

# BOARD OF BOILER RULES

---

## BOARD MEETING

June 10, 2015

---

*Elite Reporting Services*

Amber A Thompson, LCR, CCR  
Associate Reporter

Chattanooga (423) 266-2332 · Jackson (731) 425-1222  
Knoxville (865) 329-9919 · Nashville (615) 595-0073 · Memphis (901) 522-4477  
[www.elitereportingservices.com](http://www.elitereportingservices.com)

Page 1

1 STATE OF TENNESSEE  
 DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT  
 2 BOARD OF BOILER RULES  
 3  
 4  
 5  
 6  
 7  
 8  
 9  
 10  
 11  
 12 QUARTERLY MEETING OF THE  
 STATE OF TENNESSEE  
 BOARD OF BOILER RULES  
 13 June 10, 2015  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23 ELITE REPORTING SERVICES  
 AMBER A. THOMPSON, LCR  
 P.O. Box 292382  
 24 Nashville, Tennessee 37229  
 www.elitereportingservices.com  
 25 (615)595-0073

Page 2

1  
 2  
 3 A P P E A R A N C E S  
 4  
 5  
 6  
 7 Brian R. Morelock, Chairman  
 8 Eugene Robinson, Board Member  
 9 Dr. Glenn Johnson, Board Member  
 10 David W. Baughman, Board Member  
 11 Sam Chapman, Assistant Chief Boiler Inspector  
 12 Kim Y. Jefferson, Esq.  
 Administrator, State of Tennessee  
 13 Mark Finks, Esq.  
 Assistant Administrator, State of Tennessee  
 14  
 15 Dan Bailey, Esq.  
 Legal Counsel, State of Tennessee  
 16 Carlene Bennett  
 Board Secretary, State of Tennessee  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25

Page 3

1 A G E N D A  
 2  
 3 I. Call to Order  
 4 II. Introductions and Announcements  
 5 III. Adoption of the Agenda  
 6 IV. Assistant Chief's Report  
 7 V. Old Business (none)  
 8 VI. New Business: 15-09, 15-10, 15-11, 15-12,  
 15-13, 15-14, 15-15  
 9  
 10 VII. Open Discussion Items  
 11 \*Reorganization of Rule 0800-03-03 - Moving  
 Code Requirements into Tennessee  
 12 Rules/Realigning State rules for ease of use by  
 Installers and Owners  
 13 \*Fall Conference Update  
 14 \*Boiler Operator Training and Certification -  
 Dave Baughman  
 15  
 16 IX. Rule Cases & Interpretations - There are no  
 rule cases and interpretations  
 17 X. The next Board of Boiler Rules meeting is  
 scheduled for 9:00 a.m. (CT), Wednesday,  
 18 September 9, 2015, at the Department of  
 Labor & Workforce Development office  
 building located at 220 French Landing Drive,  
 19 Nashville, TN.  
 20  
 21 XI. Adjournment  
 22  
 23  
 24  
 25

Page 4

1 \* \* \*  
 2 CHAIRMAN MORELOCK: Well, good morning,  
 3 everybody. I have 9:00 o'clock, so I would like to  
 4 call this meeting of the Tennessee Board of Boiler  
 5 Rules in session.  
 6 And I want to welcome everybody here  
 7 today. We've got a full room, and it's always nice  
 8 to have visitors and good to see all of our  
 9 inspectors.  
 10 And if you're a Tennessee state inspector,  
 11 would you please just stand up for a minute so we  
 12 can recognize you guys for all you do.  
 13 I understand you've been getting educated  
 14 this week; is that right?  
 15 All right. Well, good. Good to have you.  
 16 Make yourself at home.  
 17 I'd like to continue on. If you don't  
 18 have an agenda, they're on the back table. So  
 19 please make yourself available to one of those so  
 20 you can see what we're going to be covering today.  
 21 And as far as introductions go, I want to  
 22 start with just a safety item. And that being, as  
 23 we sit in this room today, the TOSHA room today, I  
 24 just wanted to let you be aware that if we did have  
 25 an emergency or some sort of natural disaster

**Page 5**

1 occurring, that there are alarms that would sound  
 2 and that we would be directed by the security  
 3 personnel to either a safe location in this  
 4 building, or we would be directed to exit the  
 5 building on the Rosa Parks side to get us to a safe  
 6 area.

7 As far as other announcements go,  
 8 Dr. Canonico is not with us today. He is home. His  
 9 wife is having some health issues, and so he,  
 10 understandably, stayed home with her today. So just  
 11 remember him and Ms. Colleen, and we'll update you  
 12 as we know more about that.

13 Are there any other announcements that  
 14 anybody would want to make at this time?

15 (No verbal response.)

16 CHAIRMAN MORELOCK: All right. Then we'll  
 17 move on to introductions.

18 And, Amber, I'll begin with you.

19 THE REPORTER: I'm Amber Thompson. I'm  
 20 the court reporter here today.

21 MS. BENNETT: Carlene Bennett, Board  
 22 Secretary.

23 MR. CHAPMAN: Sam Chapman, assistant  
 24 chief.

25 MR. ROBINSON: Eugene Robinson, board

**Page 6**

1 member.

2 CHAIRMAN MORELOCK: Brian Morelock, board  
 3 member representing unfired-pressure vessel owner  
 4 and users.

5 DR. JOHNSON: Glen Johnson, representing  
 6 mechanical engineers.

7 MR. BAUGHMAN: I'm Dave Baughman, boiler  
 8 member, representing owner/users.

9 MR. BAILEY: I'm Dan Bailey, legal counsel  
 10 to the board.

11 MR. PERRY: Steve Perry, state boiler  
 12 inspector.

13 MR. BARTON: Allen Barton, University of  
 14 Tennessee.

15 CHAIRMAN MORELOCK: Okay.

16 MR. HOLT: Tim Holt, state boiler  
 17 inspector.

18 MR. OSWALD: Jack Oswald, state boiler  
 19 inspector.

20 MR. WORD: Dallas Word, boiler inspector.

21 MR. SPANGLER: Tommy Spangler, boiler  
 22 inspector.

23 MR. SITZ: Sammy Sitz, boiler inspector.

24 MR. JACKSON: Neil Jackson, consultant.

25 MR. CROMWELL: Jerry Cromwell, boiler

**Page 7**

1 inspector.

2 MR. PETERS: Danny Peters, boiler  
 3 inspector.

4 MR. FLOWERS: David Flowers, combustion  
 5 and control solutions.

6 MR. HUPF: Del Hupf, boiler  
 7 inspector-in-training.

8 MS. BELL: Deonne Bell, boilers.

9 MS. RHONE: Deborah Rhone, boiler office  
 10 supervisor.

11 MR. SKEEN: Guy Skeen, Tennessee state  
 12 boiler inspector.

13 MR. DAVIDSON: Bob Davidson, boiler  
 14 inspector.

15 MR. SMITH: Jesse Smith, boiler inspector.

16 MR. DICKERSON: Richard Dickerson, boiler  
 17 inspector.

18 MR. KELLEY: Randall Kelley, boiler  
 19 inspector.

20 MS. DOWER: Jann Dower, Commissioner's  
 21 office.

22 MR. KOSTADINE: Bob Kostadine, RR  
 23 Donnelley.

24 MR. HAMMOCK: Ricky Hammock, RR Donnelley.

25 MR. NEVILLE: James Neville, Neville

**Page 8**

1 Engineering.

2 MR. PURYEAR: Stefan Puryear, staff  
 3 engineer with Shaw Industries.

4 MR. LONG: Marcus Long, Boiler Supply  
 5 Company.

6 MR. FRAZIER: Kerry Frazier, chief  
 7 engineer at University of Tennessee.

8 MR. IWANYSZYN: I'm Joe Iwanszyn from  
 9 Cookeville Regional Medical Center.

10 MR. DULWORTH: James Dulworth, Cookeville  
 11 Regional.

12 MR. ENG: Richard Eng, Polysilicon Corp.

13 CHAIRMAN MORELOCK: All right. Well,  
 14 again, welcome, everybody.

15 Our next item on the agenda is to adopt  
 16 our agenda, so I hope everyone has had a chance to  
 17 look over it.

18 MR. ROBINSON: Motion made to adopt  
 19 agenda.

20 CHAIRMAN MORELOCK: Okay. I have a  
 21 motion.

22 MR. BAUGHMAN: Second.

23 CHAIRMAN MORELOCK: And I have a second.  
 24 Are there any additions, corrections to  
 25 the agenda?

**Page 9**

1 (No verbal response.)  
2 CHAIRMAN MORELOCK: All right. Hearing  
3 none, then I will call for a vote.  
4 All in favor say, "Aye."  
5 (Affirmative response.)  
6 CHAIRMAN MORELOCK: Opposed?  
7 (No verbal response.)  
8 CHAIRMAN MORELOCK: Abstentions, not  
9 voting?  
10 (No verbal response.)  
11 CHAIRMAN MORELOCK: All right. We have an  
12 agenda.  
13 Next item on the agenda is assistant  
14 chief's report.  
15 Sam, I'll turn that over to you.  
16 MR. CHAPMAN: All right. Thank you,  
17 Brian.  
18 Okay. We did a number of inspections.  
19 For the state inspector was 3,012. Excuse me.  
20 Insurance agency did a total of 4,918. Giving us a  
21 total of 10,415.  
22 We have a total of delinquent for state  
23 inspectors, 9,900- -- excuse me, 996. Insurance  
24 inspectors is 946. Giving us a total of 1,942.  
25 Our number of code violation -- our

**Page 10**

1 violation found was 31. 17 is uncorrected at the  
2 moment. We did a 3 QC review and two boiler  
3 variance.  
4 We have one new inspector that's covering  
5 the Montgomery County areas and surrounding area,  
6 and we have one in training.  
7 At the moment, we're still look- -- we  
8 have a total of 13 inspectors, and we're still  
9 looking for a chief at the moment.  
10 CHAIRMAN MORELOCK: Okay.  
11 MR. CHAPMAN: Thank you.  
12 CHAIRMAN MORELOCK: Thank you.  
13 Any questions or comments?  
14 MR. BAUGHMAN: Sam, I'm sorry, would you  
15 go back over that delinquent list on what we've got,  
16 both insurance and...  
17 MR. CHAPMAN: Okay. Yes. For the state  
18 inspectors, we've got 996.  
19 MR. BAUGHMAN: Okay.  
20 MR. CHAPMAN: Okay. For the insurance  
21 agents, we've got 946.  
22 MR. BAUGHMAN: 946, thank you.  
23 MR. CHAPMAN: Yes. And -- which giving us  
24 a total of 1,942.  
25 MR. BAUGHMAN: Very good. Thank you.

**Page 11**

1 MR. CHAPMAN: Uh-huh.  
2 CHAIRMAN MORELOCK: Okay. Any other  
3 questions?  
4 (No verbal response.)  
5 CHAIRMAN MORELOCK: All right. Very good.  
6 Thank you.  
7 Okay. Our next item on the agenda is old  
8 business, and we do not have any old business.  
9 So moving on to item 6, which is new  
10 business. The first item that we're going to cover  
11 this morning is item 15-10, and that is going to be  
12 the University of Tennessee requesting a variance  
13 removal for two boilers.  
14 So as just a matter of information, when  
15 it's your turn to come forward to present your  
16 items, please come to the public podium here.  
17 And for Amber's benefit, please speak up.  
18 Whether you're presenting, asking questions, making  
19 comments, please speak to where she can hear you.  
20 It's a big job trying to transcribe everything that  
21 we're saying, so just keep that in mind.  
22 So introduce yourself. And also, as a  
23 point of information, every time we cover an item, I  
24 will ask for a conflict of interest. And if there  
25 are any conflicts of interest, that needs to be

**Page 12**

1 noted during the presentation of that item.  
2 All right.  
3 MR. BARTON: Good morning, gentlemen,  
4 ladies. I'm Allen Barton. I'm the HVAC  
5 superintendent at the University of Tennessee Health  
6 Science Center in Memphis. And we have several  
7 items on the agenda.  
8 I guess we'll take one together. But our  
9 university, like I said, we're located in Memphis.  
10 We're a state university. We have almost 4,000  
11 faculty and staff there, along with close to 3,000  
12 students. The education emphasis is on healthcare.  
13 It's teaching and research. And our physical  
14 address there is on South Dunlap in Memphis.  
15 The central energy facility located there  
16 at our general education building, the control room  
17 operates 16 high-pressure boilers. They actually  
18 look at them on our digital displays there, and --  
19 but we're asking for a variance with these two here  
20 added. We have 11 total that we're going to ask for  
21 that variance, a renewal on the variances today.  
22 CHAIRMAN MORELOCK: Okay. So, Mr. Barton,  
23 can I ask you a question?  
24 MR. BARTON: Yes.  
25 CHAIRMAN MORELOCK: I have reviewed all

**Page 13**

1 four of the manuals. And so with a variance  
2 renewal, all the board is looking at is what has  
3 changed since the last approval of the variance. So  
4 that's why in our checklist we have you marked if  
5 it's a renewal. And if it's a renewal, we ask for a  
6 revision page to show what's changed since the last  
7 variance approval.

8 And so if the changes are strictly an  
9 editorial change, somebody's job title has changed,  
10 or a phone number has changed, then the boiler unit  
11 handles that and it doesn't need to come to the  
12 board. So I think one of the things that we  
13 wrestled with, with all four of these, is not having  
14 a checklist and not having revision pages, we didn't  
15 know what was coming before the board.

16 So if you can focus on each of these  
17 items, what is new, then we can -- as a board, we  
18 can act upon those new changes.

19 MR. BARTON: Well, basically, there's  
20 nothing new. Nothing has changed. We've had  
21 personnel changes over the years. Like I said, I'm  
22 a new hire there.

23 CHAIRMAN MORELOCK: Right.

24 MR. BARTON: But most of the  
25 administration that turned these books in to you for

**Page 14**

1 the variance renewal, they have retired or been  
2 promoted.

3 The director, he is still the director.  
4 That's why his name is still active on there as the  
5 person that's going to be responsible for overseeing  
6 the books.

7 CHAIRMAN MORELOCK: Okay. And that's  
8 Kenneth?

9 MR. BARTON: Kenneth Bradshaw.

10 CHAIRMAN MORELOCK: Kenneth Bradshaw.  
11 He's still responsible for --

12 MR. BARTON: He's still responsible, yes.

13 CHAIRMAN MORELOCK: -- keeping the manual  
14 updated and implementing the variance; is that  
15 correct?

16 MR. BARTON: Yes.

17 CHAIRMAN MORELOCK: Okay. In looking  
18 through the four manuals, one of the things that  
19 struck me was on page 1 of each manual where it  
20 gives an introduction, as well as in the cover  
21 letters, you're saying that you have 16 boilers.  
22 But I read in these manuals that you have 12  
23 boilers.

24 MR. BARTON: 12 boilers.

25 CHAIRMAN MORELOCK: And so, again,

**Page 15**

1 those -- you know, that technically constitutes a  
2 technical change. Because if you've added four  
3 boilers since the last renewal, we've not seen those  
4 if you're putting them under variance.

5 MR. BARTON: Well, we had a variance that  
6 was added to with a new building in December, and  
7 that was our in TRSP building.

8 CHAIRMAN MORELOCK: Okay. Okay.

9 MR. BARTON: And after speaking with one  
10 of the members, I made the change and sent you the  
11 change order --

12 CHAIRMAN MORELOCK: Right. Right. I saw  
13 that.

14 MR. BARTON: -- with the -- actually,  
15 combined the introduction. After I read them, I  
16 said, That's not right.

17 CHAIRMAN MORELOCK: Okay. Okay.

18 MR. BARTON: So then I sent that so we  
19 could correct the number of boilers we have and  
20 actually the physical locations of the boilers.

21 CHAIRMAN MORELOCK: Okay. Okay. So what  
22 you're telling the board is that in these four  
23 manuals there's no technical changes?

24 MR. BARTON: If you accept my introduction  
25 page there, no, there's not.

**Page 16**

1 CHAIRMAN MORELOCK: Okay. So you will go  
2 back and revise these -- is there going to be one  
3 manual or four?

4 MR. BARTON: Well, we're going to have --  
5 they're individual buildings, so we're going to  
6 put --

7 CHAIRMAN MORELOCK: You'll have four  
8 separate manuals.

9 MR. BARTON: So four separate manuals.

10 CHAIRMAN MORELOCK: So all the  
11 introduction pages and everything will be revised so  
12 they're all consistent?

13 MR. BARTON: Yes.

14 CHAIRMAN MORELOCK: Okay. Okay. So that  
15 was the biggest thing that I saw.

16 And then if you look at -- I apologize,  
17 Amber. I'm going to take this out of order for just  
18 a moment, just for the sake of the conversation.

19 If you look at the cover sheet in 15-11,  
20 it says that three new boilers are being installed.  
21 So that will need to be revised if they're already  
22 installed. What I'm saying is, just if they're out  
23 there, the manuals haven't been revised to reflect  
24 that, so -- okay?

25 MR. BARTON: Well, the one manual that we

1 had for the -- the two that were installed was for  
2 the translational science research, that was two of  
3 them.

4 CHAIRMAN MORELOCK: Okay.

5 MR. BARTON: So it was actually for one.

6 CHAIRMAN MORELOCK: Okay.

7 MR. BARTON: I'll have to make the  
8 revision for the one.

9 CHAIRMAN MORELOCK: And like in 15-12, for  
10 the Coleman Building, the introduction says to  
11 replace existing boilers with two new boilers and  
12 the projected completion date is March 2008, which  
13 we know has long since passed.

14 So, again, we just need to update the  
15 manuals so that when we read them they make sense.

16 MR. BARTON: I understand. I understand.

17 CHAIRMAN MORELOCK: Okay. All right. So  
18 if you're telling the board there's no technical  
19 changes to your variance, you've got 16 boilers  
20 under four variances; is that correct?

21 MR. BARTON: We have 16, but we're asking  
22 for 11 under the variance.

23 CHAIRMAN MORELOCK: 11. Okay. That's  
24 correct. Per unit.

25 MR. BARTON: Because two are already under

1 reasons, but Mr. Jackson, our deputy inspector, will  
2 come and do a site inspection for this renewal. And  
3 he's going to need to know -- you know, what he sees  
4 and what he reads has to match. You know, you need  
5 to -- what you're doing and what you've written that  
6 you're doing, all that needs to match. So that's  
7 what he needs to see.

8 Okay. All right. So are there any  
9 comments from the board?

10 MR. ROBINSON: No. Basically I had the  
11 same issues. The fact that you're using four  
12 manuals -- some of the information was not correct.  
13 The locations of the actual boiler as opposed to the  
14 title page on the manual didn't match.

15 MR. BARTON: Yes.

16 MR. ROBINSON: So if there was an audit to  
17 be performed, you wouldn't get to the right  
18 location. You had dates that were also out of  
19 place. It appeared as though the manuals were  
20 conceptual because the dates didn't line up with --  
21 and some of the verbiage, as well, didn't line up  
22 with what the manual was saying. Since you didn't  
23 have a revisions page, we couldn't go back to make  
24 any determinations as to what had changed.

25 MR. BARTON: Yes.

1 a variance and we have three that are manned 24  
2 hours a day.

3 CHAIRMAN MORELOCK: So you will have five  
4 variances for 13 boilers; is that right?

5 MR. BARTON: Yes.

6 CHAIRMAN MORELOCK: Okay. Your manuals  
7 all need to reflect that so we'll know, okay?

8 MR. BARTON: Okay.

9 CHAIRMAN MORELOCK: Okay. All right.  
10 Okay. So I'm sorry, I just wanted to kind of get  
11 that -- that's going to set the tone for the rest of  
12 these items, so proceed on, or if you're done...

13 MR. BARTON: I'm basically done now with  
14 it.

15 CHAIRMAN MORELOCK: Okay.

16 MR. BARTON: But I've looked at -- like I  
17 said, the books, I knew they were -- they needed  
18 some tweaking.

19 CHAIRMAN MORELOCK: Okay.

20 MR. BARTON: So adjustments to them. And  
21 hopefully with, you know, this -- the introduction  
22 page I sent you will do a little explanation of what  
23 we have there now.

24 CHAIRMAN MORELOCK: Okay. And the  
25 reason -- of course, this is important for a lot of

1 MR. ROBINSON: So we're going to take the  
2 manuals independently, one by one, or --  
3 Mr. Chairman?

4 CHAIRMAN MORELOCK: We can do it -- we can  
5 do them one by one -- since there's no changes, we  
6 can take them all four, because -- I mean, if  
7 there's no changes.

8 But before I say that, I need to make sure  
9 that we all agree that there are no changes.

10 MR. BAUGHMAN: Excuse me?

11 MR. BARTON: Yes.

12 MR. BAUGHMAN: When was it that you came  
13 on board?

14 MR. BARTON: Three months ago.

15 MR. BAUGHMAN: Three months ago. Okay.  
16 Very good.

17 Well, you're getting it kind of  
18 indoctrination by -- I guess by fire with it.

19 MR. BARTON: Yes, I am.

20 MR. BAUGHMAN: Okay. So being that these  
21 manuals go back a ways, some of these boilers in  
22 different years, my concern is on whether any  
23 hardware has actually been updated.

