientists</b> 154:17 261:14,14 <b>scioto</b> 58:17 <b>screenshot</b> 191:22 <b>screenshots</b> 71:12 71:15 <b>screw</b> 323:16 <b>screwed</b> 89:3,7 <b>se</b> 36:7 57:17 60:5 62:12 137:17 206:12 209:4 270:11 334:14,21	<b>sea</b> 138:5,12,14 229:9 295:8 <b>seabag</b> 56:1 <b>seal</b> 252:4 355:15 <b>search</b> 169:22 349:22 <b>searches</b> 324:2 <b>sears</b> 74:18 76:5 <b>seat</b> 158:14 <b>second</b> 5:8 8:6,18 64:18,19,20 71:25 72:19 83:13 93:15 115:19 117:14 145:10 147:7 150:1 150:12,12 161:24 180:21,22 181:13 208:20 219:16 230:8 254:25 257:6 267:18 271:18 280:3 287:9,12 291:15 296:7 311:4 311:6 329:20 339:14 <b>section</b> 69:7 126:13 126:19 168:15 276:15,16 278:5 279:4 282:14 287:9 289:18 332:17 333:10 <b>sections</b> 149:18 <b>see</b> 12:5,8 13:24,25 14:4 21:3 50:17 65:14 71:21 73:18 73:19 74:14 78:3 93:22 100:19 111:24 120:8 145:12 166:23,24 166:25 167:1 168:24 169:2 183:6 183:10 193:13,13 193:14,18 196:21
<b>s</b>			
<b>s</b> 7:7,20 8:4 <b>safe</b> 72:11 248:22 248:24 <b>safely</b> 76:19 <b>safety</b> 4:14 25:23 41:19,22 42:8,10 42:13,13,18,23 63:1 65:11,15 134:13 348:3,15,20			

CONFIDENTIAL

[see - similar]

Page 410

199:17,19 201:19 205:15 207:10 208:13 214:18,24 220:16,17,25 225:8 227:21 230:4,8 231:11,12,16 251:7 272:12 278:24 285:17 286:18 288:11,21 299:21 300:12,22 305:19 309:15,16,16,20,23 310:23 313:1 317:13 321:6,12,18 324:18 325:6 328:17 333:11 335:3,4 339:2,9,10 347:2 348:17 <b>seeing</b> 143:2 200:16 203:1 214:10 219:19,20 220:2,3 269:3 328:16 <b>seeking</b> 93:17 102:6 124:10,11 <b>seen</b> 8:17 9:25 65:10,18 142:18,18 167:1 169:4,4 178:17,19 181:18 181:22 184:23 188:18,21 189:1,7 189:21,24 190:9,12 190:15 210:8 221:21 223:4,6,15 224:11,13,16,18,19 243:11,21,23 248:9 249:18 253:14 257:23 258:19 269:23 270:7,11 287:19 295:2 300:10,11,13 310:21,22 312:1,2	312:3 315:4 321:4 327:22 328:3,10 <b>sees</b> 321:13 348:21 <b>selected</b> 40:4 183:19 278:5 <b>self</b> 82:7 324:23,24 <b>sell</b> 123:20 238:22 347:6,8 <b>selling</b> 238:23 <b>semantic</b> 158:18 <b>semantics</b> 51:6 321:10 <b>semester</b> 27:17,18 <b>semesters</b> 28:15 39:7,10 <b>semi</b> 166:13 <b>send</b> 93:21 94:3 196:1,3 <b>sending</b> 196:17,24 <b>senior</b> 58:6,8 <b>sense</b> 42:22 177:10 273:23 282:17 <b>sensing</b> 269:10 <b>sensitive</b> 6:3 <b>sent</b> 94:4 196:8,12 247:8 312:1 313:18 <b>sentence</b> 138:11 150:2 168:18 <b>separate</b> 54:7 159:16 222:20 223:1 231:2,4,5 235:25 237:6 266:2 <b>separated</b> 252:3 <b>series</b> 27:17 <b>serious</b> 234:20 309:20 316:1 <b>serpentine</b> 303:6,8 315:10,21 336:13 <b>served</b> 58:15 60:17 111:3 112:12	<b>serves</b> 55:5 59:15 109:13 <b>service</b> 102:20 175:3 285:5,7 <b>serviced</b> 72:9 <b>services</b> 56:10 349:13 <b>session</b> 3:1 168:2 <b>set</b> 48:16 159:16 184:2 193:18 194:17 218:14 223:2 231:4 250:10 250:12 337:19 338:1 342:15 355:14 <b>settle</b> 17:15 <b>settled</b> 92:13 105:5 <b>settles</b> 155:9 <b>seven</b> 16:1 69:15 70:6,16,21 <b>severe</b> 76:16 <b>sewer</b> 112:12 306:5 306:8,9,16 <b>shadow</b> 171:10 <b>shape</b> 52:13 78:25 <b>shares</b> 287:25,25 <b>shed</b> 86:5 <b>sheet</b> 10:20 324:21 325:19,21,25 326:20 357:1 <b>sheets</b> 326:5 <b>shell</b> 30:25 <b>shipping</b> 294:5 <b>shop</b> 46:11 312:21 <b>short</b> 19:16 26:3 90:9 159:21 353:7 <b>shortened</b> 311:12 <b>shorthand</b> 255:21 255:23 <b>shortly</b> 87:19 150:16 342:7	<b>shot</b> 245:23 253:19 <b>show</b> 8:14 9:23 62:18 64:13 147:11 178:20 179:12 182:3 183:17 191:2 197:18 199:23 297:15 312:4 324:25 331:22 <b>showed</b> 210:13 <b>showing</b> 271:8 352:9 <b>shown</b> 190:4 255:18 343:18 <b>shows</b> 43:21 213:13 <b>shuffling</b> 322:4 <b>shut</b> 72:12 174:20 <b>sic</b> 16:21 56:9 70:11 80:2 87:19 <b>side</b> 41:21,21 43:10 59:11 87:13 182:12 182:14,14 192:13 193:8,9 253:20 284:24 299:19 303:22,24 306:21 306:24 318:19,21 <b>sigma</b> 28:14,23 <b>sign</b> 98:8,18,20 99:9 193:7 340:11 <b>signal</b> 225:14 268:18 269:2,14 270:19 328:2 <b>signature</b> 355:19 <b>signed</b> 4:20 20:5 95:24 96:15 98:13 98:14 99:8 <b>significant</b> 286:25 <b>similar</b> 31:2 39:24 43:12 72:16 73:11 75:8,12 76:22 77:3 77:7 152:13 157:23 188:1 279:11
--	---	--	---

CONFIDENTIAL

[similar - soap]