24 In other words, some of this equipment, I  
25 think, is 2003. As any of us in the boiler industry

**Page 21**

1 knows, these things don't last. There's  
2 obsolescence. New equipment has to go in. If the  
3 new equipment goes in, that needs to be reflected, I  
4 believe, in the manuals.  
5 Being that you've been there three months,  
6 you may not be exactly privy to that information,  
7 but I ask the question if any hardware has been  
8 replaced due to failure or needing to upgrade or  
9 whatever the situation may be?  
10 MR. BARTON: And I asked that also.  
11 MR. BAUGHMAN: Good.  
12 MR. BARTON: So far, we have plans to make  
13 changes, but not set -- for the paperwork I have  
14 found, I have not seen any changes since 2008.  
15 MR. BAUGHMAN: Okay.  
16 MR. BARTON: But we do have plans in the  
17 future for that.  
18 CHAIRMAN MORELOCK: Certainly.  
19 MR. BAUGHMAN: Okay. Good.  
20 Well, and that will be upon the  
21 reinspection that they'll verify what models are  
22 listed in the variance renewals versus what you  
23 might actually have.  
24 MR. BARTON: Right.  
25 MR. BAUGHMAN: Every one of the manuals

**Page 22**

1 states University of Tennessee Memphis will install,  
2 and I'd like that just to be --  
3 CHAIRMAN MORELOCK: Well, that goes with  
4 the revisions with these construction dates that are  
5 seven years and things like that.  
6 MR. BAUGHMAN: Sure. But, yeah, I would  
7 just be interested on that end of it, and I'm sure  
8 it will get looked at along the way.  
9 MR. BARTON: Yeah.  
10 MR. BAUGHMAN: But I'm glad you're on the  
11 board with them and part of their team. I'm sure  
12 you're going to be a good asset for them.  
13 MR. BARTON: I appreciate that. Thank  
14 you.  
15 CHAIRMAN MORELOCK: Any other comments?  
16 MR. JACKSON: Mr. Chairman.  
17 CHAIRMAN MORELOCK: Yes, sir.  
18 MR. JACKSON: Is there one primary contact  
19 for all locations that I can address?  
20 CHAIRMAN MORELOCK: The manual -- the  
21 manual references --  
22 MR. BARTON: Kenneth Bradshaw.  
23 CHAIRMAN MORELOCK: -- Mr. Bradshaw, yes,  
24 Kenneth Bradshaw. So -- and if it needs to be you  
25 that -- that's an editorial change to the manual, so

**Page 23**

1 I mean, that's not a problem. But if it's Ken, you  
2 know -- so you decide who that main contact is going  
3 to be.  
4 MR. BARTON: Well, all of us fall under  
5 Ken.  
6 CHAIRMAN MORELOCK: Okay.  
7 MR. BARTON: So if it goes to Ken, it's  
8 going to come down.  
9 CHAIRMAN MORELOCK: Okay.  
10 MR. BARTON: We can do that. We can make  
11 an editorial change.  
12 CHAIRMAN MORELOCK: So, I mean, do you  
13 want it to be you? Does UT Memphis want it to be  
14 you?  
15 MR. BARTON: I don't know. I'll ask Ken  
16 if he wants it off his shoulders.  
17 CHAIRMAN MORELOCK: Okay. Well,  
18 Mr. Jackson just needs to know.  
19 MR. BARTON: I will. We will let  
20 Mr. Jackson know.  
21 CHAIRMAN MORELOCK: So he will know who to  
22 communicate with and all that.  
23 And then the other part of that is you'll  
24 need to work through the boiler unit to schedule  
25 that. That's on you to schedule that with the

**Page 24**

1 state, okay?  
2 MR. BARTON: Okay.  
3 CHAIRMAN MORELOCK: Okay. Any other  
4 questions or comments?  
5 MR. BAUGHMAN: Yes, sir. Going back  
6 through on the very last page, taking, let's say,  
7 15-10, where it says operating manual logs, manuals  
8 were issued to, it just says, name, date, by. It's  
9 blank.  
10 MR. BARTON: Yes.  
11 MR. BAUGHMAN: Going to 11, operating  
12 manual log manuals are issued to Kenny Bradshaw,  
13 George Byars; date, blank.  
14 And then 12 and 13, as you're looking at  
15 the same within that of operating manual logs,  
16 either blank or that same information.  
17 That, in itself, I'd like to have filled  
18 out just so that we know part of that, too. Just a  
19 note.  
20 CHAIRMAN MORELOCK: All right. And, I  
21 mean, you know, all your manuals are going to have  
22 to be very consistent; your organizational charts,  
23 your job titles, the operational plans, your plant  
24 diagram, your piping diagrams, you know, you just  
25 need to be very consistent. And that's the thing

**Page 25**

1 with you having five manuals, right? You're going  
2 to have five instead of those four, right? Because  
3 you've got those two.  
4 MR. BARTON: Yeah.  
5 CHAIRMAN MORELOCK: So all five manuals  
6 will need to be kind of gone through with a  
7 fine-tooth comb to make sure they all agree with  
8 each other. That's the danger of putting the same  
9 information in multiple locations.  
10 But, yeah, I mean, that's going to be your  
11 biggest task, is making sure all that stuff reads  
12 correctly and compliments each other.  
13 Any other questions? Comments?  
14 (No verbal response.)  
15 CHAIRMAN MORELOCK: All right.  
16 MR. ROBINSON: Are you prepared to take a  
17 vote?  
18 CHAIRMAN MORELOCK: All right. Well, if  
19 we are, somebody needs to make a motion.  
20 MR. ROBINSON: Let me add just some of my  
21 editorial comments that I noticed during my review.  
22 Again, it's going to be important to include a  
23 revision page in each manual.  
24 I noticed you had the general educational  
25 building listed on page 2, and then you actually

**Page 26**

1 started abbreviating it on page 1. It took me from  
2 page 1 to page 2 to get to the abbreviation so I  
3 knew where I was going, so put that on page 1.  
4 Correct the log, your boiler log, from two  
5 hours to four hours. On one of the manuals, you had  
6 the correct four hour if the variance was approved,  
7 but then on the rest of them you had two hours.  
8 Put the actual distance on the site plan  
9 for each control room to the boiler for each manual.  
10 You had no numbers. You had -- I had seen a note,  
11 and I wanted to talk for discussion, you said that  
12 the reset for the boiler should be at a minimum of a  
13 thousand feet. Is that some type of...  
14 MR. BAUGHMAN: For the emergency room  
15 boiler shut off?  
16 MR. ROBINSON: Yes.  
17 MR. BAUGHMAN: I thought it was at a point  
18 of egress in the boiler room itself.  
19 MR. ROBINSON: Well, I was under the  
20 impression it was, like, for resistance or the  
21 inability of the reset to function properly. I  
22 didn't know.  
23 MR. BAUGHMAN: And you said a minimum of a  
24 thousand or a maximum of thousand?  
25 MR. ROBINSON: Maximum of a thousand feet.

**Page 27**

1 And I'm going to take you to the page.  
2 Let's see if I can find it.  
3 CHAIRMAN MORELOCK: Which manual? Which  
4 item?  
5 MR. ROBINSON: It would have been -- it's  
6 under the -- I think the Hawk.  
7 CHAIRMAN MORELOCK: 15-10 or --  
8 MR. ROBINSON: Oh, I'm looking at 10 right  
9 now.  
10 CHAIRMAN MORELOCK: Okay.  
11 MR. ROBINSON: But I think it was in all  
12 of them.  
13 CHAIRMAN MORELOCK: Okay. Yeah, here it  
14 is on C-10.  
15 MR. ROBINSON: Yeah, is it C-10? Thank  
16 you.  
17 CHAIRMAN MORELOCK: It's Item T.  
18 MR. ROBINSON: Remote resetting of the  
19 safety lockout via momentary push button, remote  
20 reset switch can be placed up to a thousand feet  
21 from the programmer control.  
22 Can you see that light, anybody? I don't  
23 know. I'm just asking the question.  
24 MR. BAUGHMAN: From a technical  
25 standpoint, I'd have to look that up. I don't know

**Page 28**

1 off the top of my head.  
2 DR. JOHNSON: My reading of this is this  
3 is not specifically to comply with the state law,  
4 but rather it's the specification for the sale of  
5 this boiler, that it could operate up to a thousand  
6 feet.  
7 CHAIRMAN MORELOCK: That's the limit of  
8 the equipment.  
9 DR. JOHNSON: Yeah, the limit of the  
10 equipment. Where it operates is up to the rules  
11 that we may have.  
12 MR. ROBINSON: Right. But the only thing  
13 I'm questioning, Dr. Johnson, is, say, for an event,  
14 it's an impedance issue, okay?  
15 DR. JOHNSON: I don't think there's any  
16 doubt that these manuals are -- as you said, you  
17 said they are conceptual. They don't actually  
18 represent these specific conditions that's exist for  
19 any of this stuff.  
20 And I think that's a serious shortcoming  
21 if we were -- at this point, if we were to approve  
22 it, it would have to be contingent on getting all of  
23 these things fixed.  
24 And you guys have done a great job of  
25 finding these discrepancies.

1 MR. BAUGHMAN: One thing I'll add to that  
2 is that this remote reset of safety lockup via  
3 momentary push button, that is actually on the  
4 programmer itself. The programmer is located on the  
5 boiler burner, so that controller is not going to be  
6 remotely mounted, except maybe in the boiler room  
7 itself off of the burner or what have you, but it's  
8 not going to be in the guard station or what have  
9 you. So it's not -- it's actually, typically, on  
10 the display module or on the programmer itself. So  
11 they're not going to remotely monitor -- or remotely  
12 locate that to another position, I believe.

13 What we'd be looking at is a -- an  
14 emergency room E-stop can be virtually anywhere, but  
15 this will be part of that 7800 Series programmer.  
16 Which I don't believe they're going to have anywhere  
17 else because it's got to be reset in the boiler room  
18 itself. It can't be reset from the guard shack.

19 MR. BARTON: I don't know that this would  
20 be in CSD-1.

21 Is that what you're asking?

22 MR. ROBINSON: No, it's not in CSD-1.

23 So turn to page 2, note 5, paragraph 5.

24 MR. BAUGHMAN: On C-11?

25 MR. ROBINSON: 10.

1 MR. BAUGHMAN: 10. Okay.

2 MR. ROBINSON: So the hold mode buttons  
3 on -- sets off the boiler, allows three minutes for  
4 a period of conditioning before the communication  
5 interface transmits an alarm. If the hold button  
6 condition is corrected within three minutes, the  
7 burner is allowed to restart automatically, ignore  
8 alarm is transmitted.

9 The way I read that, it seemed like the  
10 control for the boiler was maintained inside the  
11 remote monitoring station and the hold button was  
12 part of that circuitry.

13 MR. BARTON: So what are you asking?

14 MR. ROBINSON: I don't know. So when I  
15 saw the reset, I said -- well, I was uncertain. Can  
16 you help me?

17 MR. BARTON: When you have a condition  
18 right there, you can hold the button, which will  
19 keep something from happening.

20 MR. ROBINSON: Inside the monitoring?

21 MR. BARTON: At the boiler itself, you  
22 have the control panel.

23 MR. ROBINSON: Sure. Okay.

24 MR. BARTON: The digital monitoring  
25 system, you would never let somebody sit there and

1 hold a button while you're down there by that  
2 boiler. I wouldn't.

3 MR. ROBINSON: Let me ask you this: Is  
4 the reset button independent of the monitoring  
5 station?

6 MR. BARTON: Yes.

7 MR. ROBINSON: Good.

8 It's just a shutoff button, yes?

9 MR. BARTON: Yes.

10 MR. ROBINSON: Hard lockout?

11 MR. BARTON: Yes. And like I said, it's  
12 part of this series -- this program control series  
13 here.

14 MR. ROBINSON: Okay.

15 MR. BARTON: Even though you have a  
16 program, you still have manual controls out here at  
17 the boiler itself.

18 MR. ROBINSON: Sure. Will shut it down.

19 CHAIRMAN MORELOCK: No. These five items  
20 are just microprocessor features --

21 MR. ROBINSON: Okay. Fine.

22 CHAIRMAN MORELOCK: -- which is mounted  
23 close to the boiler. Correct.

24 MR. ROBINSON: That's what I wanted to  
25 hear. Okay. Distance.

1 You mentioned a log for training. And I  
2 know that everybody in Shelby County is licensed  
3 operators.

4 MR. BARTON: Yes.

5 MR. ROBINSON: That really warms my fuzzy.  
6 And I'm sure Dr. Canonico, if he was here, he would  
7 be very overwhelmed. But could you also include a  
8 log, an actual signature log in the date of the  
9 training for visual viewing inside the manual? You  
10 make the statement that it's documented, but you  
11 don't provide the log.

12 MR. BARTON: It wasn't in these that you  
13 have.

14 MR. ROBINSON: No, sir.

15 MR. BARTON: It is in the new ones.

16 CHAIRMAN MORELOCK: Okay.

17 MR. BARTON: You know, we have them. I  
18 have copies of them. Now we have the copies of  
19 them, and I apologize if they wasn't sent to you.  
20 But we do have the date, the time, the person that  
21 actually did the training, it's all there.

22 MR. ROBINSON: Okay. Include the lines --  
23 the leader lines on the org chart for reporting.

24 You've just got the blocks.

25 MR. BARTON: Okay.

**Page 33**

1 MR. ROBINSON: Again, confirm the actual  
2 address for each location for each manual. And the  
3 reason being is, because that's -- and I'll bring  
4 this to the board just for discussion, normally  
5 you -- on the header of the manual, you will have an  
6 actual location in which, I'm sure, you're getting  
7 your mail, the boilers are located, et cetera. But  
8 in this case, like I think -- let's see.  
9 Let's look at 15-10. Okay. 15-10, the  
10 header says it's 19 South Manassas; and the second  
11 page on the introduction shows that it's at  
12 8 Dunlap.  
13 MR. BARTON: Again, sir, I apologize for  
14 that.  
15 MR. ROBINSON: No, no, no. No apologies.  
16 MR. BARTON: I understand. I mean, that's  
17 why I sent you an update with the introduction and I  
18 combined the two and made them correct.  
19 MR. ROBINSON: So in other words, the  
20 discussion is to make the addresses consistent with  
21 what's -- where the boilers are located. Okay.  
22 MR. BAUGHMAN: Yes.  
23 DR. JOHNSON: It's the cancer research  
24 building that's at 19 South Manassas, but this  
25 complex is on Dunlap.

**Page 34**

1 MR. ROBINSON: Right.  
2 DR. JOHNSON: And so it's -- you know, it  
3 would be clearer. But you have this issue of where  
4 is the person of responsibility and I assume that  
5 Bradshaw is at this Dunlap location.  
6 MR. ROBINSON: Correct. I agree. So the  
7 question again -- and I'll restate it.  
8 DR. JOHNSON: Well, that's for them and  
9 not for me. But yeah -- but this just -- I mean,  
10 this says where this thing is going to be, is my  
11 interpretation of this. This is the manual that  
12 goes to 19 South Manassas and this is the manual  
13 that goes to 901 Monroe, et cetera. So I think  
14 that's why they did that.  
15 MR. ROBINSON: Exactly.  
16 CHAIRMAN MORELOCK: Because the boilers --  
17 some of the boilers are located in specific  
18 buildings.  
19 MR. ROBINSON: Right. Whereas normally I  
20 would --  
21 DR. JOHNSON: And it does give that in  
22 that introduction. It says, where these boilers are  
23 located is in the cancer research facility, which on  
24 the front cover says cancer research facility is  
25 located here.

**Page 35**

1 MR. ROBINSON: Whereas normally, I would  
2 say, okay, 8 Dunlap is the actual location, so that  
3 should be on the front page.  
4 DR. JOHNSON: Yeah. But it's not the  
5 actual location. This is the actual location of the  
6 boilers that go with this manual.  
7 MR. ROBINSON: No. The actual boilers are  
8 located at 8 Dunlap, right, for 10?  
9 CHAIRMAN MORELOCK: That's where the whole  
10 UT Memphis facility is located.  
11 DR. JOHNSON: Yeah. That's where the  
12 facility is located.  
13 CHAIRMAN MORELOCK: Yeah, it's a big  
14 place.  
15 DR. JOHNSON: The boilers have been  
16 distributed to other addresses --  
17 CHAIRMAN MORELOCK: Yeah.  
18 DR. JOHNSON: -- and this -- these boilers  
19 aren't at this particular address.  
20 MR. ROBINSON: Okay. Okay. Agreed.  
21 DR. JOHNSON: The central, where Bradshaw  
22 is, is at the South Dunlap location. That's the way  
23 I read it.  
24 MR. ROBINSON: Agreed. So remove 8 Dunlap  
25 and make it consistent with --

**Page 36**

1 CHAIRMAN MORELOCK: With the cover.  
2 DR. JOHNSON: -- or leave it in as the  
3 contact for Bradshaw.  
4 MR. ROBINSON: Say again.  
5 DR. JOHNSON: Or leave it in as the  
6 contact for Bradshaw. If you are at Eastman, you  
7 could have somebody --  
8 CHAIRMAN MORELOCK: Oh, yeah. We've  
9 got --  
10 DR. JOHNSON: Yeah. You would say the  
11 address for Eastman is such and such address, but  
12 this unit is in Building 54D or wherever it is.  
13 MR. ROBINSON: And the header page would  
14 be such as East --  
15 DR. JOHNSON: And I think that's what  
16 they've done here.  
17 MR. ROBINSON: Okay.  
18 DR. JOHNSON: But I don't know what -- if  
19 there's specific law that relates to that, but I  
20 think that's what the attorney --  
21 MR. BARTON: How would you convert --  
22 CHAIRMAN MORELOCK: Well, I think it  
23 depends on if you're the man, if you're going to be  
24 the one and you're going to receive the  
25 correspondence, then it should be your address. And

**Page 37**

1 then it's good for Neil to know that when he shows  
 2 up that if he goes to Dunlap, he's going to be in  
 3 your office. And he goes to 19 South Manassas, he's  
 4 going to be where the boilers are.  
 5 MR. BARTON: He sure is.  
 6 CHAIRMAN MORELOCK: Right, so...  
 7 MR. ROBINSON: Bingo. There you go.  
 8 Okay. Okay.  
 9 DR. JOHNSON: Obviously that should be  
 10 clearer because it was a subject for  
 11 misinterpretation.  
 12 CHAIRMAN MORELOCK: Well, I can appreciate  
 13 that, but we have the same problem at our facility.  
 14 Yeah.  
 15 MR. ROBINSON: Make the corrections to all  
 16 the past tense dates and statements.  
 17 MR. BARTON: Oh, yeah.  
 18 MR. ROBINSON: On 15-12, you had the  
 19 incorrect statute references. It should be  
 20 68-122 -- dash 122.  
 21 Oh, you had just did it on the  
 22 introduction page, so you're okay. You can get away  
 23 with that one.  
 24 CHAIRMAN MORELOCK: Where is that?  
 25 MR. ROBINSON: Right here.

**Page 38**

1 CHAIRMAN MORELOCK: Yeah, yeah, yeah.  
 2 You're right. You're right.  
 3 MR. ROBINSON: You had 68, chapter 20.  
 4 Typo page 1 and 4 at the tops and bottom.  
 5 I'm going to move on to 15-13. Just on  
 6 the equipment log, the boiler National Board numbers  
 7 look like they may be transposed, maybe. The first  
 8 one, I think it was 8856 and the other one was 55  
 9 and 54, and I think you had a 3 somewhere in there,  
 10 an oddball. Yeah, the first one 8858, 8356, and  
 11 8357, but then they're all the same units in  
 12 succession, so just verify that.  
 13 CHAIRMAN MORELOCK: That would be more on  
 14 the manufacturer than them, though.  
 15 MR. ROBINSON: It is.  
 16 CHAIRMAN MORELOCK: That's who assigns the  
 17 number.  
 18 MR. ROBINSON: No, I don't think that's  
 19 the manufacturer. I think it's a typo.  
 20 CHAIRMAN MORELOCK: Okay.  
 21 DR. JOHNSON: He's looking at the NB.  
 22 CHAIRMAN MORELOCK: You're talking about  
 23 National Board numbers, right?  
 24 MR. ROBINSON: Yeah. I think it's a typo.  
 25 DR. JOHNSON: Yeah. And it -- somebody

**Page 39**

1 misinterpreted it. Eight-foot-three is what you're  
 2 suggesting?  
 3 MR. ROBINSON: Yeah.  
 4 CHAIRMAN MORELOCK: Oh, okay. Yeah, yeah.  
 5 DR. JOHNSON: He's saying it could be  
 6 8356, 8357, and 8358. And maybe that 858 is a typo.  
 7 CHAIRMAN MORELOCK: Yeah.  
 8 DR. JOHNSON: So it's good to check.  
 9 CHAIRMAN MORELOCK: It could be a typo  
 10 from the manufacturer. I've seen that a lot, too.  
 11 DR. JOHNSON: They do -- the Tennessee  
 12 numbers are in succession.  
 13 CHAIRMAN MORELOCK: Yeah, they are. All  
 14 right.  
 15 MR. ROBINSON: Log F1 on 13, I'm pushing  
 16 the edge, but the add water column daily tests.  
 17 Right at system test, just add daily water column  
 18 test.  
 19 That's all I have, sir.  
 20 MR. BAUGHMAN: Eugene.  
 21 MR. ROBINSON: Yes, sir.  
 22 MR. BAUGHMAN: Are you referring to a  
 23 positive check of the low water cutoff?  
 24 MR. ROBINSON: Yes. Yes.  
 25 MR. BAUGHMAN: Okay. I think that may

**Page 40**

1 need to be clarified, because a water column may be  
 2 interpreted differently if we make it positive check  
 3 of the low water cutoff.  
 4 MR. ROBINSON: I have no problem with  
 5 that. Positive check.  
 6 MR. BARTON: And when they do the  
 7 blowdown, I mean, we get an alarm. That's when  
 8 we're checking low water, when they do a manual  
 9 blowdown, too. But we also visually check every  
 10 day, so I can add that to it.  
 11 MR. ROBINSON: Yes, sir. Thank you.  
 12 MR. BAUGHMAN: Allen, that's a -- an alarm  
 13 is one thing, but making -- that's a positive check  
 14 of an alarm. Actual positive check of the low water  
 15 cutoff, is it shutting the burner off?  
 16 MR. BARTON: Yes. Well, that's what  
 17 happened. We have the stationary engineer sitting  
 18 there looking at our digital display and we have the  
 19 roving engineer there performing these tests.  
 20 CHAIRMAN MORELOCK: Sure.  
 21 MR. BARTON: And they do document that.  
 22 MR. BAUGHMAN: There is times when a shunt  
 23 is used just to check the alarm circuit. And that  
 24 checks the alarm circuit, it doesn't necessarily  
 25 shut the burner off.

**Page 41**

1 MR. BARTON: I understand.

2 MR. BAUGHMAN: Okay. I've got one other

3 thing to bring to you also, Allen, and it's under

4 the training of operating personnel on page 8. And

5 it's the last paragraph, that the refrigeration and

6 AC operations supervisor be responsible for all

7 aspects of training, so forth and so on. That

8 person would be -- as far as personnel, who would

9 that be?