Page 411

289:24 297:12 319:12,12 321:12 <b>similarities</b> 13:16 67:18 <b>similarly</b> 86:14 138:6 241:17 301:23 328:3 <b>simple</b> 31:18 72:8 276:5 307:14 320:22 <b>simplify</b> 262:18 <b>simply</b> 189:4 305:18 324:1 <b>simulation</b> 113:22 296:21 297:12 298:12 318:16 319:16 321:11 333:18 <b>simulations</b> 114:5 115:4,12 116:1,3,7 164:23 296:24 297:11 <b>sir</b> 7:14 8:1,5,14,17 8:21,24 9:11,18,23 9:25 10:1,8,11,12 11:6,18 12:15 13:4 13:19 14:8,15,16 14:23 15:5,10,25 17:1,6,21 18:2 19:14 21:23 22:1 22:17 24:22 26:8 26:15 27:2 28:22 29:13 33:17 34:9 34:10 35:7 38:16 43:25 45:5,10 48:20 49:1,19 50:4 50:12 51:11 53:15 59:24 62:10,18 63:3 64:13,18,19 64:22 68:2,5,18,21 69:3 70:4,7,21 71:5	80:7 86:9,23 90:7 90:16 92:2 94:18 95:22,25 99:18 100:8 101:17 104:20 107:15 108:25 110:20 111:15 112:1,16,17 112:20 115:18 122:9 123:6 125:12 125:23 128:7 131:9 132:13 133:23 135:7,11,21 137:8 138:8,19,22 139:14 140:7,20 142:23 145:14 147:20 148:9 149:6 153:22 154:21 157:3 159:21 160:19 165:2 167:8 168:8 168:11 169:19 174:23 175:8 180:1 180:7,11 182:6 183:1,12 184:1,17 184:25 185:24 187:2,17 188:7 189:20 191:3,7 193:4 195:10 196:18 198:10 199:16,23 200:7 205:8 206:5 208:21 211:1 213:5,8 216:4 218:5 219:18 221:18 223:8,13 224:22 225:19 226:4 228:12,16 229:3,21 230:7 233:9 235:1 237:21 238:17 239:13 246:6 248:19 249:18 252:18 254:12,25 259:5	265:5 266:17 267:14 273:7 278:13 279:4 281:13 287:8 288:16 289:14,18 290:13 293:3 294:20 301:4 302:24 304:9 305:7 306:19 308:7 310:20 313:3,8,20 313:25 314:5,18 315:4 316:2,9,20 316:24 318:5 319:1 321:2,14 322:15,19 323:25 325:17 326:20 328:6 329:1 329:4,18,22 331:10 339:22 340:4 342:14 343:22 344:9 353:13 354:1 354:7 <b>sit</b> 122:18 296:4 <b>site</b> 19:24 65:12 98:20 123:10 142:14 143:1,16,17 143:19 167:10 182:8 194:7 245:2 251:8 263:22 265:1 346:22 <b>sits</b> 78:20 <b>sitting</b> 24:20 53:21 142:7,24 149:2 165:15 188:13 194:14 224:6 232:19 288:18 336:22,24 <b>six</b> 10:14 11:6,25 16:23 70:20,24 71:1 80:25 81:9,10 193:14 273:20 299:25	<b>size</b> 52:10 53:2 270:14 271:1,21 272:24 273:3,4,5 273:14 274:9 275:6 276:21 277:21 291:3,21,25 292:18 292:19,21 293:7,11 293:17 297:2 299:7 316:7 336:7 343:20 351:19 <b>sized</b> 297:16 <b>sizes</b> 271:16 <b>sizing</b> 272:3 283:7 <b>skeptical</b> 183:12 <b>skeptically</b> 170:21 <b>skip</b> 34:23 <b>skylight</b> 298:22 299:23 <b>slide</b> 43:21 48:16 136:14 137:16 140:16 <b>slides</b> 126:24 <b>slipped</b> 82:15 <b>slope</b> 283:8 <b>slotted</b> 34:5 <b>small</b> 214:1 251:14 251:25 252:15 269:18,19 287:5 290:18 297:22,23 311:6,10 312:21 348:21 351:7 <b>smaller</b> 114:23 345:18,18 <b>smell</b> 173:19 <b>smith</b> 1:12 3:8 4:4 4:12,13,19 6:18 7:9 7:19 355:5 357:2 <b>snarky</b> 212:19 <b>soap</b> 29:24 30:21 32:8
---	--	--	--

CONFIDENTIAL

[society - standard]

Page 412

<b>society</b> 25:1 157:19 <b>sold</b> 312:2 <b>solely</b> 134:16 255:5 <b>solids</b> 243:6 <b>solve</b> 115:1 <b>somebody</b> 81:18 100:14 103:15 131:18 149:5 172:5 192:7,7 196:1 215:9 225:14 349:25 <b>somebody's</b> 131:15 <b>someplace</b> 121:6 160:9 <b>somewhat</b> 127:14 201:18 211:4 273:24 289:24 292:22 <b>soon</b> 251:8 <b>sorry</b> 12:8,25 15:21 15:22 17:23 29:2 33:16 40:5 44:7 46:2 47:2 50:21 51:15 55:7 56:14 58:4 65:3 68:19 72:15 73:21,22 79:22 82:24 100:25 108:14 119:11 129:9 135:8 159:20 167:10 171:20 185:2 189:8 191:8 191:12 193:10 202:8,12 205:6 207:9 208:11 213:1 213:17 214:8 216:12 219:15,23 220:13 225:11,12 239:17 246:14 252:6,23 254:4 268:15 271:24 276:13 287:14	289:19 309:24,25 311:25 314:15 322:21 326:15 332:21 333:6 336:6 338:6,24 340:21 343:3 <b>sort</b> 108:12 144:2 151:17 237:13 270:9 275:5 294:8 295:20 325:24 <b>sorts</b> 323:5 324:3 <b>sound</b> 98:25 <b>sounds</b> 91:25 99:2 230:25 244:11 314:5 <b>source</b> 47:17 85:19 87:21 126:22 161:10,11,12 223:1 227:4 249:2 257:20 315:7 350:7 <b>south</b> 1:16 6:12 43:9 59:2 <b>southern</b> 1:2 6:16 294:24 <b>space</b> 60:19 256:7,8 <b>speak</b> 121:10 171:8 <b>speaking</b> 22:19 30:5 78:7 155:7 185:8 <b>special</b> 198:5 205:11,22 206:14 <b>specialization</b> 27:9 <b>specific</b> 32:13 33:14 93:24 110:5 110:7,16 115:23 130:25 131:1 138:7 138:9,10,24 139:1 144:14 146:3 151:20 153:20 185:8 189:17 194:2 194:17 203:14	217:4,23 227:11 252:25 253:7 277:10 288:16 301:25 309:4 312:8 345:13,25 350:17 <b>specifically</b> 9:4 23:4 30:13,17,25 31:23 51:7 64:1 66:10,20 96:13 119:18 124:17 135:25 136:24 149:6 151:4 169:7 188:16 194:4 200:4 204:6 205:8 230:7 237:8 255:12 262:21 346:20 <b>specifications</b> 223:5 336:7 <b>specificity</b> 175:16 181:20 297:3 337:16 <b>specifics</b> 32:24 33:13 92:20 144:18 203:6 297:16,18 335:21 <b>specified</b> 168:23 355:9 <b>speculating</b> 298:24 310:12 <b>speculation</b> 310:15 310:15 <b>speed</b> 121:16 <b>spells</b> 247:1 <b>spend</b> 164:21 <b>spent</b> 284:12 <b>spill</b> 298:9 <b>spin</b> 25:13 <b>spirax</b> 238:22 <b>spirax's</b> 239:2 <b>sponge</b> 311:22 313:3,7,19 314:1,3	320:4 <b>sporadic</b> 20:9 21:12 <b>sporadically</b> 56:25 <b>spot</b> 341:11 <b>spreadsheet</b> 5:5 118:4,12,16 119:17 120:7,11,16 123:3 167:10 195:16,18 195:21 213:16,16 215:7 220:18 221:3 233:8 271:2,5,8,16 318:10,12 323:8,17 343:19 345:1,2 <b>spreadsheets</b> 117:15,17,20 195:15 288:13 <b>square</b> 275:10 <b>squeezes</b> 345:14 <b>ss</b> 355:2 <b>stack</b> 95:5 147:15 179:9 339:24 <b>stacked</b> 293:11 <b>staff</b> 57:8 <b>staggered</b> 335:7 <b>stakes</b> 203:18 <b>stand</b> 7:21 130:12 165:13 192:25 193:1 202:20 205:19 206:11 234:12 268:3 334:22 353:19 <b>standard</b> 14:24 15:12 17:2,19 28:23 97:20 98:7 115:15 204:19 213:20 253:11 273:11 278:7 279:10 290:9 300:16 333:1 335:19 344:14
--	--	---	---

CONFIDENTIAL

[standard - stevens]

Page 413

352:11 <b>standards</b> 15:11 17:18 21:19 25:18 <b>standby</b> 53:21 <b>standing</b> 26:13 48:19 49:14 150:23 215:20 217:1,12,19 219:10 234:12 <b>standpoint</b> 77:11 204:1 286:21 320:21 350:10 <b>stands</b> 130:13 194:6 304:5 <b>staple</b> 331:23 <b>start</b> 20:24 140:21 204:14 207:18 216:1 295:3 298:9 <b>started</b> 11:11 20:3 58:5 92:16,19 324:19 <b>starting</b> 26:16 34:19,20 72:2 125:2 127:19 156:20 199:9 200:1 210:21 305:21 <b>starts</b> 198:11 207:3 213:9 287:15 295:1 295:6 <b>state</b> 7:17 35:4,21 35:22,23 38:14,18 43:16 44:2,3,4 45:19 46:10,17,20 47:14 49:4 56:11 57:21 58:1 83:1,2,9 123:9,12 128:8,13 128:19 131:14 133:3 134:14 136:22 151:10 157:12 169:21 188:17 192:2 198:14 210:3 233:5	234:3,8,20 240:10 241:13 262:6 291:20 294:17 295:16 314:19 349:1,8,22 350:1 355:2,4,21 357:21 <b>state's</b> 349:5 <b>stated</b> 69:21 70:2 90:18 131:7 134:17 134:23 165:6 281:17 <b>statement</b> 101:21 123:8 131:5 133:25 135:16 169:1,9 220:23 231:16 233:17 252:20 255:5,12 281:19 <b>statements</b> 125:1 134:18,20 282:8 <b>states</b> 1:1 6:16 131:3 168:19 174:24 195:11 213:12 283:16 <b>static</b> 252:9 <b>stating</b> 133:4 294:6 306:23 336:24,25 <b>stationary</b> 44:5,9 45:15 48:4 49:21 49:24 226:14 <b>statistic</b> 137:19 <b>statistical</b> 324:4 <b>statistics</b> 288:3,11 288:22 <b>statute</b> 3:9 <b>stead</b> 39:2 <b>steam</b> 5:5 19:3 30:21 33:12 38:10 51:8,11,13 53:11 53:19,19 54:12,13 54:14,16,18,18 55:1 58:12,18,22	58:25 59:4,13,13 59:23 60:15,15,19 60:24 61:6,9,15,22 63:25 77:14,19,20 77:23 81:19,21 83:8,10,10 84:7,14 84:22 85:2,15,16 85:16,17,20,20 86:5,8,11,18 90:25 91:18 100:2 123:20 126:7,8 137:9,9,12 137:15,20,20 140:5 144:19,20 145:1 146:1,3,5,16,17,19 146:25 147:1 156:6 156:13,17 157:14 157:24 159:15,16 159:18,19 165:19 165:23 166:2,5,6,9 166:12,22,23,24,25 167:1,2 202:24 204:3,4,4,6,7,8,16 221:10,14,20 222:9 222:10,13,16,22,24 223:19 224:3,8,9 224:21 225:22 226:22 227:21 228:4,19 229:1,6 229:16,18,20 230:9 230:12,15,16,20,23 231:1,7 233:2,7,10 233:11,15,18,20,21 234:6,13,21 235:5 235:21,21 236:6,6 236:8,13,19,21 237:12,16,17 238:8 238:9,11,12,13,17 238:25 239:3,4,5,6 239:8,11,14,16,20 239:22,22,23,24 240:1,3,4,5,9,10,17	240:20,20 241:7,8 241:13,14,20 242:8 242:23 247:14 248:23 249:3,7,8 249:11 253:4,20,22 253:24 254:1,7 256:21,25 265:15 265:17 267:15,16 270:15,22 271:3,17 271:19,21 272:2,3 272:4,6,11,16,21 273:21 274:15 275:23,25 276:11 277:1,3,6,13 278:4 278:10,22 280:1 281:17,20,21,23 283:17 284:6,7,10 284:14,17 285:9 288:6,11 289:1,2,4 289:6 290:20 294:21 295:11,24 296:1 312:25 315:25 316:1,2,4,7 343:9,11 344:16,19 344:20 345:8,9,11 345:11,11,17,19,20 346:12,14 349:15 351:14 <b>steaming</b> 295:5 <b>stems</b> 237:6 <b>stenotypy</b> 3:10 355:7 <b>step</b> 79:22 103:24 154:18,18 156:11 205:23 207:18 315:15 <b>stepped</b> 135:8 208:11 246:14 <b>steve</b> 16:5 <b>stevens</b> 2:15 6:8
---	--	---	--



CONFIDENTIAL

[stick - suppose]

Page 414

<b>stick</b> 41:5 118:21 318:8 <b>sticker</b> 340:10 <b>sticks</b> 5:13 319:6 341:25 <b>stipulated</b> 3:6 <b>stipulations</b> 3:4 <b>stokes</b> 129:7,9,23 130:1,2 131:2 133:2,24 165:24 260:23,24 280:20 281:17 <b>stop</b> 78:22 108:3 176:8 212:6 <b>stopped</b> 195:8 320:17,18 <b>stopping</b> 167:17 <b>stored</b> 279:24 <b>stories</b> 54:9 <b>storm</b> 4:16,18 64:15,16 66:25 <b>story</b> 280:25 <b>stove</b> 295:3 <b>straight</b> 11:23 14:3 38:10 291:16 <b>straightened</b> 89:22 <b>stream</b> 294:4,7,8 295:17,18 296:13 296:15,17 <b>street</b> 1:16 6:12 14:3 128:20 129:3 170:23 193:8 <b>streets</b> 83:8 <b>strictly</b> 326:5 <b>strike</b> 64:21 68:19 90:21 258:23 313:12 <b>strikes</b> 201:14 <b>strip</b> 225:12 227:13 327:13	<b>stripping</b> 88:16 <b>strips</b> 227:6 <b>strong</b> 262:15 <b>structure</b> 37:14 60:15 161:8,8 <b>structures</b> 85:25 <b>stuck</b> 95:9 225:16 319:7 <b>student</b> 33:23 <b>studied</b> 188:11 264:5 333:17 <b>study</b> 4:15 38:11 63:2 66:22,23 166:12 179:5 186:18 188:4 210:9 210:11 261:11,24 314:21 319:16 <b>stuff</b> 18:17 41:5 57:1 94:1 95:5 121:24 134:25 136:12 147:15 150:20 157:24 158:15 170:4 202:7 203:20 238:23 258:15,19 312:15 317:19 320:9 321:21,21 324:16 339:7 343:19 348:24 <b>sub</b> 221:11 <b>subconscious</b> 324:15 344:1 <b>subject</b> 13:14 41:3 41:7 43:19 75:7 83:5 88:13 89:21 91:22 99:24 130:15 145:20 319:21 320:16 326:21 341:4 351:1 357:23 <b>submitted</b> 111:16	<b>subpoena</b> 8:19 16:23,25 111:3 112:11 <b>subscribe</b> 237:2 <b>subsequent</b> 289:15 <b>substance</b> 121:16 121:18 357:24 <b>substantial</b> 242:6 <b>substantially</b> 106:21 163:12 164:5 188:1 288:4 <b>substantive</b> 99:21 118:25 <b>subtract</b> 163:17 <b>subtraction</b> 209:9 <b>successfully</b> 58:11 <b>sufficiency</b> 187:24 <b>sufficient</b> 183:9 186:14 258:23 307:9 334:2 <b>sufficiently</b> 253:3 <b>suggest</b> 67:25 <b>suit</b> 304:12,16 <b>suite</b> 1:16 2:4,9 6:12 <b>summarization</b> 119:8,19 <b>summarize</b> 146:10 146:14 149:9 153:23 327:9 <b>summarized</b> 122:13 <b>summarizing</b> 117:16 118:5,13 119:17 318:10,12 <b>summary</b> 10:20 119:5 159:22 <b>superheat</b> 41:22 59:16 159:14 222:8 227:5 229:3 231:3 231:4	<b>superheated</b> 54:14 54:23 59:23 126:7 146:18 226:23 231:2,6 345:20 349:15 <b>superheater</b> 159:17 222:8,18,19 223:8 224:19 225:24 226:4,21 228:3,18 231:4 237:24 238:2 238:3,5 270:1 327:5 <b>superheating</b> 54:22 <b>superimposed</b> 191:23 <b>superintendent</b> 34:5,7 50:25 <b>supervising</b> 39:3 <b>supervisor</b> 30:2 <b>supervisors</b> 57:12 <b>supplement</b> 70:12 82:21 88:1 111:14 <b>supplemental</b> 169:5 <b>supplemented</b> 344:7 <b>supplied</b> 198:15 199:11 200:9,12,18 200:22 201:15,23 207:3,4,7,21 208:2 208:6 209:12,22 214:9 220:1 306:21 <b>supply</b> 87:25 198:12 199:12 201:7 205:10 207:5 207:25 208:15,23 209:3,23,24 210:24 <b>support</b> 123:18 153:16 269:23 <b>suppose</b> 221:19
--	--	---	--

CONFIDENTIAL

[supposed - teach]