10 MR. BARTON: Well, that would be George

11 Byars now, but under me, so I guess that would be me

12 now.

13 MR. BAUGHMAN: Okay. So that's a revision

14 that we'll have in there. So HVAC operator

15 supervisor is now under yourself, and you'll be

16 responsible for all aspects of training and so

17 forth. So under that definition also, then you've

18 got a superintendent, a super of HVAC services and

19 operations, which is above yourself?

20 MR. BARTON: No, that's me.

21 MR. BAUGHMAN: That's you also.

22 So I'm looking at the organizational

23 diagram on E1 that shows director of facilities,

24 then it shows super of HVAC services and operations.

25 MR. BARTON: Well, again, with -- the

**Page 42**

1 director of facilities is Kenny Bradshaw.

2 MR. BAUGHMAN: Okay.

3 MR. BARTON: And then me.

4 MR. BAUGHMAN: Okay. And then you again?

5 MR. BARTON: No, I'm going to give that to

6 George.

7 MR. BAUGHMAN: So now we'll go to George?

8 MR. BARTON: George Byars, yes.

9 MR. BAUGHMAN: Then the operators roving

10 and so forth?

11 MR. BARTON: Yes.

12 MR. BAUGHMAN: Okay. So then on the next

13 page, E2, mechanical services dated December of

14 2014, we've got Kenny, and we've got operator

15 supervisor. Which is going to change, then, to

16 yourself?

17 MR. BARTON: Yes.

18 MR. BAUGHMAN: Okay. And then it also

19 says that the operator supervisor also serves as

20 senior plant operator and remote monitoring

21 operator. Which will be yourself also?

22 MR. BARTON: No. We're going to change

23 this chart.

24 CHAIRMAN MORELOCK: Okay. I think that's

25 your point.

**Page 43**

1 MR. BARTON: We'll revise the chart.

2 MR. BAUGHMAN: Okay.

3 CHAIRMAN MORELOCK: That's your point. It

4 does -- you know, you've got two -- you've got a

5 simplified organizational chart on E1 and then a

6 more general on E2. And again, all those job titles

7 and all those blocks need to line up with the words

8 in your manual. That's the critical part.

9 MR. BAUGHMAN: Okay. And I just wanted to

10 bring that to the attention just so it didn't get

11 passed over, but it needed to be reorganized.

12 CHAIRMAN MORELOCK: Yeah. And we counsel

13 this to all the folks that bring manuals to us. You

14 know your process, but we don't. And so when we

15 read it, you know, we have some disconnects, and so

16 it helps to -- it actually helps for somebody that

17 doesn't know your organization to review it because

18 they'll see what you can't see after a while.

19 MR. BARTON: Oh, I understand.

20 MR. BAUGHMAN: Thanks, Allen.

21 MR. BARTON: Thank you.

22 CHAIRMAN MORELOCK: Any more comments?

23 (No verbal response.)

24 CHAIRMAN MORELOCK: All right. Now that

25 we've had all the discussion, is there any conflict

**Page 44**

1 of interest?

2 (No verbal response.)

3 CHAIRMAN MORELOCK: All right. Hearing

4 none -- thank you, Carlene.

5 All right. So I need a motion of what

6 we're going to do.

7 MR. BAUGHMAN: Motion approved -- or

8 motion to approve upon revisions and inspection of

9 those revisions, however that should be worded.

10 CHAIRMAN MORELOCK: Okay. Is this for all

11 four items, 10, 11, 12, and 13?

12 MR. BAUGHMAN: I would say if --

13 MR. ROBINSON: Agreed.

14 MR. BAUGHMAN: You're agreeing? Okay.

15 Yeah, so all four items.

16 CHAIRMAN MORELOCK: Everybody in agreement

17 of that?

18 MR. ROBINSON: Second.

19 CHAIRMAN MORELOCK: Okay. I have a

20 second.

21 So what you can do, Allen, is take all

22 these comments, revise your -- really, even though

23 it's not on the agenda, you really need to look at

24 all five of your manuals. That one is not on the

25 agenda. Make sure they're all consistent and

**Page 45**

1 everything like we've discussed. Schedule the  
 2 inspection through the boiler unit with Sam and  
 3 Neil, and our approval today is contingent upon  
 4 Deputy Inspector Jackson's review of your site and  
 5 then agreeing that what he sees matches what's in  
 6 the manual, okay?  
 7 MR. BARTON: Yes, sir.  
 8 CHAIRMAN MORELOCK: All right. Anything  
 9 else?  
 10 (No verbal response.)  
 11 CHAIRMAN MORELOCK: All right. I'm going  
 12 to call the question. All in favor say "aye."  
 13 (Affirmative response.)  
 14 CHAIRMAN MORELOCK: Opposed? Abstentions,  
 15 not voting?  
 16 (No verbal response.)  
 17 CHAIRMAN MORELOCK: All right. You have  
 18 four manuals that are contingently approved upon  
 19 site inspection.  
 20 MR. BARTON: Thank you, gentlemen.  
 21 CHAIRMAN MORELOCK: Thank you. You're a  
 22 brave man to come after three months. Tell them  
 23 they need to give you an award or something.  
 24 MR. BAUGHMAN: Three months' experience.  
 25 CHAIRMAN MORELOCK: That's right.

**Page 46**

1 MR. BAUGHMAN: Gee whiz.  
 2 CHAIRMAN MORELOCK: Okay. That will cover  
 3 15-10, 15-11, 15-12, and 15-13.  
 4 So our next item is 15-14, Cookeville  
 5 Regional Medical Center requests a variance renewal  
 6 for two boilers located at 1 Medical Center  
 7 Boulevard, Cookeville, Tennessee.  
 8 So, gentlemen, if you'll introduce  
 9 yourselves.  
 10 And before I forget, is there a conflict  
 11 of interest?  
 12 (No verbal response.)  
 13 CHAIRMAN MORELOCK: All right. Hearing  
 14 none, y'all may proceed.  
 15 MR. NEVILLE: I'm James Neville of Neville  
 16 Engineering, representing Cookeville Regional  
 17 Medical Center.  
 18 MR. IWANYSZYN: And I'm Joe Iwanyszyn from  
 19 Cookeville Regional Medical Center.  
 20 MR. NEVILLE: Today we are requesting the  
 21 renewal to a variance that was three years old.  
 22 Previously, we were on Revision 6 of the checklist,  
 23 so in Appendix I5, we listed the changes. And these  
 24 changes are mainly an update to checklist Revision 9  
 25 and some additional information in the job

**Page 47**

1 descriptions in Appendix G, as far as different  
 2 duties for under the variance.  
 3 There have been no hardware changes to the  
 4 variance, so this is just a renewal of the approved  
 5 variance.  
 6 CHAIRMAN MORELOCK: Okay. Any questions?  
 7 MR. ROBINSON: I've got two comments.  
 8 CHAIRMAN MORELOCK: Okay.  
 9 MR. ROBINSON: Does PVX have a definition  
 10 on page 4?  
 11 MR. NEVILLE: We can add one.  
 12 CHAIRMAN MORELOCK: What is it?  
 13 MR. NEVILLE: It's a phone.  
 14 MR. IWANYSZYN: It's an operating -- it's  
 15 the main operating station where all the calls come  
 16 in to.  
 17 MR. ROBINSON: Okay.  
 18 MR. IWANYSZYN: It's, you know, central  
 19 monitoring.  
 20 MR. ROBINSON: Page 5, paragraph 1, you're  
 21 saying that if the remote station personnel leave  
 22 for any reason, that they can be gone -- go ahead.  
 23 MR. NEVILLE: Which page are we referring  
 24 to?  
 25 MR. ROBINSON: Page 5.

**Page 48**

1 MR. NEVILLE: Oh, page 5. Sorry.  
 2 MR. ROBINSON: Paragraph 1, second  
 3 sentence. Well, let's see. Yeah, second sentence.  
 4 While the variance is in effect, if the remote  
 5 station personnel must, for any reason, leave their  
 6 post for more than 20 minutes, a boiler operator  
 7 must attend the boiler.  
 8 Can you reword that? If the remote  
 9 station personnel must leave for any reason -- must,  
 10 for any reason, leave their post, the boiler  
 11 operator must attend the boiler, per 0800-3-322 --  
 12 I'm sorry -- 4 -- 04-20 -- 22, per the 20-minute  
 13 rule?  
 14 THE REPORTER: Can you repeat that number  
 15 again?  
 16 MR. ROBINSON: I'm sorry. I will. That's  
 17 bad. I got you. Repeat how I would like to see it  
 18 written?  
 19 THE REPORTER: Yes.  
 20 MR. ROBINSON: Very well.  
 21 Okay. If the remote station personnel  
 22 must, for any reason, leave their post, a boiler  
 23 operator must attend the boiler per --  
 24 CHAIRMAN MORELOCK: Rule 800.  
 25 MR. ROBINSON: -- Rule 800-3-3-04,

1 paragraph 22, per the 20-minute rule.  
 2 CHAIRMAN MORELOCK: Yeah. And --  
 3 MR. NEVILLE: We can make that change.  
 4 CHAIRMAN MORELOCK: And you referenced  
 5 that in another section of the manual.  
 6 MR. ROBINSON: You do.  
 7 MR. NEVILLE: Right.  
 8 CHAIRMAN MORELOCK: So if you just copy  
 9 that over, it will satisfy that. Because you make  
 10 reference that you will attend the boiler, per  
 11 Rule 22.  
 12 MR. ROBINSON: Two more.  
 13 Are you ready?  
 14 MR. NEVILLE: Yes.  
 15 MR. ROBINSON: It's -- Boiler Number 3 is  
 16 not installed yet?  
 17 MR. IWANYSZYN: No, sir.  
 18 MR. ROBINSON: Okay. Boiler log tests,  
 19 could you add positive -- how would you like to see  
 20 that, David?  
 21 MR. BAUGHMAN: Positive check of the low  
 22 water cutoff.  
 23 MR. ROBINSON: That's all.  
 24 MR. NEVILLE: So you're referring to -- I  
 25 think it's, Fl?

1 MR. ROBINSON: The boiler log.  
 2 MR. NEVILLE: The boiler monitor log?  
 3 MR. ROBINSON: Yes, sir.  
 4 MR. NEVILLE: And right now, we have a  
 5 water level check. Can I just add a note in the --  
 6 say, note 7 on that page, that -- a positive check  
 7 for low water. That's what it references?  
 8 MR. ROBINSON: Perfect.  
 9 CHAIRMAN MORELOCK: Is that what your --  
 10 MR. ROBINSON: Yes, sir.  
 11 MR. NEVILLE: I believe we're complying  
 12 with that test. It's just -- we'll note what that  
 13 test is more explicitly.  
 14 MR. ROBINSON: Right. Right.  
 15 CHAIRMAN MORELOCK: Note 7 would be --  
 16 that would cover it.  
 17 MR. ROBINSON: That would cover it.  
 18 MR. NEVILLE: Okay.  
 19 MR. ROBINSON: Thank you, Mr. Neville.  
 20 CHAIRMAN MORELOCK: Any other comments?  
 21 MR. BAUGHMAN: There again, James, most of  
 22 those tests -- or a lot of the tests, I should say,  
 23 are checking the alarm circuitry, but not actual  
 24 shutdown of the burner, so that's why that's  
 25 included in that.

1 MR. NEVILLE: Right. And for  
 2 clarification, you would like that every shift or  
 3 once a day? What is the frequency on that?  
 4 MR. BAUGHMAN: Consistency is what gets  
 5 mandated to prove that there's no negligence of  
 6 attendance or maintenance of that device. So  
 7 whatever it may, it needs to be on a consistent  
 8 basis. Not every facility has the availability to  
 9 shut the burner down, go through the recycle and  
 10 bring back up. So it's really individual with in  
 11 the facility on what is able to be checked. Biggest  
 12 thing with it is, if it's checked once a day, be  
 13 consistent with that. If it's checked once every  
 14 other day or once a week, be consistent in that  
 15 check.  
 16 MR. ROBINSON: Just so you know, as a  
 17 reference, we do not -- they say recommended, CSD-1  
 18 says daily.  
 19 MR. NEVILLE: Daily. So I believe the  
 20 facility has been --  
 21 CHAIRMAN MORELOCK: Is that practical to  
 22 check it every day?  
 23 MR. IWANYSZYN: And the only reason why --  
 24 if you guys don't mind if I interject.  
 25 CHAIRMAN MORELOCK: No.

1 MR. IWANYSZYN: Really in healthcare, and  
 2 really if you work in the environment, it's just --  
 3 it's totally different, I mean, than manufacturing.  
 4 And a lot of times when you have twin, you know,  
 5 units -- and you know mechanicals, electronics,  
 6 you're going to have something that is going to  
 7 fail. So if you have one fail -- and everything is  
 8 JIT anymore, Just-In-Time, you can't get parts in an  
 9 hour or two. And being in the center between  
 10 Knoxville and Nashville, it is so difficult to get  
 11 parts sometimes. I mean, we try to stock things.  
 12 You know that. You try to.  
 13 But what happens is sometimes -- what if  
 14 you're in January or February, it's 15 degrees out  
 15 and you have over 200-something patients, your one  
 16 boiler goes down because of some type of malfunction  
 17 and you start testing the other one and it goes down  
 18 on you, what do you have? You want to talk about  
 19 totally -- I mean, chaos in having to evacuate the  
 20 building because you have no heat because again,  
 21 every -- mechanical electronics, there's always the  
 22 possibility.  
 23 So frequency was what destroys the  
 24 equipment, so up down, up down, up down. So you  
 25 always have that probability, so that's why it would

1 really be good if it -- you know, the frequency  
 2 could be minimized as much as possible because I  
 3 like your comment, recommended, that's wonderful.  
 4 MR. ROBINSON: Yes. Yes.  
 5 MR. IWANYSZYN: So it would really be good  
 6 to know for sure what is permissible, so that when  
 7 an inspector comes we're not outside the bounds of  
 8 what the board recommends.  
 9 CHAIRMAN MORELOCK: Well, all we're doing  
 10 is telling you what the rules are. It's not our  
 11 rule. It's either ASME or the State of Tennessee.  
 12 MR. IWANYSZYN: All right. Thank you.  
 13 Good point.  
 14 CHAIRMAN MORELOCK: So it's not our wish,  
 15 we're just telling you what the -- what the national  
 16 codes say and what the Tennessee law and rules says  
 17 so...  
 18 MR. BAUGHMAN: And, Joey, I'll add to  
 19 that.  
 20 Since '95 when the National Board started  
 21 recording incidences, the two leading causes of  
 22 incidents each year within boilers are low water,  
 23 operator error/poor maintenance. And so that's why  
 24 there's a high level given towards the low water  
 25 entity of things. And I understand the mechanical

1 end of it and by all means the frequency of cycling  
 2 and so forth, but that's why that being looked at  
 3 and being advised upon.  
 4 MR. IWANYSZYN: Thank you.  
 5 CHAIRMAN MORELOCK: Well, and just a point  
 6 of information, how many times have you had that  
 7 very scenario that you've told us happen?  
 8 MR. IWANYSZYN: Several.  
 9 MR. ROBINSON: On your controller?  
 10 CHAIRMAN MORELOCK: Yeah. How many times  
 11 has it been -- you know, you've had one boiler down,  
 12 start one up and it goes down? How often does that  
 13 happen?  
 14 MR. IWANYSZYN: Very seldom, but it does  
 15 happen. And for me -- Okay. I am -- I'm sorry.  
 16 I'm just too passionate. I love people and I love  
 17 the patients, and I just don't want to see anything  
 18 transpire that --  
 19 CHAIRMAN MORELOCK: Oh, sure.  
 20 MR. IWANYSZYN: So I guess I'm always  
 21 Mr. Plan B and sometimes Plan C. I can't help it.  
 22 I just -- I'm on that edge all the time, so I'm  
 23 always trying to be...  
 24 CHAIRMAN MORELOCK: So what would be your  
 25 contingent plan so that you can sleep at night and

1 not have to worry about somebody being cold?  
 2 MR. IWANYSZYN: Just my contingent, what I  
 3 would request --  
 4 CHAIRMAN MORELOCK: Yeah.  
 5 MR. IWANYSZYN: -- is if we ever have an  
 6 emergency where one system is down, that if we could  
 7 waive that cycling of shutting it down until we get  
 8 the other one repaired, that's the only thing I ask.  
 9 Because again, it always has that potential if it  
 10 does cycle, what if it don't come back up? What do  
 11 I do? Because --  
 12 CHAIRMAN MORELOCK: Well, and the way you  
 13 handle that is you talk to that gentlemen right  
 14 there. Because his job not to shut down every  
 15 business in the state of Tennessee, but his job is  
 16 to keep us all safe.  
 17 MR. IWANYSZYN: Can I please have your  
 18 card? I really would. I think it's a great  
 19 conversation.  
 20 MR. CHAPMAN: I will get you my card.  
 21 MR. IWANYSZYN: Thank you, gentlemen. I  
 22 really appreciate that.  
 23 CHAIRMAN MORELOCK: Because if you look  
 24 through the rules and the law, especially in the  
 25 NBIC, and it says, jurisdiction as required or looks

1 in the law for you to contact the boiler unit,  
 2 that's why they're there. We've went -- with us  
 3 being East men, we've went to the board with some  
 4 issues and they've worked with us through those to  
 5 have continued safe operation in less than ideal  
 6 conditions and that's what you're talking about.  
 7 MR. IWANYSZYN: And I always make it a  
 8 point to go through the EHJ, always. That's our  
 9 requirement, period.  
 10 CHAIRMAN MORELOCK: Okay. Very good.  
 11 MR. JACKSON: Mr. Chairman --  
 12 CHAIRMAN MORELOCK: Yes.  
 13 MR. JACKSON: One of my pet things, I  
 14 guess you could say, is when I do the inspection, I  
 15 don't pick low water. I pick one of them messages  
 16 that says it will shut the boiler down. And that's  
 17 normally what I'll check. So they're going to be a  
 18 problem with them also, verifying they work.  
 19 MR. BAILEY: So that the transcript is  
 20 clear, will you give your name to the reporter?  
 21 MR. JACKSON: Neil Jackson, consultant.  
 22 CHAIRMAN MORELOCK: So if Neil comes and  
 23 does a site inspection and he wants to see that, is  
 24 that going to be a problem for you to -- because all  
 25 those fault codes and all those things that are in

1 your manual, he can pick any one of those and say, I  
2 want to see this happen. That's why they're in the  
3 manual so...

4 MR. IWANYSZYN: In the process, we'll be  
5 able to function in that manner.

6 CHAIRMAN MORELOCK: Okay. So would that  
7 be a problem if we asked for that?

8 MR. IWANYSZYN: Well, if you go back on  
9 your question -- I'm sorry. On your question,  
10 again, are you saying if one unit is down right now  
11 or if both of them are functioning properly?

12 MR. JACKSON: To me it makes no  
13 difference. You've got a variance request and I'm  
14 just verifying that variance is operable, so I don't  
15 know when I go there whether both boilers are up,  
16 one is down or open or what. I'm there to make an  
17 inspection of your variance program.

18 MR. IWANYSZYN: So I guess that's a great  
19 discussion with you, sir. In regards to when you  
20 get into that condition when you have one down, do  
21 you take that option and do you take that option to  
22 shut that other unit down where it doesn't start,  
23 can you have nothing for your facility and I'm  
24 just --

25 MR. NEVILLE: During that inspection,

1 that's an inspection that would be called on by the  
2 facility. At that moment, if there was a condition  
3 like that, I think you would request that, you know,  
4 that inspection be delayed, a day, a week, whenever  
5 parts come in to repair both boilers.

6 CHAIRMAN MORELOCK: Right.

7 MR. ROBINSON: Most clients that I've  
8 visited that have had dual boilers and had a process  
9 that couldn't afford a shutdown of anything, they  
10 would bring up the second boiler if it wasn't online  
11 and they would perform the test based on the  
12 redundancy of that secondary boiler, so -- but I'm  
13 sure Mr. Jackson will -- you know, if you've got two  
14 units and you've got one down and one operating,  
15 that he would allow you to bring up the second  
16 boiler. You go ahead and make the test. Then shut  
17 one down, shut the one other on -- shut the other  
18 one off. But most of my clients, I've never had one  
19 refuse to perform that test.

20 DR. JOHNSON: I think it's really  
21 important also to point out that the purpose for all  
22 of this testing is public safety and that is it  
23 better for people to be cold or is better for there  
24 to be a boiler explosion if there were failed  
25 equipment? Because this stuff isn't just to make

1 sure that you have a boiler that's working, it's to  
2 make sure that you have boilers that are safe.

3 So there's no conflict there. And what  
4 this group's purpose should be is to facilitate your  
5 success to assure safety and warmth or for whatever  
6 other reason you might use your boilers. It's --  
7 this is not about the convenience of making you  
8 prove that your stuff works. It's about  
9 guaranteeing the public safety and the safety for  
10 you hospital.

11 MR. IWANYSZYN: I agree.

12 MR. ROBINSON: Yeah. You don't want to  
13 find out it doesn't work.

14 DR. JOHNSON: Yeah. I would rather know  
15 that it didn't work and you have the evacuation, if  
16 that's what it came to, although I think the  
17 probability of that is very low.

18 CHAIRMAN MORELOCK: Well, and as you can  
19 see, proper planning is very important for success.

20 MR. IWANYSZYN: Agreed.

21 CHAIRMAN MORELOCK: And a contingency plan  
22 is also --

23 MR. IWANYSZYN: Yes, sir, I agree.

24 CHAIRMAN MORELOCK: Any other comments?  
25 Okay. Go ahead.

1 MR. BAUGHMAN: Yes, sir. Under personnel  
2 responsible for remote monitoring, it's there again  
3 on page 5, number 1, remote station personnel.  
4 Remote station will be continually staffed by  
5 switchboard operators. Personnel monitor virtually  
6 everything, but there again, the switchboard  
7 operators, I would hope that these people would be  
8 in place for quite some time, by all means. But as  
9 we get down to -- there's no listing of personnel  
10 that I've seen -- and you may clarify this for me to  
11 because I've been going through -- to identify who  
12 we've got as personnel available as boiler  
13 attendants.