Page 415

<b>supposed</b> 234:3	<b>swear</b> 7:4	<b>take</b> 23:15 27:13,15	<b>talk</b> 41:15,19,19,20
<b>supposedly</b> 248:16	<b>swedish</b> 186:21	27:20,23 28:3,4	41:21,21 114:22
257:11	261:13	36:11,18 37:1,14	136:13 137:16,16
<b>sure</b> 16:4 35:25	<b>sweet</b> 294:19,20,23	38:19 39:17,18	137:17 138:3
41:9,14 43:10	<b>swimming</b> 247:23	44:15,18 48:12	140:14 145:8 236:7
46:18 55:21 82:8	<b>switch</b> 351:3	53:4 79:22 88:4	242:5 244:22 301:1
95:13 96:11 98:3	<b>switchgears</b> 311:9	90:8 93:22,25	303:22 305:11,13
98:17 105:15 107:2	<b>sworn</b> 7:10 355:5	94:19 103:24	332:13
107:23 117:21	<b>syllabus</b> 43:4	106:16 133:12,20	<b>talked</b> 19:25 123:2
126:11 128:2 132:8	<b>system</b> 19:3 23:22	133:20,22 138:13	147:8 153:9 157:15
138:1 143:19 144:7	41:19,20 59:21	151:17 160:5 161:6	167:7 206:20
145:10 147:13	60:22 83:24,25	176:3 185:25	244:24 251:15
148:7 156:24 158:8	85:2,4,5,9,11,14	190:22,22 192:17	255:8 282:2,3
164:1 174:8,10	86:11 114:23	208:5,14 209:6,11	285:9 288:22 289:2
181:14,19 182:3	136:19 137:6	215:22,24 216:4,8	289:4 320:14 331:8
186:11 187:20,23	158:20,21,21	220:21 227:22	346:22
193:24 197:12	166:12 181:7	231:9 245:23	<b>talking</b> 31:6,6
208:21 210:1	192:24 213:21,25	256:24 267:6,16	106:4 152:22
249:17 268:16	213:25 237:16	271:11 276:5	172:13 176:17
271:12 273:2,25	240:13 250:17,18	285:25 297:25	186:17 187:11,12
276:17 277:22	250:24 251:6,18	316:24 321:14	188:24 212:24
287:22 299:4 301:8	253:3 254:1 288:4	322:3 323:7 324:16	216:14 244:8,9
321:17,23,25	288:25 307:22,23	330:19 331:13,15	245:7 247:11
327:13 328:7,19	336:8	334:12,19 340:12	258:13 271:1
<b>surface</b> 174:21	<b>systems</b> 34:1 75:2	342:1,20	277:14 286:22
316:6	85:3 86:18,18	<b>taken</b> 3:9 6:13	291:23 292:16
<b>surprised</b> 149:5	137:3 158:22	10:10,16 37:15	295:23 330:2
238:6	<b>t</b>	39:13,21 40:2	337:12 344:18,19
<b>surrounding</b> 62:6	<b>t</b> 6:25 7:20 8:4	90:12 95:18 117:6	353:2 354:11
85:24	71:25 221:10 230:9	132:10 135:4	<b>tall</b> 54:9
<b>surroundings</b> 62:9	230:16 325:1,3	167:22 179:23	<b>tank</b> 13:10 158:15
296:2	326:24 327:2	192:9,11,12,21,22	252:1,3,7,9 327:5
<b>survey</b> 166:13	<b>table</b> 147:19	192:22 209:22	<b>tape</b> 267:7
<b>surveys</b> 19:3 20:17	271:18,20 274:25	212:15 255:6 265:5	<b>tau</b> 28:14,23
84:25	277:7,12 345:10	267:10 301:5,7	<b>taught</b> 38:24 39:2,3
<b>survive</b> 17:9	<b>tables</b> 61:19 144:19	322:8 326:16	40:14,17,23 41:1
<b>suspect</b> 172:1	144:21 145:1 146:1	329:11 342:10	41:24 43:11
<b>suspicious</b> 183:1	146:5,16 147:1	355:8 357:3	<b>tea</b> 294:19,20,23
190:7	345:8	<b>takes</b> 159:3 162:11	295:7
<b>sustainability</b>	<b>taint</b> 317:20	199:10 203:24	<b>teach</b> 39:8 40:18,20
333:4		205:22 207:5 256:9	40:23 43:15,16

CONFIDENTIAL

[teaching - theoretical]

Page 416

<b>teaching</b> 19:3 29:2 38:19 40:2,12 43:20 105:8 126:24 158:13 <b>tech</b> 40:23 49:6 57:12 268:24 269:21 <b>technical</b> 22:11 24:20 107:12 153:13 154:17 <b>technically</b> 63:6 159:11 256:4 282:1 350:18,18 <b>technician</b> 44:6,11 47:22 72:9,10 <b>technique</b> 198:5 205:11 206:14 211:22 217:24 219:3,14 228:2,17 253:1 312:8 316:12 <b>technologies</b> 157:5 <b>technology</b> 40:22 43:9 64:1 181:2,2 203:16 291:2 <b>tecum</b> 4:8 <b>telecom</b> 83:14 <b>telephone</b> 121:7 <b>tell</b> 12:19 41:12 58:13 61:22 84:12 89:16 91:5,14,19 91:22 93:13 96:9 105:20 108:13,18 110:2 119:7 128:1 142:24 164:18,20 166:14 169:13 175:9,10,11,14 180:10 185:20 186:5 197:25 226:7 267:19 271:14 287:20 291:22 298:23 318:5 326:5	330:8,12 346:24 349:1,24 <b>telling</b> 318:19 <b>tells</b> 241:13 311:2 <b>temp</b> 222:15,25 328:8 <b>temperature</b> 54:19 54:24,25 55:1,6 61:8 78:22 157:24 159:18 204:3,4,7 214:2 221:12 222:9 222:10,12,16,23 224:22,24 225:5 227:10 228:19 229:2,12,17 230:12 234:23 235:5,21 236:1,18 237:2,9 265:16 269:3,11 270:10,10 283:19 283:20 284:21 285:11 296:6 306:4 306:4,5,8,13,16 325:2,2 326:22,24 327:4 328:8 348:19 <b>temperatures</b> 234:21 236:8,21 237:17 284:9,22 <b>ten</b> 10:17 11:1 24:7 24:10 50:2 70:25 71:1,16,19 80:23 81:11 186:5,7,8 253:6 286:22,23 <b>tend</b> 85:1 154:18 170:20 298:8 307:6 <b>tends</b> 171:15 <b>term</b> 54:22 104:13 130:9,25,25 251:18 283:24 <b>termination</b> 231:19 <b>terminology</b> 265:14	<b>terms</b> 51:10,18 136:23 172:23 176:13 216:19 238:1,8 278:6 353:4 <b>test</b> 47:24 49:16 75:7 107:18,21 108:6,11,15,21 113:4,7 157:4,20 173:8,9,19,22,23 174:1,6,18,18,20 175:1,2 185:4,9,12 186:1,10,16,20,25 187:1,3,6,14,15,16 187:18,19,25 188:2 188:8 189:7 193:9 195:6 203:5,13 204:11,13,14,23,25 205:15 206:8 218:6 218:14,24 219:4 231:17,19 241:23 244:4 247:1 248:13 253:11 254:13,13 254:20,21 258:5,6 258:6 261:15 262:14,19,20 263:23 265:13,13 279:5 282:14 286:1 286:2,3 296:15 328:13 <b>tested</b> 173:3 264:1 <b>testified</b> 11:4,25 13:24 69:15 70:5 70:15 71:19 74:4 76:21 110:15 156:1 165:25,25 166:1 230:18,22 266:7 296:25 <b>testifies</b> 7:11 <b>testify</b> 15:5,7 17:13 73:5,24 74:8 75:3	76:3 79:20,24 90:4 110:3 288:20 342:17 355:5 <b>testifying</b> 31:19 64:7 74:24 89:12 109:1 179:22 180:3 188:7 346:18 <b>testimony</b> 11:6 12:2,7,14,17 13:15 13:16 17:14 19:8 20:13 23:21 57:13 67:12 72:5,22 74:20,23 75:8 76:10 77:2,4 79:3 79:11,19 82:1,18 83:5 85:6 88:14,19 99:25 166:1 183:8 183:15 231:11 235:4 337:23 354:8 354:23 355:6,8 <b>testing</b> 45:3 108:1 246:19 263:15 279:10 290:2 <b>tests</b> 26:5 107:14 164:23 165:1 171:1 261:19 <b>texas</b> 20:23,24 44:4 45:6,7 <b>textbook</b> 4:21 145:5,6,8 147:2,10 <b>textbooks</b> 144:16 144:22 151:7 <b>thank</b> 10:4,9 11:23 29:14 62:25 91:4 96:12 148:8 179:6 287:7 316:20 331:24 339:18 354:1,5 <b>themselves</b> 35:17 <b>theoretical</b> 225:4
--	---	--	--



CONFIDENTIAL

[theoretically - throughput]

Page 417

<b>theoretically</b> 128:15,18 <b>theories</b> 153:6,8 155:20 253:8,9 <b>theory</b> 146:11 153:16,24 154:22 154:23 155:15 173:16,18 206:15 217:24 219:15 228:2 253:1 312:9 316:12 <b>thereof</b> 181:4 <b>thermal</b> 8:10 18:4 18:9,19 19:8,13 126:25 128:9 132:7 135:23 136:19 137:6 145:8 176:18 177:2,4,9,12 203:22 256:19,22 256:23 257:7 270:15 278:14 279:1 280:1 291:24 291:24 343:13,14 348:19 <b>thermo</b> 148:15 <b>thermocouple</b> 225:13,15 227:7 268:6,10,16,17 270:9 328:1 <b>thermocouples</b> 225:10 227:12 267:14 268:4,20,25 269:3,10 327:13 <b>thermody</b> 27:16 <b>thermodynamic</b> 137:3 <b>thermodynamics</b> 4:21 5:7 27:13,16 30:4 37:2 41:16 126:13 127:3,9,19 127:21,22 128:3	137:7 139:2,4 144:16,21 148:25 150:5,16 151:5 153:19 160:20 162:20 184:22 189:13 228:21 229:23 262:6,16 329:19 <b>thesis</b> 35:12 36:24 37:20,23 <b>thicker</b> 273:12 <b>thickness</b> 273:10 273:11 275:17 <b>thing</b> 10:3 45:22 46:3 140:4 142:15 157:23 166:3 199:9 200:8 235:10,22 246:2 277:4 285:12 298:13 323:16 328:21,22 332:13 348:24 <b>things</b> 10:21 21:17 21:19 24:19 45:14 63:15 75:17,17 95:10 106:6 107:8 109:16 127:15,18 144:16 155:14 190:11 216:2 231:21 243:2 253:12 283:16 286:3 287:24 311:21 317:25 318:9 320:23 324:11 348:20 351:7 <b>think</b> 9:8 12:21,21 16:22 19:22 20:1,7 25:6,22 36:2,11 37:8 39:6,9 41:23 45:23 46:21,21 47:18 48:11,14	53:3 55:9 67:11,21 70:17,19,24 77:6 80:25 84:4 89:14 89:25,25 90:1 91:12 92:8 93:22 94:1,11 96:4 98:16 98:24 99:11 101:19 102:22,24 103:22 105:17,23 106:2,18 110:20 120:19 122:18,18 137:5 138:11 139:22,23 142:6,20 143:3 145:3 146:8 151:22 153:11 154:8,11 161:2 162:12 169:3 169:15 172:5,9 179:13 182:11 198:2 201:14 211:5 218:22 226:9 227:24,24 228:24 230:15 232:3,16,21 235:24 247:1 249:6 251:9 257:21 267:18 268:3 280:25 281:1,13,13 281:18,24 282:6 285:1,22 287:21 289:21 299:18 305:2 310:19 314:23 320:20 321:22 322:21 323:2 325:12,12 327:7 330:9,22 331:9 336:20 339:11,11,15 340:11 342:6 345:24 346:2 347:20,24 349:13 349:15 353:21 354:12,13	<b>thinkers</b> 154:16,18 <b>thinking</b> 152:9 215:11 343:25 <b>thinks</b> 161:3 <b>third</b> 129:15 169:5 169:25 174:24,25 188:16 233:3 282:13 293:17 305:21 338:2 339:15 <b>thomas</b> 1:7 6:15,25 357:2 <b>thorough</b> 212:20 <b>thought</b> 12:4,9 32:6 51:17 76:2 81:8 118:16,20 121:18 135:9 141:19 151:13 152:11 153:25 154:2 166:10 212:1 245:4 286:13 289:11 324:16 337:14 <b>thousand</b> 23:13 176:21 177:13 284:12,13 <b>thousands</b> 286:23 286:23 <b>thousandth</b> 200:12 201:8 <b>thousandths</b> 199:7 201:12 208:17 <b>three</b> 20:14 36:11 48:17 53:8,10,13 55:23 56:11 57:1 57:11 58:6 71:24 75:13 122:16 201:9 271:24 272:1 276:8 292:25,25 299:20 299:20 353:8 <b>throughput</b> 273:22
--	--	---	--

CONFIDENTIAL

[throw - trench]

Page 418

<b>throw</b> 219:9	305:9 313:8,13	191:20,21 209:4	<b>tradition</b> 237:24
<b>ticking</b> 42:15	317:1,2,10 318:18	234:7 256:2 276:2	<b>traditional</b> 36:3
<b>tied</b> 98:4	322:7,10 324:9,11	282:25 305:13	237:23
<b>tight</b> 242:13	324:12,22,22 329:3	315:14 346:2	<b>traffic</b> 84:16
<b>tighten</b> 77:1	329:10,13 339:13	<b>tomorrow</b> 21:6	<b>trainco</b> 40:22 43:8
<b>tightened</b> 251:1	342:9,12 345:24	<b>ton</b> 4:15 63:1	<b>trained</b> 75:16
<b>till</b> 266:21	353:5 354:1,18,21	161:18	<b>training</b> 45:3 136:2
<b>tim</b> 16:24	355:8	<b>tons</b> 161:17	154:5,6 155:10
<b>time</b> 3:9 6:10,19	<b>times</b> 9:7 10:13,17	<b>top</b> 41:22 96:4	<b>tran</b> 120:14
12:2,13,16,22	11:6,25 17:21	100:20 113:5,8	<b>transcribed</b> 3:11
14:11 16:1,15,16	44:18 104:21,22	142:20 145:4	355:7
18:1 22:7 24:2	106:22 174:19	212:24 220:19	<b>transcript</b> 354:13
36:12,12 37:16	206:2 220:24	267:21 291:10	355:8 357:4,23
42:15 46:12,19	228:25 274:22,23	300:16 322:19	<b>transfer</b> 27:23 28:3
47:7 48:14 49:11	289:25 292:25,25	332:14,15	28:6,8 30:4 37:7
49:15 50:2,6 54:11	306:12 345:6,7	<b>total</b> 11:2,8,10	40:22 43:9 55:23
55:11 70:8 71:16	<b>tires</b> 158:15	53:15 71:1 171:15	78:22 79:2,4,5 80:6
81:13,14 84:15	<b>title</b> 13:6 22:9	209:11 219:10	80:17 100:2 180:4
85:17 88:5,24 89:8	50:13 56:4 58:4	263:5 266:23,25	<b>transferred</b> 84:6
89:15,17 90:11,14	<b>titled</b> 14:17 63:1	267:3,3 292:11	<b>transferring</b> 92:11
90:24 91:24 93:7	<b>today</b> 6:9 8:19,23	<b>totality</b> 66:7	230:20
95:4,17,20 99:12	9:2,6 11:2 24:17	<b>totally</b> 110:9	<b>transfers</b> 159:23
99:19,23 101:24	31:7 35:24 64:8	118:24 170:25	160:3,12
102:25 103:13,25	76:24 77:5 87:23	174:8 242:13	<b>transformers</b> 311:9
105:17 110:5,13	88:2,24 89:4 98:11	248:12,13 254:5,17	<b>transit</b> 343:15
112:19,25,25 113:7	142:7 144:25 149:3	268:19 317:22	<b>transited</b> 343:11
114:8,10 124:23	165:15 188:13	332:18 337:10	<b>transition</b> 353:22
135:19 144:23	194:14 232:19	<b>touch</b> 323:15,21	<b>translate</b> 118:8
164:16,21 165:7,12	281:7 288:18	<b>touched</b> 90:16	<b>translation</b> 118:18
167:13,18 168:6	304:24 320:9,11	<b>tough</b> 352:14	120:15
169:3 174:16 175:3	321:15 322:16	<b>tower</b> 177:5,15,16	<b>translator</b> 234:18
175:11,13,15	329:19,23 336:22	300:17,20,25	<b>transmitter</b> 282:23
192:23 193:2,2	336:24 339:23	301:12,14,16 309:9	<b>transmutation</b>
207:18 209:9,10	347:24 354:2	310:2	132:10,17
212:16 230:12	<b>toilet</b> 52:20,21	<b>tpc</b> 40:22 43:8	<b>travel</b> 24:18 85:21
249:5 250:25 267:9	<b>told</b> 12:24 17:8,10	<b>track</b> 35:13,14	<b>trays</b> 311:8,15
267:12 271:3,5	32:6 91:16,25	252:19	<b>treatment</b> 306:12
280:25 283:12,13	102:23 103:12	<b>tracy</b> 1:20 7:3	306:18
285:20 288:4,9	124:7,12 129:4,6	355:4,20	<b>trench</b> 85:15,15,17
296:5 297:17	132:9,13,14 180:12	<b>trade</b> 153:11	85:18,21,24 86:2,6
301:10,13,22 305:8	180:15,16,17		