14 MR. NEVILLE: Page 7.

15 MR. BAUGHMAN: Page 7. Thank you.

16 DR. JOHNSON: It's listed by job category  
17 in Appendix G.

18 MR. BAUGHMAN: I see.

19 DR. JOHNSON: Details of their  
20 responsibilities.

21 MR. BAUGHMAN: How many personnel do we  
22 have available at the facility classified as boiler  
23 attendants?

24 MR. IWANYSZYN: It would be 15.

25 MR. BAUGHMAN: 15, very good. Okay. And

**Page 61**

1 the person responsible again for training those  
2 personnel is the plant facilities supervisor?  
3 MR. IWANYSZYN: Yes, sir.  
4 CHAIRMAN MORELOCK: I.e.?  
5 MR. IWANYSZYN: James Dulworth.  
6 CHAIRMAN MORELOCK: Super. Hey, James.  
7 MR. IWANYSZYN: You knew I would bring  
8 him.  
9 MR. DULWORTH: Supervisors run the world  
10 so...  
11 MR. BAUGHMAN: Very good. Good call.  
12 Good. So in our manual, we will have a listing of  
13 those -- or you'll have in your manual listing of  
14 those personnel with numbers and so forth?  
15 MR. NEVILLE: Yes. I mean, on page 7 and  
16 then Appendix G, it lists all their job descriptions  
17 and responsibilities.  
18 MR. BAUGHMAN: I understand that. I'm  
19 talking about physically listing those people and  
20 numbers out. I understand the job description and  
21 so forth.  
22 MR. NEVILLE: Yes. So in the -- on page  
23 7, number 2, the boiler attendant is scheduled by my  
24 plant facilities supervisor and that schedule is  
25 posted in the maintenance shop. So those 15

**Page 62**

1 individuals know when their schedule is by posting  
2 in the maintenance shop.  
3 MR. BAUGHMAN: Gotcha. Do those personnel  
4 need to be in the manual or not or is that  
5 sufficient?  
6 CHAIRMAN MORELOCK: I think the  
7 switchboard operator --  
8 MR. NEVILLE: Well, they are in the manual  
9 as far the training log. So once the training log  
10 is filled out as far as their individual names will  
11 show up in the training log.  
12 MR. BAUGHMAN: Gotcha.  
13 CHAIRMAN MORELOCK: So you don't want to  
14 list it. We've went through that.  
15 MR. NEVILLE: Right.  
16 CHAIRMAN MORELOCK: You want job title,  
17 not names, because they're revising their manual all  
18 the time.  
19 MR. NEVILLE: That's correct.  
20 MR. BAUGHMAN: And in our manual variance  
21 training log that we've got on H1 again is a blank  
22 log.  
23 CHAIRMAN MORELOCK: That's an example.  
24 MR. BAUGHMAN: Example, okay.  
25 MR. NEVILLE: They haven't been trained to

**Page 63**

1 this manual yet. They've been trained to the  
2 existing manual and that's being kept at the  
3 facility.  
4 MR. BAUGHMAN: Very good.  
5 CHAIRMAN MORELOCK: It's just like having  
6 a National Board form and --  
7 MR. NEVILLE: This would be a --  
8 MR. BAUGHMAN: Okay.  
9 MR. NEVILLE: You know, anyone that was  
10 trained in this manual, they will go in that list  
11 that be kept out at the facility.  
12 MR. BAUGHMAN: Very good, James.  
13 CHAIRMAN MORELOCK: Now what Mr. Jackson  
14 will review will be the actual document.  
15 MR. NEVILLE: Copy at the facility.  
16 MR. BAUGHMAN: Very good.  
17 CHAIRMAN MORELOCK: This is just for our  
18 benefit to say that they do have a log.  
19 MR. BAUGHMAN: I gotcha. Thank you very  
20 much.  
21 CHAIRMAN MORELOCK: Any other questions or  
22 comments? All right. Now that we've got -- oh,  
23 yes, sir.  
24 MR. DAVIDSON: I'm Bob Davidson, state  
25 inspector for that area. I have a question. I'm

**Page 64**

1 not sure how this is all written, but if you're  
2 worried -- you've got one boiler down and you don't  
3 want to test the other one because you're afraid if  
4 you do and it doesn't come back up and you can't  
5 really test it, so when you're in that situation,  
6 wouldn't you want to go back to the 20-minute rule  
7 and have an attendant in the boiler room until the  
8 other one is back up and running? Then, this way  
9 you've got somebody physically there looking at the  
10 gauge flex. These things will drive fire in a  
11 heartbeat, you know. And I know how fast a plant  
12 will suck the boiler room dry of steam. And if it's  
13 that critical, I think you should go back to the  
14 20-minute rule when the other boiler is down.  
15 That's just my suggestion. I don't --  
16 CHAIRMAN MORELOCK: Well, and not to speak  
17 for Joey, but I think his initial scenario was if he  
18 had a boiler that was operating properly, the other  
19 one was just down because they didn't need it and  
20 then Mr. Jackson comes in and goes, I want you to do  
21 a low water shutoff and shut this boiler down and he  
22 does that and he tries to bring his other boiler up  
23 and he has a problem, that's his scenario. Your  
24 scenario would be a little different if he had --  
25 because if he had a boiler that he was afraid to

**Page 65**

1 start up, that's a whole different conversation.

2 MR. DAVIDSON: Or it can't start because

3 it's a down for a bad part.

4 CHAIRMAN MORELOCK: That's true. And

5 again, that goes back to his planning for the

6 inspection so that he's got two viable boilers so he

7 won't put himself in that situation, you know.

8 Now, but to your point, if he did have a

9 boiler operating and another one is down for

10 maintenance and then his good one is going down,

11 again, that's another conversation, so...

12 MR. NEVILLE: I mean, the 20-minute rule

13 may be a better option to operate that --

14 CHAIRMAN MORELOCK: Yeah. And that would

15 be what you would have to do under that

16 circumstance, that's right.

17 MR. ROBINSON: Exactly.

18 CHAIRMAN MORELOCK: Good, good question.

19 Good conversation.

20 MR. ROBINSON: Very good comment.

21 CHAIRMAN MORELOCK: Anything else?

22 I've got a few. Now that we've covered

23 all the substantive comments, I've got the nitpicky

24 ones.

25 The only thing I have is in your revision

**Page 66**

1 you say that you've updated Appendix G to show

2 boiler variance duties which you've shown on each of

3 the job descriptions by adding a paragraph at the

4 end of those, correct? Boiler variance duties at

5 the end of all those job descriptions?

6 MR. NEVILLE: Right. And on some of

7 them --

8 CHAIRMAN MORELOCK: You've updated the

9 skills on some of that as well?

10 MR. NEVILLE: Yes. That is correct.

11 CHAIRMAN MORELOCK: That is part of the

12 revision?

13 MR. NEVILLE: Correct.

14 CHAIRMAN MORELOCK: Okay. All that is

15 fine and dandy, but revision date on all these job

16 descriptions are 12/1/2007 and 12/1/2008, so you

17 need get them reapproved for the current date that

18 you've revised them to.

19 MR. NEVILLE: I see.

20 CHAIRMAN MORELOCK: And that's all I have.

21 So anything else?

22 All right. I need a motion as to how the

23 board is going act on this item.

24 MR. BAUGHMAN: I would move approval upon

25 inspection and the revisions being updated in the

**Page 67**

1 manual.

2 CHAIRMAN MORELOCK: Okay. Okay. Second?

3 DR. JOHNSON: Second.

4 CHAIRMAN MORELOCK: I've got a second.

5 Okay. So we are going to vote to approve this

6 renewal based on the revisions as noted in the

7 minutes and by a successful site inspection by

8 Deputy Inspector Neil Jackson.

9 Are there any other comments? Hearing

10 none, I'm going call for the vote. All in favor say

11 "aye."

12 (Affirmative response.)

13 CHAIRMAN MORELOCK: All opposed?

14 Abstentions, not voting?

15 (No verbal response.)

16 CHAIRMAN MORELOCK: All right, gentlemen,

17 you have an approved renewal.

18 MR. NEVILLE: Thank you.

19 MR. IWANYSZYN: Thank you.

20 CHAIRMAN MORELOCK: Okay. Our next item

21 is a 15-15 with Shaw Industries. They're requesting

22 a variance for three boilers located at plant 10 in

23 Decatur, Tennessee.

24 Are there any conflicts of interest with

25 this item? All right. Hearing none, gentleman,

**Page 68**

1 introduce yourself and proceed.

2 MR. NEVILLE: I'm James Neville, with

3 Neville Engineering.

4 MR. PURYEAR: I'm Stefan Puryear with Shaw

5 industries.

6 MR. NEVILLE: Shaw Industries Plant 10 is

7 a yarn spinning mill, located in Decatur, Tennessee,

8 employing approximately 200 employees. Currently

9 they operate three high-pressure boilers under the

10 requirements of Chapter 800-3-3. These boilers

11 operate on demand, 24 hours per day, seven days per

12 week furnishing high-pressure steam for their

13 process. The location of the -- in Site Plan 1,

14 Figure 1, the location of the remote station is

15 approximately 295 feet from the boiler room. Now,

16 the remote station will be continuously staffed by

17 the shift supervisors in that remote station

18 location.

19 And the individuals that will be

20 monitoring the boiler, we list four different

21 positions. The boiler utility, mechanic 3, the

22 shift supervisor, and the Superba shift supervisor.

23 Those four positions.

24 We would like to take any question you

25 have with our variance.

**Page 69**

1 CHAIRMAN MORELOCK: Okay. Questions or  
2 comments? Do y'all have any?  
3 MR. NEVILLE: I do have one additional  
4 thing I need to bring up. This was a new hire at  
5 the facility as far that's responsible for the  
6 boilers. Thompson Harrison -- this would be on  
7 page 1 -- is the new plant engineer, and that  
8 position had not been filled when this variance was  
9 written. So Thompson Harrison and his phone number  
10 (423)413-3805 will be added to the variance.  
11 MR. BAUGHMAN: And he will be the --  
12 MR. NEVILLE: He's the plant engineer.  
13 CHAIRMAN MORELOCK: Plant engineer, thank  
14 you.  
15 Thompson Harrison?  
16 MR. NEVILLE: Thompson Harris.  
17 MR. BAUGHMAN: Harris.  
18 MR. NEVILLE: H-A-R-R-I-S.  
19 MR. BAUGHMAN: Thank you, James.  
20 CHAIRMAN MORELOCK: Okay. Any other  
21 comments?  
22 I just have a few.  
23 MR. NEVILLE: Okay.  
24 CHAIRMAN MORELOCK: Let me find my page.  
25 I've got -- on page 5 under training, it's the last

**Page 70**

1 sentence. It says, these supervisors shall be  
2 responsible for training all incoming personnel.  
3 And who is that supervisor? According to the org  
4 chart, it's either the shift supervisor or the  
5 Superba shift supervisor; is that correct? You've  
6 got two trainers?  
7 MR. NEVILLE: I believe it will be the  
8 shift supervisor is the position. We'll make that  
9 clarification there.  
10 CHAIRMAN MORELOCK: Okay.  
11 MR. PURYEAR: We would have two of those.  
12 MR. NEVILLE: Two shift supervisors or --  
13 MR. PURYEAR: Well, yes.  
14 MR. NEVILLE: Right. But it will be  
15 one -- well, you know, the position really should  
16 say the shift supervisor so...  
17 CHAIRMAN MORELOCK: So for like the  
18 twisting department, the shift supervisor for that  
19 will be training all of those people and then for  
20 the Superba folks, it will be their shift  
21 supervisor; is that correct, for training?  
22 MR. PURYEAR: I believe so, yes.  
23 CHAIRMAN MORELOCK: Okay. Yeah, just  
24 clarify that. And again -- well, not -- on page 7  
25 where it talks about boiler attendant training, it

**Page 71**

1 discusses -- it says that the plant facility  
2 supervisor will be responsible for training the  
3 boiler attendants. And so I don't see a block on  
4 the organizational chart for a plant facility  
5 supervisor.  
6 MR. PURYEAR: Yeah. That's going to be  
7 Thompson.  
8 CHAIRMAN MORELOCK: Okay.  
9 MR. NEVILLE: Yes. We're going to update  
10 that to the plant engineer.  
11 CHAIRMAN MORELOCK: Okay. That will be  
12 fine. Just show that on organizational chart as  
13 well. Well, he's -- yeah, Thompson is already on  
14 the org chart.  
15 MR. NEVILLE: Right.  
16 CHAIRMAN MORELOCK: Okay. Again, just  
17 bear in mind that your fault code lists, Mr. Jackson  
18 has free rein to pick any of those. So make sure  
19 it's a list that you're comfortable with.  
20 MR. NEVILLE: Yeah. Right. And this is  
21 the new Hawk 4000 control system.  
22 CHAIRMAN MORELOCK: Okay. That's all my  
23 comments.  
24 Dr. Johnson's concern was on page 7 under  
25 training, item 1 where it says, through frequent

**Page 72**

1 actuation of alarm circuits. That's how they're  
2 training. That's not -- that's not your mode of  
3 testing. You're not --  
4 MR. NEVILLE: Right.  
5 CHAIRMAN MORELOCK: You've got specific  
6 testing requirements, so that was his question so...  
7 MR. NEVILLE: Okay.  
8 CHAIRMAN MORELOCK: Any other comments?  
9 MR. BAUGHMAN: And this is for a renewal,  
10 correct?  
11 CHAIRMAN MORELOCK: This is new.  
12 MR. NEVILLE: No. This is a new variance,  
13 page 3.  
14 MR. BAUGHMAN: Well, I guess on my cover  
15 letter, it says, cover letter request for variance  
16 renewal from yourself and in our agenda it says,  
17 request a variance for three boilers.  
18 MR. NEVILLE: I guess on the back page  
19 should be the variance request letter.  
20 MR. BAUGHMAN: Gotcha. I was looking on  
21 your front cover here.  
22 MR. ROBINSON: On the transmittal.  
23 MR. NEVILLE: Transmittal.  
24 MR. BAUGHMAN: On your transmittal, so I  
25 was just a little confused on that. But I was --

**Page 73**

1 that's what we do, is we make things clear as mud  
2 for us.

3 CHAIRMAN MORELOCK: Yeah. The record  
4 states it's a new and the cover letter does.

5 MR. BAUGHMAN: So my question would be  
6 since this is a new, and our boilers start out at  
7 1978, how long has been the plant been in operation?

8 MR. PURYEAR: You know, this plant  
9 belonged to another company, I believe, when Shaw  
10 bought it and that was before my day, and I've been  
11 there since 1988.

12 MR. BAUGHMAN: Okay.

13 MR. PURYEAR: It may have been a Barwick  
14 Plant yarn mill or something like that of Salem  
15 possibly. But I've seen blueprints that date back  
16 to the early '70s for that particular facility at  
17 that location. We've enlarged it a lot.

18 MR. BAUGHMAN: Gotcha. But the boilers go  
19 to '78 to '87 to '92. So it's been a progression of  
20 some additional --

21 MR. PURYEAR: Yes, sir.

22 MR. BAUGHMAN: But they've been operating  
23 all this time under the Rule 22?

24 MR. NEVILLE: (Nodding head  
25 affirmatively.) Right, the 20-minute rule.

**Page 74**

1 MR. BAUGHMAN: The 20-minute rule. I'm  
2 sorry. Is that correct?

3 MR. NEVILLE: Those boilers have been  
4 operating, as far as being monitoring every 20  
5 minutes as far as you know? Maybe they are now?

6 MR. PURYEAR: Am I under oath?

7 MR. BAUGHMAN: Well, that's okay. I  
8 understand. That's okay.

9 MR. ROBINSON: Speak up a little louder.

10 MR. BAILEY: She can put you under oath.

11 MR. BAUGHMAN: That's a loaded question.  
12 I'm sorry.

13 MR. NEVILLE: I thought you guys knew how  
14 we operated. In the last few years, there's been an  
15 increase in trying to comply with the state's  
16 wishes.

17 MR. BAUGHMAN: Sure. And my concern, and  
18 we've discussed it many times with the board, is  
19 that there's training that's associated to the  
20 variance manual, not so much training that's  
21 associated to the operations of the boilers  
22 themselves. And so all in all, this all goes hand  
23 in hand, we've got the manual and we've got the  
24 variance to work with. But I'm also interested,  
25 just from the standpoint of being that we're all in

**Page 75**

1 this together, that boiler training and so forth be  
2 carried on beyond the manual itself.

3 One thing I'd like to know is -- and I  
4 didn't see the -- and it may be in here, the --  
5 well, yes, it is. I'm sorry.

6 Are we operating a DA or just an  
7 atmospheric water -- feedwater system?

8 MR. PURYEAR: It's a DA.

9 MR. BAUGHMAN: It's a DA. Okay.

10 One of the things -- and it is not part of  
11 our manual, not part of our requirement, but it's  
12 come to light in recent years, the DA gets  
13 overlooked. And it's got the potential for death,  
14 injury, or destruction also, and it needs to have a  
15 high level of inspection and oversight on it also.

16 MR. PURYEAR: I do NDTs on that thing  
17 every five years.

18 CHAIRMAN MORELOCK: Super. All right.  
19 Thank you. I appreciate that.

20 MR. BAILEY: If I may, for the record,  
21 what is a DA, or for us uninitiated?

22 MR. BAUGHMAN: Yes, sir. It's a -- DA  
23 stands for deaerator. It's a pressure vessel. It's  
24 a -- typically it's got steam that's added to the  
25 vessel to get rid of oxygen and to preheat the

**Page 76**

1 boiler feedwater.

2 MR. BAILEY: Okay. And then you said you  
3 perform an ND --

4 MR. PURYEAR: Nondestructive test.

5 CHAIRMAN MORELOCK: Check for wall  
6 thickness.

7 MR. BAILEY: Okay.

8 CHAIRMAN MORELOCK: You limit the amount  
9 of oxygen in the steam and it protects your boiler  
10 tubes.

11 MR. BAILEY: It's just that everybody  
12 doesn't understand these acronyms.

13 CHAIRMAN MORELOCK: Right. That's right.  
14 That's why it's good to ask questions.

15 MR. BAUGHMAN: Yes, sir. Thanks.

16 CHAIRMAN MORELOCK: So, yeah, the National  
17 Board, NBIC, has recommendations on what the oxygen  
18 content of your boiler feedwater should be so you  
19 can protect the boiler tubes.

20 MR. BAILEY: Okay. Thank you.

21 CHAIRMAN MORELOCK: Any other questions,  
22 comments?

23 All righty. Go ahead.

24 MR. ROBINSON: I'm going to maintain my  
25 consistency, add water column positive testing to

**Page 77**

1 your logbook.

2 MR. PURYEAR: Okay.

3 CHAIRMAN MORELOCK: Okay. Hearing no

4 additional comments, I need a motion on how the

5 board intends to act upon this request for a

6 variance.

7 MR. ROBINSON: Motion made to adopt.

8 CHAIRMAN MORELOCK: Okay.

9 MR. BAUGHMAN: Second.

10 CHAIRMAN MORELOCK: Okay. I've got a

11 motion and a second. Again, if -- it goes without

12 saying, that your approval is contingent upon

13 revisions to the manual per our discussion during

14 the board meeting today, as well as a successful

15 sight inspection by Deputy Neil Jackson. So with

16 that said, any more comments or questions?

17 Hearing none, I'm going call for the vote.

18 All in favor say "aye."

19 (Affirmative response.)

20 CHAIRMAN MORELOCK: Opposed?

21 Abstentions, not voting?

22 (No verbal response.)

23 CHAIRMAN MORELOCK: You have a contingent

24 approval on a variance.

25 MR. NEVILLE: Thank you.

**Page 78**

1 CHAIRMAN MORELOCK: Thank you.

2 Okay. I'll tell you, this is a good

3 time -- I'm sure everybody would like to take a

4 break, so let's take a 10-minute break and then

5 we'll resume our agenda.

6 (WHEREUPON, Ms. Jefferson and Mr. Finks

7 joined the meeting at 10:20.)

8 (Short break.)

9 CHAIRMAN MORELOCK: Okay. Our next agenda

10 item is going to be for our discussion items. And

11 our first item under that topic is reorganization of

12 Rule 0800-3-3. Our purpose in reorganizing

13 Rule 800-3-3 is twofold. We're trying to improve

14 these rules for ease of use. I think any of you

15 that have used them have -- if you wanted to try to

16 find purchase vessel requirements, it's in several

17 different locations, same for boilers requirements,

18 and so we're trying to reorganize them. So when you

19 get to the pressure vessels, you're going to get all

20 the pressure vessel; when you get to the boilers,

21 you're going to get to the boiler information.

22 And another thing that we are striving to

23 do is we tend to forget living in the world of

24 boiler pressure vessels, that everybody has access

25 to ASME codes and National Board Inspection codes

**Page 79**

1 and our owner-users in the State of Tennessee don't.

2 So we have included references within our rules so

3 that when people read these specific requirements,

4 they will know what code rule supports what's in

5 Rule 800-3-3.

6 So that's our desire here, to go through

7 this exercise, and we're pretty far down the road.

8 If you've not seen a copy of it, we can get you a

9 copy of a clean draft. We're still working on that.

10 And we have went through most of the board members'

11 comments. And today, with much patience, we're

12 going to go through Eugene's comments. And we're

13 going to take a few minutes to do that. He's been

14 very gracious to let other agenda items bump him for

15 almost a year now, so we apologize for that. But we

16 had some pressing items that needed to be passed.

17 So with that, we're just going to start

18 going through these comments. And you may not have

19 anything in front of you, but if you hear something

20 and you have a question, feel free, again, to

21 participate in the conversation.

22 So I'm working off of -- Eugene provided

23 us comments on November the 10th of 2014, and we're

24 working off of the same revision of the draft for

25 the revised rules. And I'm just going to go through

**Page 80**

1 each of Eugene's comments, and I will read the

2 boiler unit's response. They've responded to

3 Eugene's comments. And then I've added some

4 comments as well, and then we'll open it up for

5 discussion until we complete the review of these

6 comments.