CONFIDENTIAL

[trial - understanding]

Page 419

<b>trial</b> 4:15 63:1 69:15 70:6 73:24 74:16 79:20 127:7 127:7 <b>trials</b> 74:13 <b>triangle</b> 117:6 <b>tried</b> 16:24 37:13 118:8 <b>triers</b> 127:8 <b>trivial</b> 307:19 <b>truck</b> 158:17 <b>true</b> 14:23 32:23 104:5 119:13 121:18 133:18 138:2 163:14,14 169:23 179:16 236:15 248:15 284:11 302:14 327:22 338:10,10 355:7 357:23 <b>truth</b> 234:7 355:5,6 355:6 <b>try</b> 9:10 16:24 59:20 78:11 101:11 104:18 118:21 120:20 151:17 172:25 203:13 215:10 230:5 238:20 242:3 254:1 291:18 313:8 343:19 <b>trying</b> 30:20 32:8 51:20 52:4 140:14 176:3 180:14 198:1 230:1 237:4 242:16 285:22 294:13 302:2 331:4 <b>tube</b> 30:25 <b>tubes</b> 159:17 223:2 231:4	<b>tuesday</b> 98:24,25 <b>turbine</b> 38:8 47:15 158:2 159:19 <b>turbines</b> 46:8 47:16 <b>turkey</b> 163:24 <b>turn</b> 6:4 69:6 92:12 163:7,8 168:12 294:21 <b>turned</b> 118:17 240:21 241:2,13 <b>turning</b> 140:20 169:19 300:13,18 <b>twice</b> 171:23 292:25 341:7 <b>two</b> 5:12,13 12:7 18:11 20:6 21:3 43:15,15 44:7 47:16 53:16 57:11 58:19 68:16 71:17 79:14 81:1,2 94:19 97:5 103:1 123:18 124:8 142:20,22 145:3 147:23 153:9 160:5 181:18 201:17 210:20 221:7 243:2 252:9 263:6 266:2 272:22 278:20 290:5 291:11 305:18 309:11,12 314:19 319:4,6,7 333:9 340:2 341:6,8,8,24 <b>typ</b> 334:22 <b>type</b> 22:21 31:21 32:2 34:3 47:7 60:9 60:11 77:24 78:5 80:6 87:2,2 108:2 132:4,23 137:6 154:18 156:3 178:12 218:19 219:12 258:19	266:20 269:15,24 280:22 290:20 320:15 327:14 333:1 <b>types</b> 94:7 154:17 155:23 238:25 <b>typical</b> 137:22 299:23 321:12 344:12 351:3 352:15 <b>typically</b> 24:6 25:23 38:23 53:16 53:18 128:25 143:18 152:10 161:7 255:23 256:7 281:5 285:13,13 350:25 351:2,9 352:16 <b>typing</b> 103:14 <b>typo</b> 234:7,9 289:3 325:13,14  <b>u</b>  <b>u.s.</b> 187:13 188:2 <b>uh</b> 29:18 32:9 93:20 119:21 121:9 127:20 137:11 145:25 178:8,14 199:13 209:13 233:4 255:4 296:22 <b>ultimately</b> 27:3 39:22 <b>umbrella</b> 98:5 <b>unaware</b> 9:16,18 <b>uncovered</b> 170:3 <b>undergo</b> 45:3 <b>undergrad</b> 28:10 29:1,3,19 151:15 <b>undergraduate</b> 26:16,19 <b>underground</b> 60:24 61:2 83:11	84:13,15,17,24 85:16,22,25 <b>underlie</b> 274:18 <b>underlying</b> 114:7 115:3,19,23 120:8 129:18 196:21 259:16 326:7 <b>undermines</b> 221:22 <b>underneath</b> 60:7,7 61:1 <b>underscore</b> 323:13 <b>understand</b> 16:17 34:22 57:2 61:4 65:18 70:10 75:4 78:11,11 104:10 111:12,15 113:15 120:6,20 127:9 128:24 130:22 134:18 136:21 156:12 158:4 166:7 179:14 189:11,12 199:8 208:18 211:18 213:21 217:8 219:3 222:6 228:12 233:10 234:1 237:1,4 240:24 249:12 251:23 254:6 256:25 258:4 263:23 303:8,23 318:21 333:14 336:23 347:9 350:3 <b>understandably</b> 326:8 <b>understanding</b> 15:18 16:19 70:11 70:19 87:18 88:21 90:22,24 103:25 104:2 106:5 116:13 116:16 117:19 118:11 119:23
---	--	---	---

CONFIDENTIAL

[understanding - versa]

Page 420

120:10,19 121:2,4 125:10,14 127:10 127:12 139:16 156:14 160:19,20 161:5 162:12 174:17 184:22 195:8 260:20 305:14 320:19,23 320:24 <b>understands</b> 166:6 195:13 312:19 <b>understood</b> 319:5 327:11 <b>undertake</b> 26:6 <b>unfettered</b> 194:12 <b>unfortunately</b> 12:5 146:4 151:20 239:1 <b>uniformly</b> 233:21 <b>union</b> 46:11 <b>unit</b> 135:23 190:17 198:23 242:24 249:3,23 253:24 258:17 260:14,14 265:7,10 266:13,18 267:20 279:14 294:1 301:9,18,24 302:25 303:1 <b>united</b> 1:1 6:16 <b>units</b> 45:23 159:14 174:19 199:3,6 204:16 231:24 266:16,24 279:11 279:12 288:3,15 300:15 <b>unity</b> 177:19 <b>universal</b> 44:6,11 47:22 49:6 <b>university</b> 35:4,21 35:23,23 36:15 38:2 50:5 57:22 58:2 157:12	<b>unremarkable</b> 221:16 233:6 <b>untoward</b> 196:17 <b>upcoming</b> 87:16 <b>update</b> 12:6 <b>upgrade</b> 38:4 <b>upper</b> 272:19 <b>uranium</b> 161:6,18 <b>usable</b> 118:9 <b>usage</b> 176:18 307:4 308:3 <b>use</b> 51:9,10 53:5 54:22 62:21 75:15 97:20,22 104:13 118:10 120:5,13,22 126:24 131:3,4 141:16 145:5,22 146:25 147:1 149:20 152:10 156:5 157:21 158:13 159:1 161:17 173:16 176:14 192:6,8 201:8 204:11,23 218:18 219:8,8,11 226:11 230:11,14 255:9,22 265:12,14 272:16 274:21 277:11 296:9 306:7 316:13 324:21,23 353:20 <b>useful</b> 142:20 160:9 <b>user</b> 312:25 <b>uses</b> 130:6,7 176:7 272:20 <b>usually</b> 97:24 129:2 161:6 202:22 223:1 <b>utilities</b> 18:24 23:10 123:18 <b>utility</b> 18:23 30:12 50:19,21 84:17	159:14  <b>v</b> <b>v</b> 5:10 14:17 71:21 78:6 79:8 357:2 <b>va</b> 274:23 276:3 <b>vacuum</b> 59:11 352:25 <b>vague</b> 228:10 <b>vaguely</b> 130:18 186:23 <b>valid</b> 104:6 203:16 <b>validate</b> 197:4 <b>validation</b> 107:1,3 125:16 168:20 187:6,14,16 188:8 <b>validity</b> 186:25 263:10 <b>value</b> 207:7,8 258:9 258:12 <b>values</b> 196:21 207:5 <b>valves</b> 48:16 <b>valving</b> 77:10 78:3 <b>vanished</b> 314:22 <b>vapor</b> 54:22,22,23 54:23 166:4,4,24 167:1 228:25 239:14 243:25 244:1 245:10 247:18 250:23 281:15,24 295:4,4 <b>vaporizing</b> 295:5 <b>variables</b> 84:11 86:4,21 184:10 <b>variance</b> 161:2 <b>variation</b> 195:12 <b>variations</b> 140:17 <b>varied</b> 288:4 326:16 <b>various</b> 59:1 156:16 168:20	169:2 174:20 271:16 311:21 322:20 323:6 324:3 345:10 <b>vary</b> 311:15 <b>vaughn</b> 6:25 <b>vehemently</b> 257:16 <b>vehicle</b> 158:17 <b>velocities</b> 316:7,9 343:12,17 <b>velocity</b> 271:22 274:22 275:24 276:1,6,6,12,13 336:15 345:6 <b>vent</b> 298:25 299:6 299:10 <b>ventilating</b> 34:1 <b>ventilation</b> 88:20 298:21 300:14 301:17 <b>vents</b> 297:14,15 298:15,18 299:16 308:23 <b>ventures</b> 123:18 <b>veolia</b> 82:13,23 83:16,21 87:1,13 <b>verbal</b> 73:18 <b>verbally</b> 238:20 <b>verbatim</b> 125:5 323:4 <b>verifiable</b> 338:2 <b>verification</b> 351:1 <b>verifier</b> 169:25 <b>verify</b> 119:14 120:2 300:7 <b>veritext</b> 1:15 6:9,11 7:4 <b>vernacular</b> 281:23 281:25 <b>versa</b> 40:23 253:15
--	--	--	---