7 So Eugene's first comment is concerning

8 page 2, paragraph (a), and that is the definition of

9 an electric boiler. And Eugene's comment was that

10 the -- to add ASME Section IV and then the preamble

11 for boiler.

12 And so the boiler unit agreed that that

13 should be included.

14 My response to that was: Here's what the

15 whole definition reads as of right now in the draft:

16 Electric boiler means a power or heating boiler in

17 which the source of heat is electricity. See ASME

18 Code, Section I, PEB-2 and Section IV, Preamble.

19 And that was added to the November 10th, 2014,

20 proposed revision, which is our current revision.

21 So any comments or questions about that

22 definition?

23 Does that satisfy your comment, Eugene?

24 MR. ROBINSON: Yes.

25 CHAIRMAN MORELOCK: Okay. Any other

**Page 81**

1 comments?

2 (No verbal response.)

3 CHAIRMAN MORELOCK: All right.

4 MR. BAUGHMAN: Are we -- sorry.

5 CHAIRMAN MORELOCK: Go ahead.

6 MR. BAUGHMAN: Are we going to go

7 through -- is this just a draft, or are we going to

8 do any kind of approval as we go through on a line

9 item?

10 CHAIRMAN MORELOCK: Well, what we're going

11 to do is, we're going to clear all the comments,

12 issue a clean draft, and try to have that ready for

13 an action item on the agenda in one of the upcoming

14 quarterly meetings.

15 MR. BAUGHMAN: Okay. Good.

16 CHAIRMAN MORELOCK: Because, really, we

17 need to make sure that we get a clean draft out to

18 everybody so they can read it.

19 Okay. The next comment is on page 4,

20 paragraph (16). And this is the definition of

21 department. Eugene's comment was: Verify a title

22 with new proposed changes, Tennessee Department of

23 Labor and Workforce Development Division of

24 Workplace Regulations and Compliance, Boiler Unit.

25 The boiler unit response says: Yes, that

**Page 82**

1 is the current terminology. That would be correct.

2 So my reply to that was: If you read the

3 current version, Item 16, department means the

4 Tennessee Department of Labor and Workforce

5 Development Division of Workplace Regulations and

6 Compliance, boiler unit.

7 And so that's -- we've incorporated that

8 change.

9 So is that good?

10 MR. ROBINSON: Yes, sir.

11 CHAIRMAN MORELOCK: Any questions or

12 comments on that?

13 (No verbal response.)

14 CHAIRMAN MORELOCK: Okay. The next one is

15 on page 5, concerning lined potable water heater.

16 Eugene's comment was: A request to add ASME

17 Section IV, Part HLW.

18 And that has been added. So the

19 definition now reads, lined potable water heater

20 means a water heater with a corrosion-resistant

21 lining used to supply potable hot water. See ASME

22 Code, Section IV, Part HLW. That's in the current

23 revision.

24 So is that satisfactory?

25 MR. ROBINSON: Yes. Yes.

**Page 83**

1 CHAIRMAN MORELOCK: Any comments or

2 questions about that?

3 (No verbal response.)

4 CHAIRMAN MORELOCK: Okay. Page 8,

5 paragraph 2, Eugene's comment was to re-add the

6 statement per ASME and National Board, per my

7 previous comments.

8 The boiler units' response was they agreed

9 to add ASME Section IV, Part HLW, and Tennessee

10 Boiler Rules and Regulations.

11 So the current revision, then, for

12 paragraph 2 on page 8 would read: Boilers and

13 pressure vessels shall bear the National Board

14 stamping -- and National Board is abbreviated to NB

15 because we've already defined the acronym -- and the

16 manufacturer's NB number as registered with the

17 NB -- which would be National Board -- the copy of

18 the Manufacturer's Data Report signed by the

19 manufacturer's representative and the National Board

20 commission inspector employed by the third-party

21 inspection agency shall be filed with the chief

22 inspector when the boiler or pressure vessel is

23 shipped into the state for installation.

24 And so the boiler unit's response to that

25 was to also include if the boiler or pressure vessel

**Page 84**

1 has been repaired or altered by a Board Certificate

2 Holder, it shall bear the National Board stamp. The

3 rest of the above statement is accurate.

4 So like I just stated on page 5,

5 paragraph 25, the National Board is defined by the

6 assigned acronym, National Board. So changing that

7 to NB is fine.

8 And then I went on to state that: I

9 disagree with the boiler unit's first response and

10 agree with Dr. Canonico's comment about not adding

11 Section IV to this particular paragraph since this

12 paragraph is stating requirements for boiler and

13 pressure vessels in general, not a specific

14 reference to Section IV. The definitions and the

15 code references for boiler and pressure vessels are

16 listed in Tennessee Rule 0800-03-03.01 definitions,

17 and references ASME Section IV correctly there.

18 To further address the boiler unit's

19 second response, repairs and alterations by a

20 National Board Certificate Holder are already

21 addressed 0800-03-03.07. And then as far as repairs

22 and alterations to statements concerning repairs and

23 NBIC and bear the NB Stamp are here.

24 So the current paragraph will stand as it

25 is in the 11/14/2014 version, with the exception of

**Page 85**

1 changing National Board to NB. And we also added  
 2 where it says chief inspector, to also add, or chief  
 3 inspector's designee.  
 4         So to read that, it says -- if this is  
 5 under construction standards in .03: Boilers and  
 6 pressure vessels shall bear the NB stamping and the  
 7 manufacturer's NB, as registered with NB. A copy of  
 8 the Manufactured Data Report signed by the  
 9 manufacturer's representative and the NB commission  
 10 inspector employed by a third-party inspection  
 11 agency, shall be filed with the chief inspector or  
 12 chief inspector's designee when the boiler or  
 13 pressure vessel is shipped into the state for  
 14 installation.  
 15         So is everybody okay with that?  
 16         Will that satisfy your comment as well,  
 17 Eugene?  
 18         MR. ROBINSON: Yes, it will.  
 19         CHAIRMAN MORELOCK: Okay. Any questions  
 20 or comments about that?  
 21         I know we're kind of reading this to you  
 22 and you're, like, oh. You know, it's like being in  
 23 school, I know. I'm sorry.  
 24         MR. BAILEY: Mr. Chairman, if I may. And  
 25 this may be a little nitpicky, but as you -- for the

**Page 86**

1 record, as you read these rules, if there's  
 2 quotations, you know, and commas and then at the end  
 3 of a sentence, period --  
 4         CHAIRMAN MORELOCK: Okay. I can do that.  
 5         MR. BAILEY: -- it makes it a lot cleaner  
 6 in the record...  
 7         CHAIRMAN MORELOCK: I can do that. Thank  
 8 you. Thank you very much.  
 9         Okay. Our next comment from Eugene is on  
 10 page 8, paragraph 4, parenthetical A. Power popping  
 11 external to power boilers from the boiler to the  
 12 first stop valve of a single boiler, comma, and to  
 13 the second stop valve in a battery of two,  
 14 parenthetical, numerical 2, or more boilers, comma,  
 15 is subject to the requirements of the ASME Code,  
 16 comma, power boilers, comma, Section I, period. The  
 17 design, comma, fabrication, comma, installation and  
 18 testing of valves and piping shall be in accordance  
 19 with ASME B 31.1, period.  
 20         The boiler unit's response to that comment  
 21 is: Yes, they agree, that is correct.  
 22         My comment to that was: That is correct,  
 23 and that has been added to the current draft  
 24 revision that we have today.  
 25         So any comments or questions about that?

**Page 87**

1         MR. BAUGHMAN: Now, did you state just  
 2 strictly ASME 31.1? I thought I heard you say B?  
 3         CHAIRMAN MORELOCK: Yeah. We can add --  
 4 we need to add B.  
 5         MR. ROBINSON: Good call.  
 6         CHAIRMAN MORELOCK: That's a good call.  
 7         So, Amber, where I stated ASME 31.1,  
 8 period, we need to insert -- it should read ASME,  
 9 space, capital B, 31.1, period.  
 10         That is a good catch.  
 11         MR. ROBINSON: Yes, thank you.  
 12         CHAIRMAN MORELOCK: So we will include  
 13 that in the next draft of this revision.  
 14         Next comment is on page 11, paragraph 3,  
 15 parenthetical D. This is pertaining to safety  
 16 appliances. That's the heading for the paragraph.  
 17 And Eugene's comment states -- stating the  
 18 paragraph, it says: Only the holder of a valid  
 19 certificate of authorization for use of the,  
 20 parenthetical VR Stamp, comma, or an owner-user's  
 21 maintenance organization approved by the chief  
 22 inspector, comma, may repair safety or safety relief  
 23 valves, period. An owner-user maintenance  
 24 organization shall be limited to repairing such  
 25 valves for its own use, period.

**Page 88**

1         The boiler unit's response was to  
 2 reinstate, parenthetical National Board, as they are  
 3 the accreditation body for the repair for pressure  
 4 vessel relief -- or for pressure relief devices,  
 5 period.  
 6         The boiler unit recommended and agreed  
 7 with that. Additionally, the phrase, parenthetical  
 8 chief inspector, should also include or chief  
 9 inspector's designee parenthetical.  
 10         So my comment was to show that revision in  
 11 paragraph 3, parenthetical D to read as: Only the  
 12 holder of a valid certificate of authorization for  
 13 use of the National Board parenthetical, VR Stamp,  
 14 comma, or an owner-user's maintenance organization  
 15 approved by the chief inspector or chief inspector's  
 16 designee, comma, may repair safety or safety relief  
 17 valves, period. An owner-user maintenance  
 18 organization shall be limited to repairing such  
 19 valves for its own use, period.  
 20         That's been added to the current 11/10/14  
 21 draft that we have.  
 22         Any comments or questions about that?  
 23         MR. FINKS: Do you want to abbreviate  
 24 National Board as NB in that paragraph?  
 25         CHAIRMAN MORELOCK: We certainly can, but

Page 89

1 the boiler unit specifically wanted to reinstate the  
2 whole spelling. So, I mean, whatever your  
3 preference is.  
4 MR. FINKS: Okay. I was just,  
5 clarifying -- trying to clarify.  
6 CHAIRMAN MORELOCK: And I agree. So do  
7 you want National Board or NB?  
8 MR. CHAPMAN: NB.  
9 CHAIRMAN MORELOCK: NB, okay. So we will  
10 make that change.  
11 Okay. Thank you, Mark. That was a good  
12 comment.  
13 MR. FINKS: You're welcome.  
14 CHAIRMAN MORELOCK: Okay. Our next  
15 comment is on page 37, paragraph 12, to repairs and  
16 alterations. Paragraph A is going to provide a  
17 scope of what is considered repairs and alterations.  
18 So I will read that.  
19 So reading paragraph 12, repairs and  
20 alterations, paragraph A, any welded code repair or  
21 any alteration shall be performed by organizations  
22 holding a valid, parenthetical, capital R, stamp,  
23 period. If the repair or alteration is performed in  
24 this state, comma, the parenthetical capital R,  
25 stamp, hyphen, holder shall have a current State of

Page 90

1 Tennessee Boiler Erectors and Repairers Contractor's  
2 license, period.  
3 Boiler unit's -- or Eugene's comment to  
4 that is that to reinstate National Board, as they  
5 are the accreditation body for making repairs. The  
6 boiler unit's response, agreed, that National Board  
7 should be reinstated, as the board is the  
8 accreditation body. Because the license reads State  
9 of Tennessee Department of Labor and Workforce  
10 Development, comma, State Board of Boiler and  
11 Pressure Vessel Rules for Licensing Boiler and  
12 Pressure Vessel Erector, comma, and Boiler and  
13 Pressure Vessel Repair and, slash, or Alteration  
14 Contractors.  
15 So my response to that is, this is what's  
16 been added to the current proposed draft. Repairs  
17 and alterations under paragraph 12. Then paragraph  
18 A, any welded code repair or any alteration shall be  
19 performed by organizations holding a valid -- and  
20 based on our last comment, we're going to change  
21 National Board to NB -- to a valid, capital NB,  
22 parenthetical, capital R, stamp, period. If the  
23 repair or alteration is performed in this state,  
24 the, parenthetical, capital R, stamp, hyphen, holder  
25 shall have a current State of Tennessee Boiler

Page 91

1 Repair Erectors and Erection Repairers Contractor's  
2 license, period.  
3 Any comments on that? Yes?  
4 MR. JACKSON: Is there a particular reason  
5 we're just identifying welded repairs?  
6 MR. BAUGHMAN: That's a good question.  
7 CHAIRMAN MORELOCK: That is a good  
8 question.  
9 MR. JACKSON: The form identified just a  
10 report of a report. They've done away with the  
11 terminology of welding.  
12 CHAIRMAN MORELOCK: That's true. That is  
13 true. So do we want to remove the word welded code  
14 repair and just make it a code repair?  
15 MR. JACKSON: My personal opinion, just  
16 repair. It would follow code.  
17 MR. BAILEY: To say any repair.  
18 MR. JACKSON: Yes.  
19 CHAIRMAN MORELOCK: Well, would the state  
20 be involved in any noncode repairs?  
21 MR. JACKSON: Oh, yeah.  
22 CHAIRMAN MORELOCK: So we need to --  
23 MR. JACKSON: Oh, no, no, no, no.  
24 Noncode, no. I'm sorry. I was thinking of  
25 something else.

Page 92

1 CHAIRMAN MORELOCK: I think code would  
2 just reinforce to the reader that this has to be  
3 done to a code, per Tennessee law and rule.  
4 MR. JACKSON: Uh-huh. But your example of  
5 repairs in the book --  
6 CHAIRMAN MORELOCK: Right.  
7 MR. JACKSON: -- repairs that are done --  
8 that are not welded.  
9 CHAIRMAN MORELOCK: Right. I mean, we can  
10 take the welded out, but let's leave code in.  
11 MR. JACKSON: Oh, yeah. Yeah.  
12 MR. ROBINSON: I think it would work. But  
13 I guess I've always went under the presumption that  
14 when you weld on it, now you're in the area of  
15 requiring an R stamp, as opposed to routine repairs,  
16 which requires rolling.  
17 MR. JACKSON: Well, we have to be careful  
18 when we say routine repairs.  
19 MR. ROBINSON: Well, that's why I said  
20 that.  
21 MR. JACKSON: That's left up to the  
22 inspector.  
23 MR. BAUGHMAN: Well, and that's a good  
24 point, Neil, is the -- what qualifies a routine  
25 repair may change from inspector to inspector and

**Page 93**

1 there's no -- it leaves room for interpretation and  
2 there's no real clear definition of that.  
3 MR. ROBINSON: It's governed by NBIC.  
4 CHAIRMAN MORELOCK: Well, that's partially  
5 true. But used to, the State of Tennessee  
6 prohibited routine repairs with the exception of  
7 rolling heat exchanger tubes. But if you remember,  
8 Boiler Supply brought a case within the past couple  
9 years and it passed, and we've added routine repairs  
10 in the State of Tennessee, per what is given as  
11 examples in the NBIC.  
12 MR. BAUGHMAN: So there's a reference back  
13 to NBIC on it?  
14 CHAIRMAN MORELOCK: I would have to pull  
15 the...  
16 MR. BAUGHMAN: Okay. Because if there is,  
17 that may be something that we need to incorporate  
18 back into this verbiage.  
19 CHAIRMAN MORELOCK: Yeah.  
20 MR. JACKSON: Placing 100 to 150 tubes in  
21 a boiler, to me, is not a routine repair.  
22 MR. ROBINSON: What if it was rolled?  
23 MR. JACKSON: Doesn't make any difference.  
24 MR. ROBINSON: And not welded?  
25 MR. JACKSON: That's stretching to me.

**Page 94**

1 The terminology --  
2 CHAIRMAN MORELOCK: So what you're saying  
3 to me is that you would put an R stamp on a vessel  
4 that had rolled tubes?  
5 MR. JACKSON: If there's 100 or 150 of  
6 them. Now, if there's 5 or 6, that's a little  
7 different.  
8 MR. ROBINSON: What's the difference?  
9 MR. JACKSON: A whole lot of difference.  
10 MR. ROBINSON: 3 versus 150?  
11 CHAIRMAN MORELOCK: Well, or I'll write 10  
12 repairs for 50 tubes. I've done 500 tubes on a  
13 bunch of different repairs. I mean --  
14 MR. JACKSON: You've got to work with what  
15 you've got.  
16 MR. ROBINSON: NBIC -- going with NBIC,  
17 NBIC allows for rolled tubes -- to repair rolled  
18 tubes. NBIC says that you've got to have an R stamp  
19 to perform any welding or any weld repairs on a  
20 pressure boundary, cut and dry.  
21 MR. JACKSON: Okay. What about plugging  
22 tubes? Are we going to go routine on them? How  
23 many can we plug?  
24 MR. ROBINSON: Are you going to strike an  
25 arc?

**Page 95**

1 MR. JACKSON: Doesn't make any difference.  
2 MR. ROBINSON: Yes, it does.  
3 MR. JACKSON: I can drive a plug-in.  
4 MR. ROBINSON: If you're going to strike  
5 an arc, now you need an approved weld procedure, a  
6 section 9 welder, approved material.  
7 MR. JACKSON: You need approved material  
8 on a plug.  
9 MR. ROBINSON: That's my point.  
10 MR. JACKSON: I mean, it's up to the  
11 board. Just giving my observation.  
12 CHAIRMAN MORELOCK: Well, I think if we  
13 leave it, we certainly need to leave the word code  
14 repair in there. And so from the standpoint of the  
15 rules, not the interpretation of the rules, but from  
16 the standpoint of the rules, your point is correct.  
17 All we're saying in here is that repairs  
18 and alterations are for a welded code repair. If we  
19 take welded out, then it can apply to more than just  
20 a welded code repair.  
21 MR. JACKSON: Correct.  
22 CHAIRMAN MORELOCK: And so I'm comfortable  
23 with taking the word welded out, because we -- I  
24 don't know that we have any in the State of  
25 Tennessee, but with the incorporation of Part UIG

**Page 96**

1 into ASME Section VIII, Div 1, you could have a  
2 graphite heat exchanger that would have no welding,  
3 but it would be glued together basically for the  
4 simple term of joining those graphite parts together  
5 through impregnation of resin or whatever and it  
6 would have no welding.  
7 So I'm fine with taking the word welded  
8 out, but leaving code repair in there.  
9 What does the rest of the board feel?  
10 MR. BAUGHMAN: Is there -- I would like to  
11 know if there's a reference back to NBIC that we can  
12 put back in for this interpretation? The issue of  
13 routine repairs still comes about. I understand how  
14 we're addressing this. At some point in time,  
15 routine is going to be addressed again because there  
16 is a wide --  
17 CHAIRMAN MORELOCK: Well, just know, I  
18 mean, the National Board is smart enough not to  
19 paint themselves into a corner. So they are going  
20 to say, these are examples of repairs, examples of  
21 alterations, these are examples of routine repairs,  
22 but you're always going to have the caveat to check  
23 with your jurisdiction first.  
24 MR. ROBINSON: Subject to your  
25 jurisdiction, yeah.

**Page 97**

1 CHAIRMAN MORELOCK: So it's always subject  
2 to the approval of jurisdiction. So I know that it  
3 discusses routine repairs, but it's always going to  
4 bring it back to the jurisdiction to make the final  
5 call.  
6 MR. ROBINSON: Let me ask this question.  
7 You brought up a good point with the graphite. I  
8 believe that's ASME Section X, I think. Is that --  
9 let me ask you: Is it required that you provide a  
10 data report for a fiberglass vessel for repairs?  
11 CHAIRMAN MORELOCK: Yes, that's FRP.  
12 MR. ROBINSON: Is it really?  
13 CHAIRMAN MORELOCK: But a graphite vessel  
14 is different than Section X FRP.  
15 MR. ROBINSON: Okay.  
16 CHAIRMAN MORELOCK: That's fiberglass --  
17 or -- yeah, fiberglass reinforced plastic. But the  
18 UIG for the graphite vessels was put into Part UIG  
19 in Section VIII, Division 1.  
20 MR. ROBINSON: Oh, really?  
21 CHAIRMAN MORELOCK: For graphite, yes.  
22 And so there's code items going through  
23 now to where you can make exchanger tubes out of  
24 plastic so there's a lot of things going on.  
25 MR. ROBINSON: And adding to your

**Page 98**

1 comments, Dave, I think that code, if we use the  
2 terminology that's being debated right now, it would  
3 be acceptable based on that. Because again, it is  
4 acceptable to the jurisdiction. The jurisdiction  
5 has to be notified. That statement is clear and  
6 it's in there.  
7 MR. BAUGHMAN: And just as long as the  
8 companies that are doing the repairs, when they look  
9 at this and how they -- how they look at the code,  
10 especially if it's routine of going in saying, I  
11 don't have to have an R stamp, there's not a  
12 requirement on it, I'm making a routine repair,  
13 I'm -- what needs to be identified is that any of  
14 those repairs need to be approved by the  
15 jurisdiction. In other words, by whoever the  
16 inspector would be or whoever has got jurisdictional  
17 approval on that.  
18 I don't want to make this open-ended where  
19 somebody else can interpret this and go, hey, I can  
20 make a...  
21 CHAIRMAN MORELOCK: Well, but a routine  
22 repair still has to have an R stamp. It just  
23 reduces the amount of inspection.  
24 MR. BAUGHMAN: Okay. So there still needs  
25 to be a stamping on the boiler when that's done?

**Page 99**

1 CHAIRMAN MORELOCK: Yeah.  
2 MR. BAUGHMAN: And do we ever see that  
3 done in the field without the stampings on the  
4 boiler?  
5 Never. No. Of course, we do. That's the  
6 problem that I see in the field, is that there's  
7 these routine repairs that get done, there's no  
8 paperwork, there's no R1. There's no code stamping  
9 of the repair on the vessel itself. And so because  
10 of that, when I ask about it, they said, well, it  
11 was a routine repair.  
12 CHAIRMAN MORELOCK: Well, but that's just  
13 ignorance on their part that they don't know what  
14 routine repair really is.  
15 MR. BAUGHMAN: Okay. Good. And see,  
16 myself not being that versed with it, I wanted to  
17 make sure that I understood when I go in, because  
18 I've said the exact same thing.  
19 CHAIRMAN MORELOCK: Routine repair does  
20 not negate the stamp.  
21 MR. BAUGHMAN: Very good. Okay.  
22 CHAIRMAN MORELOCK: Okay. So are we going  
23 to -- what are we going to do? How do you want this  
24 to read?  
25 MR. ROBINSON: Remove the word welded.