[version - watts]

Page 421

<b>version</b> 157:18	<b>visible</b> 311:7,15	163:18 164:21	220:11,14 223:22
<b>versus</b> 6:15 13:7	<b>visit</b> 19:24 98:20	169:11 172:6 196:1	223:25 224:1,2,3
71:24 72:1,3,20	109:15 194:7	196:7 203:2,2	224:24 229:1,5,13
73:4 74:6,15,18	346:22	204:22,22 232:7,25	229:14 234:23
76:4,7 77:16,25	<b>volcanic</b> 172:19	246:4 271:9 272:4	239:4,14,21,23,24
78:13 79:23 80:2,5	<b>voltage</b> 284:24	281:14 299:25	240:1,2,10,14,20
81:1,2,4 82:13,23	285:16,16,17	302:3 309:4 317:2	241:1,12,18,23
86:16,25 87:1,13	<b>volume</b> 213:19	318:19 321:20,23	242:7,21,21 243:5
88:10 105:18	239:25 251:14	328:22,24 331:16	243:6,7,19 244:7
201:25 220:22	277:11 293:12	351:14	244:13,19 247:3,4
<b>vessel</b> 13:12 54:20	345:13,16,17,18	<b>wanted</b> 55:24	247:10,12,14,18,25
63:7,19,25 64:2,6	<b>volumes</b> 244:7	72:12 93:13 97:22	248:1,4,8,20,21
76:17,20 224:3	<b>vs</b> 1:6	98:3 105:21 110:2	249:2,4,5,6,22,23
229:1 348:14	<b>w</b>	110:8 195:25	249:25 250:1,3,4,6
<b>vessels</b> 19:5 63:11	<b>w</b> 2:3 14:17	317:21 318:5	250:8,9 251:9,14
<b>vice</b> 253:14	<b>wait</b> 57:1,4 98:16	<b>wanting</b> 110:16	252:1,4,4,4,10,11
<b>victims</b> 79:17	115:19 133:17	<b>wark</b> 4:22 127:1,2	252:12,16 253:2,25
<b>video</b> 112:18	171:20 208:10	127:3,23 147:4,5	262:22,22,24 263:7
113:10 318:17	259:17 266:21	148:11 150:18	263:16 264:12,17
<b>videographer</b> 2:15	267:25 287:11	151:5 152:13,14	265:18,18 268:5,12
6:1 7:3 90:10,13	304:6 307:9 313:10	161:2	270:2 272:8 281:15
95:16,19 167:18	314:12	<b>wark's</b> 126:25	281:24 283:7,9
168:5 267:8,11	<b>waive</b> 354:2	145:9,24 148:10,17	285:12 294:11,18
322:6,9 329:9,12	<b>waived</b> 3:13	149:16	294:25 295:2,6,24
342:8,11 354:20	<b>walked</b> 304:23	<b>warm</b> 53:24 217:21	296:1 301:12
<b>videos</b> 113:21,24	<b>wall</b> 61:13,14	250:1,3	305:24 306:3,4,10
226:4 296:21	182:13 241:24	<b>warning</b> 4:17 64:15	306:16,20,21 307:1
318:16	246:22 273:10,11	66:25	307:4,8,10,16,17
<b>videotaped</b> 1:11	273:12 275:17	<b>waste</b> 177:16	307:23 308:3,3,8
4:8,10	309:17 310:5 311:7	306:12,18 313:13	325:5 349:14
<b>view</b> 193:23 248:14	<b>walls</b> 61:11 62:1	<b>watch</b> 331:23	350:15,19 351:15
<b>views</b> 68:15,15	<b>want</b> 31:19 40:11	<b>water</b> 13:9 41:21	351:18
155:19	41:5 49:25 52:15	51:8 52:15,18 60:4	<b>waterfall</b> 245:15
<b>vincent</b> 5:8 329:20	55:4,19,24 62:22	73:1,2 75:1 76:14	<b>watertight</b> 250:19
<b>violate</b> 161:23	67:16 79:22 82:21	77:15,19,20,23	250:20,24 251:6,7
<b>violates</b> 150:4,11	89:17 93:1,25 96:5	112:12,24 113:2,3	251:12
150:12	96:22 103:11	140:5 146:18 159:9	<b>watt</b> 198:16,18,20
<b>violation</b> 174:21	113:16 118:24	160:3,8 166:4,8,15	198:21,25 208:6
<b>virginia</b> 67:7	134:10 139:24	166:15,20,24 181:5	<b>watts</b> 136:11
<b>virtually</b> 43:23	147:25 148:14	213:10,13,22 214:2	198:16,19,23 199:7
84:12,20 118:3	149:12,13 154:13	215:13 218:7	199:11 200:9,15,25



CONFIDENTIAL

[watts - work]