**Page 100**

1 CHAIRMAN MORELOCK: Okay.  
2 MR. ROBINSON: And leave --  
3 CHAIRMAN MORELOCK: Code?  
4 MR. ROBINSON: -- code repair or any  
5 alterations --  
6 CHAIRMAN MORELOCK: Okay.  
7 MR. ROBINSON: -- et cetera.  
8 CHAIRMAN MORELOCK: Any other comments or  
9 questions about that? Everybody comfortable with  
10 the way that reads?  
11 Okay. So we'll take the word welded out  
12 and we'll change National Board to NB, and that will  
13 be our changes for that paragraph.  
14 Everybody comfortable with that?  
15 MR. ROBINSON: Yes, sir.  
16 CHAIRMAN MORELOCK: Okay.  
17 All right. Let's see. All right. The  
18 next comment from Eugene is October 1st, 2014, which  
19 Eugene's comment was, please turn your attention to  
20 an attached memo regarding instantaneous hot water  
21 heaters.  
22 While talking to Sam, he reminded me that  
23 these are the only instructions governing the  
24 inspection of these type of objects, although this  
25 is clear it would be best if we could add this into

**Page 101**

1 our proposed rules. And so he was seeking -- Eugene  
2 is seeking input as to what that would look like.  
3 And so if we go back to page 3, Eugene  
4 proposed on page 3 of Rule 800-03-03.01,  
5 parenthetical 9, parenthetical lowercase i, to read,  
6 potable hot water heater, including an instantaneous  
7 water heater means a heater supplying potable water  
8 for commercial purposes in which the pressure does  
9 not exceed 160 PSIG and the temperature does not  
10 exceed 200 degrees Fahrenheit, period. See ASME  
11 Code, comma, Section IV, comma, Part HLW,  
12 Introduction, period.  
13 So what we have done is in Paragraph i,  
14 the 11/14/2014 draft reads as follows,  
15 parenthetical, potable hot water heater, comma,  
16 including an instantaneous water heater, comma,  
17 means a heater potable water for commercial purposes  
18 in which the pressure does not exceed 160 PSIG and  
19 the temperature does not exceed 210 degrees F,  
20 capital F, period. See ASME, comma, Section IV,  
21 which is Roman Numeral IV, comma, Part HLW  
22 Introduction.  
23 So what do y'all think about that? You  
24 guys dealing with potable hot water heaters yet?  
25 Would this help you to have that in the rules?

**Page 102**

1 MR. SITZ: Yeah.  
2 CHAIRMAN MORELOCK: Okay.  
3 MR. SITZ: Yeah. They want to know why  
4 you have to register an instantaneous hot water  
5 heater.  
6 CHAIRMAN MORELOCK: Right. It's based on  
7 BTU per hour output.  
8 And we've seen some people try to finagle  
9 what they call a modular unit so all the modules are  
10 less than that limit and they pack a bunch of them  
11 together and then it exceeds that limit. And they  
12 want to try to say, well, each one of these  
13 individually are -- don't have to be registered.  
14 But we're like, no, that's not going to work. Nice  
15 try, but it's not going to work.  
16 So what comments?  
17 MR. HOLT: Well, there are some  
18 instantaneous that are running 250, 280, 300 BTUs  
19 that hang on the wall, also.  
20 CHAIRMAN MORELOCK: Right.  
21 MR. HOLT: And some are for potable and  
22 some are for heating.  
23 MR. ROBINSON: Very good.  
24 MR. HOLT: So what distinction? Is it the  
25 potable that we are talking about?

**Page 103**

1 CHAIRMAN MORELOCK: This one in particular  
2 is potable hot water heater, including an  
3 instantaneous hot water heater.  
4 MR. ROBINSON: He brings up a good point,  
5 though.  
6 CHAIRMAN MORELOCK: Yeah.  
7 MR. ROBINSON: Wow. I hadn't seen any.  
8 They're stamped H? They're still stamped HLW?  
9 MR. CHAPMAN: Yes.  
10 MR. HOLT: 320,000 BTU hanging right on  
11 the wall?  
12 MR. JACKSON: With an H10?  
13 MR. CHAPMAN: No HLW.  
14 MR. ROBINSON: I think HLW --  
15 MR. HOLT: It's not HLW. It's --  
16 MR. ROBINSON: It's H.  
17 MR. HOLT: H, yeah.  
18 MR. ROBINSON: It will be H 240 max.  
19 MR. HOLT: And it went off and it heated  
20 the tanks and stuff.  
21 MR. BAUGHMAN: Well, if it's H, it  
22 couldn't be a potable water heater.  
23 CHAIRMAN MORELOCK: Right.  
24 MR. ROBINSON: It's a boiler.  
25 CHAIRMAN MORELOCK: It's a boiler. Right.

**Page 104**

1 MR. HOLT: No. That's what I'm saying.  
2 But is there a cutoff for 200,000 and up for  
3 potable? I mean, I don't -- is there a line there?  
4 CHAIRMAN MORELOCK: Well, I think -- let's  
5 see. If we go look through --  
6 MR. ROBINSON: The reason why this came  
7 up, this was actually presented in a fall  
8 conference. And Martin Toth had presented a memo.  
9 And I want to say this was several years ago. And  
10 the memo stated that instantaneous hot water heaters  
11 over 100,000 BTUs had to be registered with the  
12 State of Tennessee.  
13 MR. HOLT: Correct.  
14 MR. ROBINSON: Okay. With that said, he  
15 talked at the time of only potable hot water heaters  
16 and I don't know if that was the gist of what  
17 manufactures was -- they were making at the time and  
18 they had no H stamps.  
19 But news to me, this is the first H  
20 instantaneous hot water heater that I've heard of,  
21 but it requires thought now. I mean, I didn't know  
22 that they were making H stamp heaters, hot water  
23 heaters, so --  
24 MR. HOLT: Well, the ones I -- the ones we  
25 deal with are 199,000 basically. But there are that

**Page 105**

1 I've run across that are heating boilers of the same  
 2 company that are over 200,000 BTUs and they're all  
 3 sitting in line and they're running. They're  
 4 heating and they're circulating.  
 5 MR. ROBINSON: And they're up to 240.  
 6 MR. HOLT: Yeah.  
 7 MR. ROBINSON: 240 degrees Fahrenheit out?  
 8 MR. HOLT: Yeah. They circulate.  
 9 MR. BAUGHMAN: So that wouldn't fall under  
 10 an HLW. That would be an H?  
 11 MR. ROBINSON: It's an H.  
 12 MR. HOLT: Right.  
 13 MR. BAUGHMAN: So we can't use an H as a  
 14 potable water heater. It would have to be an HLW.  
 15 MS. BENNETT: Technically you can't but  
 16 I -- people do it.  
 17 MR. BAUGHMAN: Well, yeah, but if --  
 18 MR. HOLT: If you go to heat exchanger,  
 19 but, you know -- to potable.  
 20 MR. BAUGHMAN: But it's still a boiler,  
 21 though.  
 22 MR. HOLT: Right.  
 23 MR. BAUGHMAN: And it's not a potable.  
 24 It's -- the heat exchanger is, but the boiler itself  
 25 would not be.

**Page 106**

1 MR. HOLT: Right.  
 2 MR. BAUGHMAN: And then making sure we are  
 3 not tying our hands from a BTU standpoint on this  
 4 registration limitation because right now we're  
 5 saying it's up to 199,999, so we may need to revise  
 6 that figure.  
 7 MR. HOLT: But I believe all the potable  
 8 ones are below 200,000, every one that we run across  
 9 that's HLW.  
 10 MR. BAUGHMAN: Okay.  
 11 MR. BAILEY: For the record, state your  
 12 name please.  
 13 MR. HOLT: I'm Tim Holt.  
 14 MR. BAILEY: And if I could remind  
 15 everybody a little bit --  
 16 CHAIRMAN MORELOCK: Yeah. Sorry.  
 17 MR. BAILEY: -- we tend to talk over each  
 18 other and two people talking at one time. She can  
 19 only record one at a time, so just kind of keep that  
 20 in mind.  
 21 MR. HOLT: Okay.  
 22 CHAIRMAN MORELOCK: Okay.  
 23 MR. ROBINSON: Can we --  
 24 CHAIRMAN MORELOCK: We can leave it  
 25 hanging.

**Page 107**

1 MR. ROBINSON: Let's table this right now  
 2 until we can come up with a verbiage that captures  
 3 boilers --  
 4 CHAIRMAN MORELOCK: Okay.  
 5 MR. ROBINSON: -- if they're  
 6 instantaneous-type just to be -- just to be -- cover  
 7 a whole thing.  
 8 Thanks for bringing that up, Tim.  
 9 MR. HOLT: Yeah. Not that it makes any  
 10 difference, but I've seen them take potable ones and  
 11 hang them on the wall like that and heat tanks up,  
 12 you know, but they're using potable and they just  
 13 took them all-- and they're running all the time and  
 14 heating this tank over here, you know, so...  
 15 CHAIRMAN MORELOCK: Okay.  
 16 MR. HOLT: Not its intended use. But  
 17 that's not what we're trying to find out here,  
 18 though.  
 19 CHAIRMAN MORELOCK: Well, and while you  
 20 were talking, for the H stamped, we could go back to  
 21 our proposal for on page 2, paragraph F and I'll  
 22 just read that. We're not revising this. And this  
 23 is what we have in the current draft, hot water  
 24 supply boiler is what that would fall into, over  
 25 200,000, correct?

**Page 108**

1 MR. HOLT: Yeah.  
 2 CHAIRMAN MORELOCK: So the way it reads  
 3 right now is, hot water supply boiler means a  
 4 boiler -- doesn't say if it's instantaneous or  
 5 whatever. It just says a boiler completely filled  
 6 with water that furnished hot water to be used  
 7 externally to itself at pressures not exceeding 160  
 8 PSIG and, slash, or a temperature of 250 degrees,  
 9 capital F, at or a near the boiler outlet. See ASME  
 10 Code, Section Roman Number IV, comma, capital H,  
 11 capital G-101.1, parenthetical B, and parenthetical  
 12 C, which is the Section IV definition for that hot  
 13 water supply boiler.  
 14 MR. HOLT: All right. Then, I would  
 15 say -- I was just making the comment that 200,000  
 16 and up, I've seen them hanging on the wall. But you  
 17 can go up to the 1 million BTU and they're  
 18 technically tankless because they go in, they heat  
 19 the building, but they're just full of coils.  
 20 There's no tank. And so it's a -- it falls under  
 21 the same. These are just smaller versions that hang  
 22 on the wall.  
 23 CHAIRMAN MORELOCK: Okay.  
 24 MR. ROBINSON: And I'll verify that 250 as  
 25 opposed to 240.

Page 109

1 CHAIRMAN MORELOCK: Okay. All right.  
2 Yes.  
3 MR. PETERS: Danny Peters.  
4 Those instantaneous, they're not  
5 completely filled at all times. They're -- you  
6 know, they're just piping. You've got water in the  
7 piping, then upon demand, then it supplies that  
8 piping through the burner panel and then it goes out  
9 from the unit from there. But it's not a tank-type  
10 supply --  
11 CHAIRMAN MORELOCK: Right.  
12 MR. PETERS: -- that's stated -- that was  
13 stated as a supply boiler.  
14 CHAIRMAN MORELOCK: Well, and what we're  
15 basing our path forward on is the fact that Mr. Toth  
16 issued a jurisdictional requirement stating that  
17 this is the way the State of Tennessee is going to  
18 handle instantaneous hot water heaters, so we're  
19 working from that.  
20 Yes, Tim.  
21 MR. HOLT: Can I also make a statement  
22 that 100,000 to 199,000 are noncoded, correct?  
23 MR. ROBINSON: Yes, sir. Right.  
24 MR. HOLT: So would that be in there, too,  
25 so that --

Page 110

1 MR. ROBINSON: That's part of it. That's  
2 still going to -- it's going to be reflective in  
3 another section of the divisional rules where it  
4 provides exceptions. So you'll see that, Tim.  
5 MR. HOLT: All right.  
6 CHAIRMAN MORELOCK: Okay. Yes, Dan.  
7 MR. PETERS: And if we get out of the  
8 world supply and call it a heating boiler, then  
9 we've got to look at the 400,000 BTU.  
10 MR. ROBINSON: CSD-1.  
11 MR. PETERS: Yeah. If we want to.  
12 MR. ROBINSON: Yes, sir. Absolutely.  
13 CHAIRMAN MORELOCK: Well, so Eugene is  
14 going to take all this on, so we're going to let  
15 him.  
16 MR. ROBINSON: Yes, sir. Yes, sir.  
17 MR. PETERS: Is that something that we do  
18 want to address all the way up to that 400,000?  
19 Because we're looking at a unit, you know, the  
20 instantaneous. You know, we are trying to call it a  
21 boiler at times, and, you know, it's a design  
22 system -- it's a system with our units trying to  
23 supply each one of them as a supply-type boiler.  
24 But I don't know if we want to go that far or not.  
25 I mean, it's --

Page 111

1 MR. ROBINSON: It would be -- we're doing  
2 it really right now, Danny. If you just took a  
3 basic, two-type heat exchanger low-pressure boiler,  
4 in reality, it's just a smaller version of a -- and  
5 I'm not going use names, company names, but it's a  
6 smaller version of a tube-type heat exchanger where  
7 you've got the flames coming up from the bottom and  
8 the water circulating through it. Same example, one  
9 uses fan-assisted combustion, the other is -- could  
10 be atmospheric, but they're the same concept.  
11 The 400,000 BTUs and above naturally,  
12 you're going to come up with a difference in stamps.  
13 So either you're going to run the HLWs for the  
14 potable hot water line or the H configurations for  
15 the nonlined. And the CSD-1 requirements are going  
16 to mandate the types of controls and configurations  
17 that's required for each stamp.  
18 So it will work. You'll see it. You see  
19 it now. You see it every day. When you look at a  
20 hot water heater, you know that it should have  
21 temperature gauges, it should have pressure gauges.  
22 Those are things that are mandated and it doesn't  
23 change, as opposed to what's required on a  
24 low-pressure boiler. So CSD-1 is going to make it  
25 stand out.

Page 112

1 But you're right. We will have to look at  
2 it. It does require some investigation.  
3 CHAIRMAN MORELOCK: Yeah. Okay.  
4 MR. SMITH: Can I interject?  
5 CHAIRMAN MORELOCK: Yes, sir.  
6 MR. SMITH: Jesse Smith.  
7 And I think we got off the intent of what  
8 Martin initially proposed. The -- he wanted to add  
9 instantaneous hot water heater because, as you know,  
10 water heaters over 200,000 BTUs per hour are ASME  
11 stamped. There's the majority of the instantaneous  
12 water heaters that were noncode. And since there  
13 are some instantaneous water heaters that are also  
14 code simple stamp -- because for a long time, it's  
15 gray areas to whether or not we would actually  
16 inspect instantaneous water heaters.  
17 So his thought process was, well, if you  
18 have a stamped version of it and we're inspecting  
19 between 100,000 and 199-, that noncode, then  
20 naturally, you would also inspect instantaneous  
21 water heaters that fell in that range as noncodes.  
22 That's why he wanted to add that verbiage  
23 so that the installers or people that were putting  
24 in these water heaters and not thinking that they  
25 were required to being inspected. I just wanted to

**Page 113**

1 add that in for clarity.

2           So, I mean, I know the aspect of whether

3 it's for the heating application or 400,000 come

4 into different categories. But as far as just

5 designating it as a potable water, including

6 instantaneous water heaters is why he wanted that

7 added.

8           CHAIRMAN MORELOCK: Good comment.

9           MR. SMITH: It was no longer falling into

10 the gray area where people didn't know how to handle

11 it.

12           CHAIRMAN MORELOCK: Very good.

13           Any other comments?

14           MR. ROBINSON: Good discussion.

15           CHAIRMAN MORELOCK: Yeah. You guys need

16 to come around more often.

17           All righty. We're going to move on to

18 next set of comments here. Let's see.

19           All right. So the next one would be on

20 page 8. This is going to pertain to 0800-03-03-.03,

21 parenthetical 5. This is under exemptions. And the

22 current -- let's see. Yeah. Okay. Eugene had

23 marked up this paragraph to delete some wording, and

24 so we've made those changes.

25           The boiler unit agreed with the

**Page 114**

1 amendments.

2           And so I'm just going read the final

3 version for simplicity. So what's in the current

4 draft is exemptions, period. Potable water heaters

5 are exempt from the requirements of paragraphs,

6 parenthetical 1, parenthetical 2 of this rule when

7 neither of the following limitations are exceeded,

8 colon -- and that's that statement and that's in the

9 current draft.

10           And so this goes back to Jesse's comment,

11 as well as Tim's and Danny's, is paragraph A and

12 B -- A basically says the heat input is 199,999s

13 BTUs per hour and B is a water temperature of 200

14 degrees, capital F.

15           MR. PETERS: 210 degrees.

16           CHAIRMAN MORELOCK: Or 210 degrees, yeah,

17 F. It goes on to say, however, such potable water

18 heaters -- and then we've already -- including

19 instantaneous water heaters with a heat input of

20 199,999 BTUs per hour are subject to registration

21 inspection and inspection certificate requirements,

22 which supports what Jesse just told us.

23           So everybody okay with that? Any comments

24 or questions about that?

25           (No verbal response.)

**Page 115**

1           CHAIRMAN MORELOCK: Okay. All right. So

2 that addresses all those comments. I think -- let's

3 see okay. So the last -- I think this is the last

4 one. Yes. The last comment pertains to page 32,

5 maybe it's 31.

6           MR. BAILEY: I think it is.

7           CHAIRMAN MORELOCK: Paragraph 8, yeah,

8 there we go. It's page 31, paragraph 8, pertains to

9 pressure or altitude gauge and thermometers. And in

10 reading that, I guess gauge should be gauges, so we

11 can add that, add an "S" after gauge.

12           Okay. And the proposal is that

13 paragraph B state the scale on the dial of the

14 pressure or altitude gauge shall be graduated

15 approximately not less than one and one and a half,

16 parenthetical numerical 1 and a half, nor more than

17 three times -- three, parenthetical three times the

18 maximum allowable working pressure.

19           The comment is there may be a National

20 Board code that addresses this. Some of the hot

21 water boiler manufacturers, Lochinvar, Raypak, RBI,

22 utilize a pressure gauge from with a range from 0 to

23 75 PSI, along with a separate thermometer, period.

24 The boilers, however, are rated for an MAWP, which

25 is maximum allowable working pressure, of 160 PSI,

**Page 116**

1 period. The relief valves usually are set at 75

2 PSI, period. If the manufacturers know where to

3 meet the letter of the code, then a gauge with a

4 minimum rating of 240 PSI would need to implemented,

5 period. With these boilers typically operating in

6 the range of 15 to 45 PSI, comma, a gauge with this

7 range would not register well, period. If there is

8 a reference in the National Board that addresses,

9 then we need to revise this particular subparagraph,

10 period.

11           Boiler unit's response: The National

12 Board does not address this question. The example

13 above only applies to new construction and refers to

14 hydrostatic testing, comma, not operating pressure.

15           My comment was: These clarifications have

16 been added to the 11/10/14 revisions in the various

17 text blocks for review.

18           And so we have included just some

19 information in this draft.

20           And just so you'll know what these blocks

21 say, we can make the clarification. Paragraph A

22 is -- currently reads this way: Each hot water,

23 heating or hot water supply boiler shall have a

24 pressure altitude gauge connected to it or its flow

25 connection in such a manner that it cannot be shut

Page 117

1 off from the boiler, comma, except by a cock with  
 2 tee or lever handle, comma, placed on the pipe near  
 3 the gauge, period. The hand of the cock shall be  
 4 parallel to the pipe in which is located when the  
 5 cock is open, period. And then basically what I  
 6 just read has been listed as comments.  
 7 Then subparagraph B has been revised to  
 8 state, the scale on the dial of the pressure or  
 9 altitude gauge shall be graduated approximately not  
 10 less than one and one and a half, parenthetical one  
 11 and a half, no more than three and one-half,  
 12 parenthetical three and a half times, the pressure  
 13 at which the safety relief valve is set instead of  
 14 saying maximum allowing working pressure.  
 15 So any comments on that?  
 16 MS. BENNETT: Just a small typo in A.  
 17 CHAIRMAN MORELOCK: Uh-huh.  
 18 MS. BENNETT: Next to the last sentence,  
 19 gauge, G-A.  
 20 CHAIRMAN MORELOCK: Oh, yeah, yeah. I see  
 21 it, g-A-G-E.  
 22 MS. BENNETT: Yeah.  
 23 MR. ROBINSON: I was in a hurry.  
 24 MR. FINKS: It's also in the second line  
 25 of A, too, altitude gauge.

Page 118

1 MS. BENNETT: Yes.  
 2 CHAIRMAN MORELOCK: Okay. All right. So  
 3 those corrections have been made.  
 4 What else?  
 5 MR. BAUGHMAN: One thing that comes up  
 6 with myself, Brian, and I wanted to get your -- any  
 7 of the inspectors' input or anybody, is pressure or  
 8 altitude gauge. If I went to a boiler hot water  
 9 heater or boiler and I'm looking at a gauge and it's  
 10 an altitude gauge, how many of you would be able to  
 11 identify what the pressure is via altitude?  
 12 MR. SMITH: You talking about a -- again,  
 13 Jesse Smith. Are you talking about a gauge that  
 14 monitors absolute pressure as opposed to gauge  
 15 pressure?  
 16 MR. BAUGHMAN: No. We're talking about  
 17 pressure or altitude gauge to register the pressure  
 18 of the boiler. That's what that gauge is intended  
 19 to do.  
 20 So if you walked into a boiler and looked  
 21 at a boiler, it didn't have a pressure gauge on it,  
 22 it's got an altitude gauge, would you be able to  
 23 define -- do you have the training or do you the  
 24 knowledge to define what the pressure is by looking  
 25 at an altitude gauge?

Page 119

1 MR. SMITH: No. Is it giving the actual  
 2 altitude, like an altimeter?  
 3 MR. BAUGHMAN: Good question. But it's in  
 4 our code. It doesn't have to have a pressure gauge.  
 5 It says, pressure or altitude gauge.  
 6 MR. PETERS: Danny Peters.  
 7 Is that not a gauge that states the  
 8 temperature and the pressure together in its dial?  
 9 MR. BAUGHMAN: That's a T&P gauge. That's  
 10 a temperature pressure, what we called a thermometer  
 11 that measured pressure, temperature and altitude.  
 12 This doesn't define that. This definition says,  
 13 pressure or altitude gauge. And I'll guarantee you  
 14 you'll be just as confused as I am if I walked into  
 15 a boiler room and I'm looking for pressure and I've  
 16 got an altitude gauge.  
 17 So I bring that up just as a clarification  
 18 for us because it is part of our code, and I know  
 19 that there would be a -- well, obviously out of all  
 20 the inspectors we have here, and myself included,  
 21 I'd be a bit confused in what I'm looking at.  
 22 So my suggestion would be deleting  
 23 altitude gauge, if that's even appropriate.  
 24 CHAIRMAN MORELOCK: I think this is the  
 25 only incidence of that term in the rules. And if

Page 120

1 these guys don't see them, I know we don't see them,  
 2 as far as pressure vessels go, so I'm comfortable  
 3 with deleting it unless there's some historical  
 4 piece of equipment you guys are inspecting that  
 5 would have one on it.  
 6 Yes, Danny.  
 7 MR. PETERS: Danny Peters.  
 8 They're normally on a Section IV boiler,  
 9 and mostly cast iron, but they're the rectangle  
 10 gauge that has the dial for pressure and temperature  
 11 in that dial. So I'm only assuming that that  
 12 altitude is probably based on that one gauge as  
 13 temperature and pressure. You know, you can think  
 14 of altitude as being a pilot, but I don't think it  
 15 relates to that. It's a boiler term. And it  
 16 normally -- it normally is with Section IV boilers.  
 17 MR. BAUGHMAN: Well, let me ask you this,  
 18 Danny: If you walked in and you had only an  
 19 altitude gauge to judge the pressure by, would you  
 20 know how to judge it?  
 21 MR. PETERS: I would have a compression --  
 22 I would have a scale dial that says pressure.  
 23 MR. BAUGHMAN: No, sir. No, that wasn't  
 24 what I was saying.  
 25 MR. CHAPMAN: That's why we use iPhones.

Page 121

1 MR. BAUGHMAN: This says pressure or  
2 altitude gauge. It doesn't say a combination gauge.  
3 So if you walked in, the way our -- the way 3.8.2.1  
4 states, pressure or altitude gauges. You walk in  
5 and all you've got is an altitude gauge only, only  
6 would you be able to know what information it's  
7 giving you as far in relationship to the pressure of  
8 the boiler?  
9 MR. PETERS: If it's got PSI on it, yes.  
10 MR. BAUGHMAN: No, it's not a PSI. It's  
11 an altitude gauge.  
12 What does an altitude gauge read?  
13 MR. PETERS: Well, if you look at it from  
14 aviation standpoint, you know, you're talking about  
15 ground level up.  
16 MR. BAUGHMAN: I agree.  
17 MR. PETERS: But this is not an aviation  
18 department; it's a boiler department. It's terms  
19 that been -- that we've used in the past up to  
20 today's time, but we've changed and we're trying to  
21 make a change but --  
22 MR. BAUGHMAN: Right. Exactly.  
23 CHAIRMAN MORELOCK: Well, the only  
24 thing that --  
25 MR. PETERS: There is a terminology for

Page 122

1 the altitude in this department.  
2 MR. BAUGHMAN: Right. And I agree with  
3 you. There is a definition of it. Is it applicable  
4 to today's inspection for what we're doing? And if  
5 it's not, which I don't believe it is personally,  
6 then now's the time we can delete it out. So if  
7 it's not an item that is applicable, then we can  
8 delete it from our verbiage.  
9 MR. PETERS: Well, does that mean, then,  
10 if we do delete that we're going to have to have two  
11 gauges now, one for pressure as one and one for  
12 temperature to compensate for deleting it?  
13 MR. BAUGHMAN: Well, no. You're dictated  
14 on pressure and/or temperature depending upon the  
15 device, whether it's an HWL boiler, if it's a hot  
16 water boiler. Hot water heating or hot water supply  
17 dictates where it's pressure only and pressure  
18 temperature. So a hot water domestic potable is  
19 going to have two, temperature and pressure. A hot  
20 water supply boiler heating a building hydronically,  
21 you'll look at a different nomenclature for it so...  
22 MR. PETERS: Should we then put the  
23 altitude gauge then in the historical boiler  
24 section?  
25 MR. BAUGHMAN: I wouldn't see why.

Page 123

1 MR. PETERS: Because, you know, we're  
2 using that terminology. It's came up to this point.  
3 Where do we need to put it? You know, we're wanting  
4 to eliminate it, but I don't know. I think there is  
5 such a thing as an altitude gauge on a boiler. You  
6 know Section IV cast iron, I see them.  
7 MR. BAUGHMAN: Well, I see them, too. And  
8 that's the -- the thing with it is, that it gives  
9 you an altitude, which I had always interpreted it  
10 as an altitude of ASL, above sea level. How it  
11 correlated to the boiler pressure, I couldn't tell  
12 you. I don't know if you could tell me that, being  
13 an inspector yourself, if you knew that information.  
14 MR. PETERS: Well, maybe the gauge would  
15 do it, though. You know, I know the higher you go  
16 up, you know, the boiling point changes, you know,  
17 sea level is different.  
18 MR. BAUGHMAN: Yes. I guess what I'm  
19 getting at, Danny, is --  
20 MR. PETERS: That's the type of gauge that  
21 we are talking about. But I don't think it is.  
22 It's dealing just with pressure and temperature  
23 that -- whatever elevation you're at.  
24 MR. BAUGHMAN: No, Danny. And I love the  
25 debate. But what I'm saying is, is that you don't

Page 124

1 know exactly what the information is. Being a  
2 professional inspector, you know it's out there, but  
3 you haven't utilized it. You see it on a gauge, but  
4 you don't know exactly what it's giving you. The  
5 other inspectors have said, no, we don't know.  
6 And so because of that, even though there  
7 may be some references back to the locomotive days  
8 on it or something more archaic, historic boilers  
9 you mentioned, but they're predominantly steamed on  
10 the historic boilers, which don't use an altitude  
11 gauge. They use pressure only, so...  
12 MR. PETERS: It would be a nonstandard  
13 boiler.  
14 MR. ROBINSON: Dave.  
15 MR. BAUGHMAN: Yes, sir.  
16 MR. ROBINSON: Dave, the current 2013 NBIC  
17 references altitude gauges and it reads, each hot  
18 water heating or hot water supply boiler shall have  
19 a pressure or altitude gauge connected to it so it's  
20 flowed in such a manner than it cannot be shut off  
21 from the boiler. In fact, this -- et cetera.  
22 The same verbiage that's inside this memo  
23 is the same verbiage that came out of NBIC so...  
24 MR. BAUGHMAN: Our hands are tied, then.  
25 MR. ROBINSON: Yeah. I think it would be

Page 125

1 prudent to keep it for the time being until they  
2 make an adjustment.

3 But in the gist of what you're saying,  
4 Mr. Peters, you're right; but at the same time, we  
5 are just looking for whatever the requirements are,  
6 such as CSD-1 states, so...

7 MR. PETERS: You've got an engineer  
8 sitting there. Is there a formula that you can use  
9 to transpose?

10 DR. JOHNSON: We've got lots of engineers  
11 sitting here.

12 CHAIRMAN MORELOCK: Sure. Well, I mean,  
13 the --

14 MR. PETERS: You've been sitting there  
15 quiet.

16 CHAIRMAN MORELOCK: Well, I'm trying not  
17 to run my mouth too much. But the thing about it  
18 is, is, you know, you have inches of water column as  
19 a pressure reading, and that's similar to what an  
20 altitude gauge -- but I think the important thing  
21 here is that what I want to add to A at the end is  
22 NBIC Part 1 3.821 as the reference for these  
23 pressure altitude gauges.

24 Now, Dr. Johnson, what did you want to  
25 say?

Page 126

1 DR. JOHNSON: I was just going to say that  
2 I thought myself that in reference to a boiler, that  
3 it didn't mean altitude above sea level, but rather  
4 altitude of water in the system.

5 CHAIRMAN MORELOCK: Liquid, right.

6 DR. JOHNSON: It's related the fullness of  
7 the system.

8 CHAIRMAN MORELOCK: Right. It's like  
9 liquid inches of water column.

10 MR. BAUGHMAN: Well, and since it is  
11 current NBIC, it needs to stay.

12 MR. ROBINSON: And I think it would be  
13 good to add to the next paragraph.

14 CHAIRMAN MORELOCK: Yeah.

15 MR. ROBINSON: Which comes from the  
16 same --

17 CHAIRMAN MORELOCK: B?

18 MR. ROBINSON: Yeah, which is in the --  
19 but I think it's C. Let me go back to it.

20 Yeah. It's going to be -- no, it's going  
21 to be B. You're absolutely right. Very good.

22 CHAIRMAN MORELOCK: Both of them, right?

23 MR. ROBINSON: Yes, uh-huh.

24 CHAIRMAN MORELOCK: I can make that same  
25 reference.

Page 127

1 MR. ROBINSON: Yes, sir.

2 CHAIRMAN MORELOCK: Okay. So for  
3 subparagraph A and subparagraph B, to paragraph 8  
4 for pressure or altitude gauges, I will recommend  
5 that we add the NBIC reference to both of those  
6 subparagraphs.

7 MR. BAUGHMAN: My further comment to that,  
8 Brian, is that since we have such a number of  
9 people, including myself, along with inspectors that  
10 don't know how to particularly read an altitude  
11 gauge if one was on the boiler, that we train in  
12 that respect. Since it is part of our code,  
13 pressure or altitude gauge, that we know how to read  
14 an altitude gauge.

15 CHAIRMAN MORELOCK: Okay.

16 MR. JACKSON: Neil Jackson. I bet you our  
17 chief is going to educate us. We'll have training.

18 CHAIRMAN MORELOCK: Any more comments on  
19 that?

20 MR. BAUGHMAN: Good discussion.

21 CHAIRMAN MORELOCK: It was a very good  
22 discussion.

23 MR. BAILEY: Mr. Chairman, I just wanted  
24 to ask, does the NBIC give a definition of --

25 MR. ROBINSON: Yes. National Board

Page 128

1 Inspection Code.

2 CHAIRMAN MORELOCK: No.

3 MR. BAILEY: No. Do they give a  
4 definition of a pressure or altitude gauge?

5 CHAIRMAN MORELOCK: I didn't look.

6 MR. ROBINSON: I'll look.

7 MR. BAILEY: I'm just curious.

8 CHAIRMAN MORELOCK: They do have  
9 definitions, but I don't know...

10 MR. ROBINSON: The question is -- yeah,  
11 interpretation, definitions. Okay. Pressure gauge,  
12 pressure test, pressure vessel. No, sir.

13 MR. CROMWELL: Mr. Chairman.

14 CHAIRMAN MORELOCK: Yes.

15 MR. CROMWELL: I'm Jerry Cromwell, state  
16 inspector. I believe some boilers operate  
17 differently like at sea level and then, say, 5,000  
18 feet altitude and then they have modifications to  
19 compensate for, you know, lower air density and they  
20 like. That could be why they have an altitude  
21 gauge.

22 MR. ROBINSON: Could be.

23 CHAIRMAN MORELOCK: Could be.

24 MR. ROBINSON: Very good.

25 CHAIRMAN MORELOCK: Could very well be.

Page 129

1 MR. ROBINSON: Sir, in regards to your  
 2 question, it doesn't say anything about the  
 3 definition for pressure gauges in the NBIC.  
 4 MR. BAILEY: Okay. I was curious because  
 5 we -- these rules also don't have a definition and I  
 6 thought if they did, then we might want to look at  
 7 putting that in.  
 8 MR. ROBINSON: Yes, sir. Good point.  
 9 CHAIRMAN MORELOCK: Okay. Any other  
 10 comments? All right. I believe that that takes  
 11 care of Eugene's comments.  
 12 MR. BAUGHMAN: Thanks, Eugene.  
 13 CHAIRMAN MORELOCK: Okay. So what we will  
 14 do now is we will clean this up, issue a new draft,  
 15 and I'm trying to think.  
 16 MR. ROBINSON: I'll look at the  
 17 instantaneous.  
 18 CHAIRMAN MORELOCK: Yeah. Yeah. Until we  
 19 get the tabled item resolved, I'm not going to say  
 20 when we'll be ready for vote. We'll leave it on the  
 21 agenda as a discussion item until we make sure we've  
 22 got all these unresolved issues ready and in draft,  
 23 okay?  
 24 Thank you, again, for -- that was a great  
 25 discussion. It really was. Very, very helpful.

Page 130

1 Okay. Next item is fall conference  
 2 update, so...  
 3 MS. RHONE: Deborah Rhone.  
 4 MR. ROBINSON: Hey, Ms. Rhone.  
 5 MS. RHONE: Regarding the fall conference  
 6 update, as you know, we're just completing our  
 7 spring inspector's conference and we're happy to  
 8 have them here today. We are still in the planning  
 9 stages for that fall conference, and we don't -- I  
 10 haven't formed the conference committee yet, which  
 11 we will be doing soon.  
 12 And with that, we will be selecting a  
 13 date. And if it's going to be in the fall, there's  
 14 a possibility that we may have to change -- I know  
 15 we had originally set the next meeting for  
 16 September 9th. However, of course, during that fall  
 17 training, we usually conduct the boiler rules  
 18 meeting. So should that be in October, then we  
 19 would have to change that date.  
 20 CHAIRMAN MORELOCK: Okay.  
 21 MS. RHONE: With that conference  
 22 committee, we would be also selecting a site, which  
 23 it has been recommended by our administrator that we  
 24 would look to Nashville to hosting that first one,  
 25 which would include all the insurance company

Page 131

1 inspectors, as well as our state inspectors. And at  
 2 one point, it was discussed that we would have a  
 3 joint committee that would include all of the WRC  
 4 units, but since then, it has been determined that  
 5 we would have separate -- instead of having the  
 6 combination of one, it would be in the best interest  
 7 to have the separate ones. So we will be getting  
 8 together with setting that conference committee, as  
 9 well as discussing the fees.  
 10 And we had already previously discussed  
 11 the process of how we would handle whatever the  
 12 registration fees were, we would also have to pursue  
 13 the costs to make sure that those fees would  
 14 include, you know, if we decide to go with  
 15 conference shirts, the meals. We also discussed the  
 16 possibility, instead of having cosponsors, that the  
 17 particular companies, they may want to just pay for  
 18 a certain event rather than having a cosponsorship.  
 19 Okay. So we will be working on that.  
 20 CHAIRMAN MORELOCK: If you're shooting for  
 21 fall, especially on a sponsorship, sooner is better  
 22 because people are going to be spending their corporate  
 23 budgets. So if you catch them at the tail end of  
 24 their budget, it's going to be harder for them to  
 25 participate, so...

Page 132

1 MS. RHONE: So if we're looking for fall,  
 2 what would be the -- what dates would you suggest?  
 3 Or maybe even if we -- if we say instead of this  
 4 fall, if we say fall of 2016, we may want to -- we  
 5 may -- that might be even a better idea, just to say  
 6 that we're going to project fall of 2016.  
 7 CHAIRMAN MORELOCK: You want to give  
 8 companies time to either allocate that or build that  
 9 into their upcoming budget to have the money to  
 10 provide that sponsorship.  
 11 MS. RHONE: I think --  
 12 MS. JEFFERSON: Sounds good.  
 13 MS. RHONE: -- that sounds good. Fall of  
 14 2016.  
 15 MR. ROBINSON: Normally October. That's  
 16 when everybody goes into budgetary conference  
 17 debate.  
 18 MS. RHONE: Okay. So you're suggesting  
 19 that the date would be sometime --  
 20 MR. ROBINSON: No. I'm just telling  
 21 you -- you asked about when is a good date as far  
 22 use drop-dead date to get your proposal out.  
 23 October is usually when Travelers, the rest of them  
 24 will go into budgetary meetings and they'll allot  
 25 that money for the next year.

**Page 133**

1 MS. RHONE: Oh, okay. So you're saying we  
 2 should some type of proposal or something --  
 3 MR. ROBINSON: Yeah. By October.  
 4 MS. RHONE: -- by October.  
 5 MR. ROBINSON: But the thing is, you've  
 6 got 2016, so you're golden.  
 7 MS. RHONE: Okay. All right. Sounds  
 8 good. Thank you.  
 9 CHAIRMAN MORELOCK: Thank you. Any  
 10 questions or comments about the fall conference  
 11 planning?  
 12 (No verbal response.)  
 13 CHAIRMAN MORELOCK: All righty. Thank  
 14 you, Deborah. Boiler operator training  
 15 certification.  
 16 MR. BAUGHMAN: Guys, we are going to make  
 17 this short because otherwise this could be a whole  
 18 agenda --  
 19 CHAIRMAN MORELOCK: You've got 11 minutes.  
 20 MR. BAUGHMAN: -- in itself. So we're  
 21 going to make it -- make it pretty short and concise  
 22 and carry this on into future meetings.  
 23 In the State of Tennessee, except for  
 24 Shelby County, you've -- well, let me rephrase this.  
 25 In the State of Tennessee, you've got to have a

**Page 134**

1 license to cut hair. But everywhere but Shelby  
 2 county, you can operate a vessel that has more  
 3 potential energy than dynamite, 500-horse boiler, a  
 4 16-year-old -- if you could work a 16-year-old --  
 5 could operate a 500-horse boiler with zero  
 6 requirement. That doesn't make a whole lot of  
 7 sense.  
 8 And so in this meeting, we just wanted to,  
 9 for one, see what the support is for -- and we've  
 10 been talking about the variance. Brother Neville,  
 11 others have been in front talking about the  
 12 variances, the trainings of the manual and we  
 13 briefly would breach upon we need the training on  
 14 boilers to some extent. Who in this room is within  
 15 that same thought process?  
 16 By far the majority.  
 17 We need to have some form of training in  
 18 place for operators of boilers, both high and  
 19 low-pressure boilers. Now, to what extent that  
 20 brings itself, I've contacted Shelby County to see  
 21 what their licensings were set up like. I've talked  
 22 to the board in Michigan. I've talked to Texas.  
 23 I've looked at our surrounding states, and know that  
 24 we're not -- we're not in the minority, we're in the  
 25 majority. Most states don't have training set in

**Page 135**

1 place. It's very archaic. And we would like set up  
 2 or my vision is to settle set up training that  
 3 others can mirror, but also set up training that  
 4 falls within what we can get approved through the  
 5 state, i.e. we want to have at least some forms of  
 6 training. We talked today on the variances of doing  
 7 positive checks of the low water cutoff. So  
 8 important.  
 9 So what we need do is to get input from  
 10 the field and from other entities on what forms of  
 11 training do we need to give and how do we get that  
 12 out to those operators and then where is the cutoff  
 13 at? I've talked to some states that say we make it  
 14 for boilers above 30 horsepower, or the Ohio special  
 15 law was anything over 358 square feet, which was  
 16 approximately a 70-horse boiler that you didn't have  
 17 to have a trained operator. Well, they get around  
 18 that by putting in 10 357-A square foot boilers.  
 19 So there's all different facets of this to  
 20 look at, but what it gets down to is we need input  
 21 from the industry and to have homework done so that  
 22 we can make a draft presentation going forward that  
 23 we can present to the legislature for getting  
 24 something up and accomplished on boiler training.  
 25 Because what happens in an accident, two

**Page 136**

1 questions typically asked: Let me see your boiler  
 2 log sheet, and what training have your operating  
 3 personnel had? You've got to be able to prove  
 4 there's no negligence of attendance of that boiler.  
 5 And when they said, what kind of training  
 6 have your attendants or operators had? And they  
 7 said, well, Bill, yeah, he worked at a sawmill, and  
 8 he trained Joe, and that's how the scenario goes.  
 9 We don't have anything set in place to train these  
 10 personnel. And we're probably one of the most  
 11 important boards in the state that's charged with  
 12 public safety.  
 13 When a boiler blows, it will cause death,  
 14 injury, and destruction and that's something we  
 15 don't want to deal with. In so many of these  
 16 facilities, you go to a school and the person in  
 17 charge of taking care of the school is the same guy  
 18 that's in charge of waxing the floors and taking  
 19 care of the lockers. It's the custodians. In so  
 20 many of these facilities, we've had an influx of  
 21 boilers that were built up after World War II and  
 22 Korea and a lot of these rural areas where we've got  
 23 boilers that are still '40s, '50s, and '60s vintage  
 24 boilers operating today by very little trained, if  
 25 any trained, personnel. And so it's not a matter of

1 if, it's a matter of when we experience some serious  
2 incidents and we want to be ahead of that curve.

3 So that's why this discussion is there and  
4 to open up just quickly, within probably the last  
5 five minutes that's available, what any input is or  
6 pros and cons for that in particular. So I would  
7 like open that up just right quick.

8 CHAIRMAN MORELOCK: Okay.

9 MR. WORD: I'm Dallas Word, Memphis area.  
10 Just the other day I went -- I mean, even on your  
11 smaller boilers at these schools, they've got  
12 people -- they've got a school teacher that's  
13 teaching a class and is trying to run the boiler,  
14 looking at the boiler. I mean, it's -- I know  
15 you're talking about some that are probably a lot  
16 bigger. But there's others -- there's several  
17 schools in Memphis that they don't have a clue.  
18 They don't even know where the boiler is and there's  
19 nothing for us to stand on to hold them to the fire  
20 on this.