Page 422

201:6 207:7 208:1 209:22 214:9 <b>way</b> 9:5 10:16 16:2 52:25 53:3 73:11 74:3 75:16 78:25 79:6 80:14 91:13 108:11 127:15 128:20 129:3 136:13 137:18 149:21 152:9 154:8 156:7 184:16 204:17,17,18,19 209:15,20 216:3 218:14,23 222:6,6 224:9 225:22 226:25 227:18 234:16 240:18,19 244:17 250:11 253:18 254:4,4,4 258:15 260:15 262:3 263:5 265:11 266:20,23 267:1 270:4 322:4 323:13 323:19 328:12 330:14 333:25 338:8 340:1,17 343:10,15 <b>wayne</b> 19:24 <b>ways</b> 246:9 <b>we've</b> 63:3 80:22 80:25 99:16 101:2 110:20 122:20 125:4 155:4 167:7 167:16 182:15 207:19 214:12 255:7 285:9 288:22 289:2,4 309:2 314:20 321:16,22 326:8,12,21 331:8 347:23	<b>weapon</b> 129:1 <b>website</b> 140:11 239:2 349:6,22 <b>websites</b> 43:5,6 <b>week</b> 20:24 65:14 98:13,14,19,23 143:22 170:14 185:18 197:16 227:23 298:20 324:8 <b>weekend</b> 343:23 344:3,6 <b>weeks</b> 151:17 <b>weigh</b> 285:25 <b>weight</b> 239:20,21 285:25,25 286:1 <b>welding</b> 37:16 <b>went</b> 9:7 29:8,21 33:21,21,23 50:8 56:2 66:8,9 70:24 79:14 124:21 144:24 304:14 338:16 349:9 <b>west</b> 50:8 58:17 245:2 303:17 <b>whatsoever</b> 132:22 227:15 240:14 311:2 <b>whereof</b> 355:14 <b>whichever</b> 96:5 <b>whispering</b> 6:3 <b>white</b> 16:6 <b>wide</b> 54:8 251:25 <b>widely</b> 138:6,8 346:8 <b>widgets</b> 312:22 <b>wife</b> 18:13,14 21:17 22:16 154:10 <b>wife's</b> 55:15,17 <b>willing</b> 23:23,23 171:13 231:13	325:15 <b>window</b> 16:17 71:16 190:25 195:2 195:3 <b>windows</b> 193:11,12 193:16,18,23 194:3 194:17 299:16,18 299:24 300:1 <b>wink</b> 46:11,11 <b>winter</b> 4:16 53:17 64:14 66:25 <b>wire</b> 270:9 <b>wires</b> 269:12 <b>wise</b> 153:2 154:9 156:11 <b>wish</b> 220:21 340:13 <b>wit</b> 288:2 <b>withhold</b> 332:17 <b>witness</b> 3:8,12 4:3 5:11 6:18 7:5 16:11 17:3,22 19:2 21:9 22:21 24:5 69:7 103:7 104:25 105:12 171:18 172:13 212:6 213:1 274:17 314:15 337:7 340:19,22 341:2,4,13 342:4 343:3 354:4 355:7 355:14 357:25 <b>witnesses</b> 17:19 24:14 183:8 <b>wonderful</b> 338:24 <b>wondering</b> 214:5 <b>wonders</b> 169:24 213:14 <b>wong</b> 5:8,10 148:21 151:24 152:11 161:1,3 195:1 256:1 302:9,22 329:20 330:8	331:11 333:19 334:10 335:1 336:21 337:19 338:12 <b>wong's</b> 181:17 302:14 315:6 329:5 331:14 334:13 336:8 337:20 <b>word</b> 40:10 76:15 100:12 149:13,14 154:12 203:2,3 230:14 253:22 287:6 310:16 <b>wording</b> 101:11 141:11 <b>words</b> 92:2 152:4 174:7 230:6 321:12 <b>wordsmith</b> 141:12 <b>wordsmithing</b> 101:3,7 102:4,10 <b>work</b> 8:7 18:16,25 19:1,2,7,19 20:11 20:12,16,19,20 21:2,8 22:12,22,25 23:8,20 25:19,25 29:2,3,8,21 30:12 31:20,21,24 32:20 33:21 34:21 36:18 37:21 45:12 48:2,6 50:8 56:23 57:4 59:19 75:19 76:19 78:24 93:17 94:24 96:18,20,22 99:21 101:14 102:6 105:8 105:8 107:11 110:24 114:25 126:6 133:9 151:22 153:18 158:5 160:23 162:2 170:6 171:25 172:22,23 184:14 190:1
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CONFIDENTIAL

[work - yep]

Page 423

203:24 212:4 238:14 250:11 255:16,20 256:4,9 256:10 257:1 263:7 265:25 271:4 276:11 291:18 318:23 320:14 323:18,19 333:3,15 <b>worked</b> 16:7 31:10 32:7 33:22,23 34:4 34:10 50:25 51:2 55:14,18 57:3,8 63:10 72:12 81:12 157:1 160:10,16 171:17,23 179:15 230:19 244:24 245:3 262:3 <b>working</b> 13:7,10,13 15:19 17:11,24 22:20 30:17 31:25 32:1,4 33:25 34:2 35:14 36:12,14,15 37:13 42:17 50:5 59:20 76:13,18 78:15 81:16,19,21 82:17 89:6 141:12 143:11 245:5 310:16 323:13,20 333:5 <b>works</b> 34:22 175:25 189:14,17 203:16 223:5 312:18 344:20 <b>world</b> 25:13 42:14 78:24 170:5 312:14 339:3,8 <b>worry</b> 156:25 <b>worst</b> 19:21 <b>worth</b> 27:18 189:19 244:19	<b>wow</b> 53:12 286:10 <b>wrangle</b> 152:4 246:3 <b>wrangling</b> 352:8 <b>wrap</b> 342:7 <b>wrapping</b> 339:22 <b>wrinkles</b> 114:17 <b>write</b> 36:24 37:20 57:1 71:11 100:18 100:22 102:25 126:17 153:10 203:21 303:17 357:4 <b>writes</b> 127:23 <b>writing</b> 3:10 35:12 37:19,23 122:2 <b>written</b> 73:20 75:15 87:17,20 101:14 151:5 153:14 165:12 268:19 311:3 317:18 <b>wrong</b> 115:20 161:22 201:2 221:4 310:16 <b>wrote</b> 56:18,18 63:9 97:7 100:23 100:25 126:20 211:25 212:2,13	61:13 64:20 66:8 71:8,24 73:18,22 73:22 75:22 77:18 77:20 78:8 81:7 82:9,11,11,12,14 88:21,22 91:18 92:3 94:10,11 95:23 96:23 99:6 100:23,24 102:23 106:3 108:8,8 109:14 113:20 117:12 125:24 128:5 135:14 136:6 136:8,18,19 137:1 144:15,16 146:25 149:11,17 154:7 162:12,13 163:11 163:11,13,14,20 164:3 167:14 169:3 171:19,22,23,23 172:18,20 175:12 178:5,6 179:8 180:22 183:11 191:12 192:21 193:1 198:13,20 201:9 202:14,17 203:24 204:1 206:6 208:25,25 210:2,19 211:4 212:19 215:4 220:20 221:6,11 223:14 230:14,21 230:22,25 232:24 234:14 235:7 238:19 239:19 241:16 244:3,12,14 244:21 247:17 250:15,15 254:24 257:9 259:1 266:10 267:4 268:21 271:15 274:3 278:1 278:1,3 279:23	281:18 286:5 287:4 288:21 289:3 290:1 291:10 292:5 293:9 293:12 294:17 304:7 307:6,25 311:17 312:21 319:9,24 321:25 324:3 325:10 326:25 328:21 332:6,21 333:14 335:19,22 336:17 337:8 338:16 339:16,18 343:7,25 344:5,5 350:8 353:8 <b>year</b> 16:17 19:18 19:19,21,23 20:3,5 20:5,8,11,17,20 21:2,4,8,11 39:20 71:16 92:9,10,12 95:8 121:12 231:18 231:20,20 270:16 290:2 <b>yearly</b> 48:25 <b>years</b> 10:17 11:1 12:8,23 16:1,22 19:22 20:9,10 24:1 24:7,10 32:18 36:11 40:2 49:17 50:2 55:15,23 58:6 58:9 67:8 69:16 70:6,9,16,20,22,25 71:1,19 80:23 81:11 89:11 90:6,6 151:14,15 152:19 218:3 226:13 228:1 228:16 253:13 310:16 312:14 316:18 <b>yep</b> 45:21 204:8 241:11 295:19,22
	<b>x</b>		
	<b>x</b> 4:1 61:23 272:7		
	<b>y</b>		
	<b>yards</b> 36:17 <b>yardstick</b> 219:12 <b>yeah</b> 8:18 11:10 12:8 13:4 16:4 28:4 28:25 31:5,8 32:25 40:9 45:16 46:1,1 47:15 49:15 50:23 53:15 59:18 60:13		

[yesterday - zeros]

Page 424

<b>yesterday</b> 344:4 <b>yevoli</b> 2:3 <b>york</b> 16:6 <b>young</b> 13:7 71:25 76:7 77:16,25 78:13 79:23 81:2,4
<b>z</b>
<b>zero</b> 21:10 233:8 278:22 316:7 325:11 326:14 345:14 352:7,9 <b>zeros</b> 201:19 202:23 214:19



FLORIDA RULES OF CIVIL PROCEDURE

Rule 1.310

(e) Witness Review. If the testimony is transcribed, the transcript shall be furnished to the witness for examination and shall be read to or by the witness unless the examination and reading are waived by the witness and by the parties. Any changes in form or substance that the witness wants to make shall be listed in writing by the officer with a statement of the reasons given by the witness for making the changes. The changes shall be attached to the transcript. It shall then be signed by the witness unless the parties waived the signing or the witness is ill, cannot be found, or refuses to sign. If the transcript is not signed by the witness within a reasonable time after it is furnished to the witness, the officer shall sign the transcript and state on the transcript the waiver, illness, absence of the witness, or refusal to sign with any reasons given therefor. The deposition may then be used as fully as though signed unless the court holds that the reasons given for the refusal to sign require rejection of

the deposition wholly or partly, on motion under rule 1.330(d)(4).

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