21 MR. BAUGHMAN: Yes, sir.

22 MR. WORD: And we need something. These  
23 people, they're putting anybody in there to run  
24 these boilers.

25 MR. OSWALD: Or that person that's

1 MR. HOLT: I've had a school and a church  
2 where I've gone down there and it's a low-pressure  
3 steam boiler with low water cutoff and all that.  
4 And relief valve, go to check it and the handle come  
5 off in my hand and nobody has looked at it for --  
6 and they're using the boiler. It wouldn't open. So  
7 you have to get it operating. So if we had somebody  
8 that is attending it or at least looks at those,  
9 they would replace the essential safety or at least  
10 exercise it.

11 I tell people to -- the relief valves or  
12 whatever, go ahead and exercise them, just whenever  
13 you think about it. Otherwise, if they're  
14 neglected, it becomes a potential problem.

15 MR. BAUGHMAN: And what we've got is a  
16 liability in operating a boiler. Now, you've got to  
17 match up an accountability for that, and that's what  
18 we don't have. We don't have that accountability  
19 for that liability. And we're charged with public  
20 safety, and so we need to attend this in some form  
21 or fashion.

22 And part of that is, of course, the topic  
23 discussion on, for one, the support of the industry  
24 and the inspection and the -- those who are involved  
25 within this industry, but also getting input on how

1 assigned the job of taking care of the boilers at  
2 another school and he's working three or four  
3 schools out there and...

4 MR. WORD: And another just -- the same  
5 thing. I went there and asked. I said, is this all  
6 you have? I don't know. They just told me this is  
7 my job. I said, so you don't know if you have any  
8 more boilers here?

9 MR. BAUGHMAN: What's funny in that  
10 proposition, Dallas, is schools are charged with  
11 education. And, yet, they don't see educating of  
12 their own personnel as a high priority.

13 MR. WORD: Right.

14 MR. BAUGHMAN: And especially in a  
15 facility that has children and teachers, boy, I  
16 don't want to be in front of somebody on 20/20 or  
17 CNN or Fox News on why we weren't proactive.

18 MR. WORD: But it seems like we do all  
19 this and have certificates, inspection, we do all  
20 this to try to prevent something or -- but then  
21 we'll let anybody run a boiler.

22 MR. BAUGHMAN: Yes, sir.

23 MR. WORD: That just don't make much sense  
24 to me.

25 MR. BAUGHMAN: Tell me.

1 to write this in such a way that we can propose it  
2 to where it's not an imposition. It doesn't cost  
3 state money. It doesn't take away any jobs and just  
4 the opposite, is that we want to be a state that has  
5 a higher level of training for people so that  
6 industry and schools and all -- if parents knew that  
7 we had no training at all for just boilers within  
8 some of these facilities, oh, my goodness.

9 So what it's going to take is a movement  
10 in that direction and we are just right on the cusp  
11 of that. We are at a very good point of being able  
12 to now take it and start implementing this and then  
13 having other states come to the boiler unit and ask,  
14 how did you write this up and let me see your laws  
15 in place.

16 Does that make sense, guys?

17 MR. DAVIDSON: Yeah. Bob Davidson.

18 There's no doubt we need to train these  
19 people. But who's got the money do it? Who's going  
20 to provide the training? Somebody is not going to  
21 provide training for nothing. They want to get paid  
22 for that. Can the school district afford it? If  
23 you talk to any school district right now, they  
24 don't have any money for anything, just like the  
25 state doesn't have money for anything.

Page 141

1 So there's always an excuse why they can't  
 2 do it. So how are you going to get this to come  
 3 across so they can afford to do it?  
 4 MR. BAUGHMAN: That's a good question.  
 5 Well, and in our state, you've got have a  
 6 driver's license. You're operating a deadly piece  
 7 of equipment, whether you can afford that license or  
 8 not is another thing, but you've got to take it.  
 9 You're operating a piece that can take hundreds of  
 10 people out of the equation.  
 11 MR. DAVIDSON: That's right.  
 12 MR. BAUGHMAN: Cost millions of dollars.  
 13 So when you think about we're charged with public  
 14 safety operating that piece of equipment, now we've  
 15 got to make to where it is not a monetary  
 16 imposition. We've got to make it affordable, but  
 17 we've got to make it happen. We can't say, well, I  
 18 understand you don't have the money the run your  
 19 buses this year or I know cheese isn't selling as  
 20 well and you don't have the money, we've got to come  
 21 up with that system and I agree with it. But we've  
 22 got do it. We can't sit back and sit on our hands  
 23 and look at it from a monetary standpoint.  
 24 MR. DAVIDSON: Right.  
 25 MR. BAUGHMAN: The other end of -- that I

Page 142

1 run into also is, what about these entities that  
 2 have people that don't speak English?  
 3 MR. DAVIDSON: There's some of those.  
 4 MR. BAUGHMAN: Well, the boiler doesn't  
 5 know if you don't speak English. It's a mechanical  
 6 piece of equipment, so it's still the same boiler  
 7 whether you speak English or not. But you've still  
 8 to go to attend to that part of the proposition on  
 9 how to train those people where there's a language  
 10 barrier.  
 11 So it gets to be an interesting  
 12 proposition to look at. But those are things that I  
 13 think as big boys and girls in this industry, we can  
 14 attend to that end of it. The basis of it is, do we  
 15 need it, yes or no?  
 16 Yes.  
 17 CHAIRMAN MORELOCK: Well --  
 18 MR. DAVIDSON: But is the State going to  
 19 provide them?  
 20 MR. BAUGHMAN: Well, we'll have to work  
 21 all through that.  
 22 CHAIRMAN MORELOCK: Well, I think you guys  
 23 are familiar with the National Board's model for  
 24 your continuing education. I think we could mirror  
 25 that to some extent because -- but we need to put

Page 143

1 something into the legislation that's going to make  
 2 us have to do it first, but we also ought to have,  
 3 right on the heels of that, a plan to implement so  
 4 it is affordable and you're going to have your  
 5 training and certification program ready when you  
 6 push the legislation through.  
 7 And so if you look at the National Board's  
 8 model, I can go online. I can maintain my  
 9 commission as an in-service inspector for \$150 every  
 10 two, two or three years -- two years. And so that's  
 11 not a big imposition, even on my company.  
 12 Now, the National Board's also smart  
 13 enough to realize that people that are out there  
 14 already training their inspectors, like Hartford for  
 15 instance, they have 1800 inspectors, so they took  
 16 their training, made sure that it embodied the body  
 17 of knowledge that the National Board requires and  
 18 this National Board approved them to continue to do  
 19 their own training. We could do the same thing  
 20 as -- you know, like the folks in Shelby County  
 21 that's got good training programs, they're not going  
 22 to have to throw it away, as long as their training  
 23 program would embrace all the requirements in the  
 24 legislation and the body of knowledge represented  
 25 there. They could keep doing what they're doing.

Page 144

1 They'll just get a -- instead of taking their  
 2 training and logging it, they'll get certification  
 3 out of it.  
 4 So we need to make sure that people are  
 5 that are doing it aren't going to have to go to a  
 6 third party to do something already doing and -- you  
 7 know, because, like for instance, if you go to a  
 8 particular ASME course, it's going to cost 15- to  
 9 \$1800. That is an imposition. But \$150 every two  
 10 years is not too bad. I think most of us can live  
 11 with that.  
 12 DR. JOHNSON: But there's also  
 13 professional privilege tax which will come with the  
 14 licensing and there's another 4- or \$500.  
 15 CHAIRMAN MORELOCK: Well, now, that's --  
 16 DR. JOHNSON: So that's an imposition on  
 17 the boiler operator.  
 18 CHAIRMAN MORELOCK: That could be. I  
 19 agree. I agree with that because it's -- but now,  
 20 that's a state --  
 21 DR. JOHNSON: I think in order to have a  
 22 valid motivation for this, you're going to have to  
 23 see incidents. Because I remember 10 years ago it  
 24 was routine people in the state legislature would  
 25 argue that we could sunset all of this boiler stuff

Page 145

1 because there were never any incidents, and then  
 2 there would always be -- and then would always be an  
 3 incident or there would be someone who would make  
 4 the argument that it was important for public  
 5 safety. And then the whole boiler regulation  
 6 concept was never sunset. It was never taken out.  
 7 But to get this kind of a -- one of the  
 8 most important things you said is that we would be  
 9 leaders in this and the other states would come to  
 10 us. Now, when in the history of the world has --  
 11 you know, have a lot of other people come when  
 12 there's no incidents to learn about how to train to  
 13 do something that adds a burden to their tax base  
 14 and their society and to their citizens? I'm in  
 15 favor of the idea that there needs to be better  
 16 training. I'm not speaking against that, but I have  
 17 to admit I'm not optimistic that pushing this thing  
 18 through from a political standpoint in either this  
 19 state or probably 40 other states has very much of a  
 20 chance of success.  
 21 MR. BAUGHMAN: Well, you mentioned better  
 22 training, we don't -- it's not better training.  
 23 We've got no training.  
 24 DR. JOHNSON: That's semantics because  
 25 obviously the people -- every one of these manuals

Page 146

1 says that they're trained by their supervisor. So  
 2 there's -- you know, I mean, this is just a point  
 3 for argument of what you or I think is valid  
 4 training and what actually passes for training in  
 5 our environment.  
 6 MR. BAUGHMAN: You know, we mentioned  
 7 reports and there's plenty of the incidences in each  
 8 and every state and district to point to. There's  
 9 not one state or district in our country that has  
 10 not experienced an incident.  
 11 DR. JOHNSON: Well, you commented on the  
 12 hundred or so lives that were in jeopardy. And yet,  
 13 when you look at these incidences, usually they're a  
 14 small number or maybe even zero. It's not like that  
 15 shoe factory explosion in the northeast back around  
 16 the turn of the last century where many, many people  
 17 were killed. And according to Domenic, that was --  
 18 most of the people died because of the gas fires and  
 19 things that started afterwards.  
 20 CHAIRMAN MORELOCK: They couldn't get out.  
 21 DR. JOHNSON: Yeah, they couldn't get it.  
 22 I don't know.  
 23 MR. BAUGHMAN: I will guarantee when  
 24 there's a day care center or a church --  
 25 DR. JOHNSON: Then you'll have an

Page 147

1 audience.  
 2 MR. BAUGHMAN: -- that blows, and in that  
 3 congregation or church, somebody's grandchildren,  
 4 one of the senator's relatives, any of those  
 5 entities --  
 6 DR. JOHNSON: I agree.  
 7 MR. BAUGHMAN: -- and I do not want to be  
 8 nonproactive in that. That's why we're here. And  
 9 we're here for a given time and to make a deference.  
 10 CHAIRMAN MORELOCK: Well, and to answer  
 11 your question, if we went with a certification  
 12 instead of a licensure and you may not have  
 13 professional privilege tax coming into play --  
 14 DR. JOHNSON: Maybe.  
 15 CHAIRMAN MORELOCK: -- because we're not  
 16 taxed for an inspector card.  
 17 DR. JOHNSON: Yeah, yeah.  
 18 CHAIRMAN MORELOCK: But now if you do have  
 19 a P.E., yeah, you get --  
 20 DR. JOHNSON: No. It's not just the P.E.  
 21 It's the hairdresser.  
 22 CHAIRMAN MORELOCK: Well, I know. I know.  
 23 DR. JOHNSON: I mean, he said that  
 24 hairdressers already have this --  
 25 CHAIRMAN MORELOCK: But that's licensure.

Page 148

1 DR. JOHNSON: -- and the hairdressers then  
 2 are responsible for their professional privilege tax  
 3 every year.  
 4 CHAIRMAN MORELOCK: Right. Right.  
 5 DR. JOHNSON: And those people might be  
 6 lucky to make \$20,000 and the professional privilege  
 7 tax is more than what an income tax would be if we  
 8 had a progressive income tax, which I'm also not in  
 9 favor of.  
 10 CHAIRMAN MORELOCK: So maybe it would be a  
 11 certification, then.  
 12 MR. BAILEY: Well, if I may interject, I  
 13 think maybe his point is that -- and I understand  
 14 what you're saying, you're not going to get an  
 15 audience until there's an incident --  
 16 CHAIRMAN MORELOCK: Right.  
 17 DR. JOHNSON: Yeah.  
 18 MR. BAILEY: -- that grabs attention. But  
 19 when that incident happens and the public is saying,  
 20 well, what did you all do to try to prevent this?  
 21 At least, even if you go the legislature and they  
 22 say no --  
 23 CHAIRMAN MORELOCK: Right.  
 24 MR. BAILEY: -- it's going to cost money,  
 25 we're not going to do it, at least the board can say,

1 we went to the legislature and they said no, you  
 2 know.  
 3 CHAIRMAN MORELOCK: Yeah, that's right.  
 4 That's right. Very good point.  
 5 MR. FRAZIER: Gentleman, you know, the TBR  
 6 we're trying to push, the governor tried to push,  
 7 Drive to 55 of the school systems for five or six  
 8 years and that's to educate our high school grads in  
 9 the technical fields, vocational training and stuff.  
 10 They get two years free education and that's where  
 11 we're going to now, educating the next workforce  
 12 because you've got to plan for the "what ifs."  
 13 That's why you have maintenance.  
 14 I had a boss that said, why do I have you  
 15 here? I said, just in case. Just in case of what?  
 16 When you can't push the right button, I can. And  
 17 that's what we want. But we want the principals of  
 18 the schools to know how. We want not just a janitor  
 19 to say, hey man, that boiler is glowing red down  
 20 here, something bad is fixing to happen. And you're  
 21 right, why do we need to have something to explode  
 22 or somebody have to die before something is done?  
 23 CHAIRMAN MORELOCK: Yeah.  
 24 MR. FRAZIER: So it's just like the  
 25 pressure vessel, the unfired ones, the -- all these

1 tanks that we used to hydronically test on the  
 2 federal said, I've seen running and they're stamped  
 3 on them 1958 and they're sitting there banging. And  
 4 those will take a wall out. Those will take people  
 5 out. Those kind of things need to be changed and we  
 6 need to change them, not just look at them and say,  
 7 yeah, that's bad. I wonder why he's not doing that.  
 8 MR. ROBINSON: Dave, question for you --  
 9 MR. BAUGHMAN: Yes, sir.  
 10 MR. ROBINSON: Any of the three -- Texas,  
 11 Michigan, or Shelby County -- did they share any of  
 12 their certification program with you?  
 13 MR. BAUGHMAN: Yes, they did.  
 14 Interestingly, I was speaking with Dallas earlier.  
 15 I spoke with some folks from over at Shelby County  
 16 last week who are actually looking to rescind their  
 17 code. And I asked them why, and they said, because  
 18 the rest of Tennessee doesn't have one.  
 19 And I said, wow. Is there anything else?  
 20 He said, no, we just felt like we were out  
 21 by ourselves.  
 22 And I said, hold on to that. If I can  
 23 advocate tabling that, know that we are up for  
 24 discussion. I invited them to our meeting, but yes.  
 25 Every place is different. Michigan takes

1 theirs on BTU values up through certain sizes of  
 2 boilers, but they discount everything under 30  
 3 horsepower. Arkansas has different levels of  
 4 Class 2, Class 2, Class 3 operators, and they're all  
 5 forthcoming in that information.  
 6 One of the things that I got looking at,  
 7 Eugene, as we went into this was that incident  
 8 report, again that the NB produces --  
 9 MR. ROBINSON: Yes, sir.  
 10 MR. BAUGHMAN: -- and those two  
 11 classifications, low water cutoffs, operator error,  
 12 poor maintenance. What I want to do is -- we've got  
 13 to have a starting point and we've got to have a  
 14 starting point that we can always add to.  
 15 So let's look at what we could do. And  
 16 what if we took just the low water cutoff? What if  
 17 we just trained people in some form or fashion on  
 18 how to do a positive check of the low water cutoff?  
 19 Start from there. That's your training. You've got  
 20 to have base training. You've got to know how to  
 21 test this for low water. And then we could start  
 22 adding it from that.  
 23 But that's part of my thought process, is  
 24 we've got to make it to where we've got something in  
 25 place. And attending to one of those things that's

1 number one, year after year -- year after year --  
 2 not two, three, four, but number one. And if we  
 3 attend to that and then build upon it. And I think  
 4 we can do it cost effectively. But there again,  
 5 food for thought, we need to lay this out and this  
 6 was the forum. And by being 10 minutes over, I  
 7 appreciate that. Great input and discussion.  
 8 CHAIRMAN MORELOCK: All right.  
 9 DR. JOHNSON: Can I ask one more question?  
 10 CHAIRMAN MORELOCK: Sure.  
 11 DR. JOHNSON: This is a point for me to  
 12 understand. One of the examples that was given  
 13 earlier in this discussion was the idea that in  
 14 Memphis they have all these schools where people  
 15 aren't actually able to operate the boilers. Are  
 16 these people certified?  
 17 MR. WORD: No.  
 18 DR. JOHNSON: So is Shelby County  
 19 different from Memphis, then? Memphis has a  
 20 different set of rules?  
 21 MR. WORD: No. Memphis, they  
 22 recognized -- let's see. How does this work?  
 23 Memphis recognized boiler operators, but the school  
 24 systems, they will hire -- I mean, they let anybody  
 25 watch the boilers.

1 DR. JOHNSON: So even in Shelby County,  
 2 even though there is a certification program, many  
 3 people operating boilers are not certified.  
 4 MR. ROBINSON: Dr. Johnson.  
 5 DR. JOHNSON: Yeah.  
 6 MR. ROBINSON: It could be a difference.  
 7 He could have had a low-pressure boiler.  
 8 MR. WORD: They're low-pressure too.  
 9 MR. ROBINSON: And I think the  
 10 difference -- the threshold may be for  
 11 high-pressure, as opposed -- there is an -- just so  
 12 you know interpretation inside of our code  
 13 interpretations. It's on the Internet if you go  
 14 there. And it's for Shelby County and it gives you  
 15 what all is comprised in that interpretation.  
 16 Forgive me.  
 17 MR. HOLT: I might give an example. I  
 18 know politically you're talking one side and  
 19 actually what happens is two different things.  
 20 You're trying to get into where the legislature  
 21 would take notice. But in our inspections,  
 22 especially dry cleaners -- I don't like dry cleaners  
 23 because those people turn it on and turn it off at  
 24 the end of the day. And I've gone in and low water  
 25 cutoff do not work. The secondaries do not work.

1 The only thing you've got is that relief valve,  
 2 which looks like it's been there originally when it  
 3 was put in there. What I'm saying is, is that a lot  
 4 of inspections that we do, what we find and have  
 5 them change have prevented an explosion or potential  
 6 explosion. Because if nothing was done, they will  
 7 go off.  
 8 DR. JOHNSON: Yeah. Dry cleaners are  
 9 notorious cutting as close as they can, everything.  
 10 MR. ROBINSON: Yeah.  
 11 MR. HOLT: And through our actions and  
 12 what we change, they're brought up to standard where  
 13 other people don't even look at it and don't even  
 14 care.  
 15 DR. JOHNSON: Yeah.  
 16 MR. HOLT: And that's how it works out  
 17 there. Otherwise -- and we test the relief valves  
 18 and all the safety things that nobody tests and  
 19 that's a period of either every 6 months or once  
 20 every two years, is the only time they're exercised  
 21 is when we do it. So there's the reality of it on  
 22 the practical side.  
 23 DR. JOHNSON: No. I understand. I'm  
 24 sympathetic to the basis --  
 25 MR. HOLT: I know. I understand. I know

1 where you're coming from to trying to see --  
 2 DR. JOHNSON: But I see it as, you know,  
 3 sort of Don Quixote tilting at windmills.  
 4 MR. BAUGHMAN: Well, I think we've done,  
 5 for one, our due diligence on public record here of  
 6 getting the ball starting to be rolling. We all  
 7 know -- and I think the consensus is that we need  
 8 training.  
 9 Now we're going to be charged with putting  
 10 that together. We -- I vote for Eugene. That we  
 11 put this together in a form that can be presented.  
 12 So further discussion in our next meeting,  
 13 I would ask for, and I'm sure that will continue  
 14 through following meetings. It's nothing that is  
 15 going to happen overnight, but I'm glad that you  
 16 guys all were here, men and woman, to be able to  
 17 listen to that and to know whether that's a  
 18 direction we need to advocate or not. I took it for  
 19 granted it was, but sometimes I get these blinders  
 20 on. But knowing that this is something that has  
 21 been a long time coming, and I'm glad we're getting  
 22 the ball rolling.  
 23 CHAIRMAN MORELOCK: Okay. Thank you for  
 24 all the comments. If you have any more, send them  
 25 to us. We have no rule cases or interpretations.

1 Our next board meeting is scheduled for 9:00 a.m.  
 2 Wednesday, September 9th right here in this room.  
 3 And I call for adjournment. So thank  
 4 y'all for coming.  
 5 (WHEREUPON, the proceedings were adjourned  
 6 at 12:17 P.M.)  
 7  
 8  
 9  
 10  
 11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25

REPORTER'S CERTIFICATE

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

STATE OF TENNESSEE  
COUNTY OF DAVIDSON

I, AMBER A. THOMPSON, court reporter, with offices in Nashville, Tennessee, hereby certify that I reported the foregoing meeting of the BOARD OF BOILER RULES, by machine shorthand to the best of my skills and abilities, and thereafter the same was reduced to typewritten form by me.

I further certify that I am not related to any of the parties named herein, nor their counsel, and have no interest, financial or otherwise, in the outcome of the proceedings.

I further certify that in order for this document to be considered a true and correct copy, it must bear my original signature, and that any unauthorized reproduction in whole or in part and/or transfer of this document is not authorized, will not be considered authentic, and will be in violation of Tennessee Code Annotated 39-14-149 Services.



AMBER A. THOMPSON, LCR, CCR  
Licensed Court Reporter  
Certified Court Reporter and  
Notary Public  
State of Tennessee



MY COMMISSION EXPIRES:  
March 8, 2016

My Commission Expires: 03/08/2016  
LCR #289 - Expires: 06/30/2016

<hr/> <b>\$</b> <hr/>	<b>10:20</b> 78:7	<b>1988</b> 73:11	<b>280</b> 102:18
<b>\$150</b> 143:9 144:9	<b>10th</b> 79:23 80:19	<b>199,000</b> 104:25 109:22	<b>295</b> 68:15
<b>\$1800</b> 144:9	<b>11</b> 12:20 17:22,23 24:11 44:11 87:14 133:19	<b>199,999</b> 106:5 114:20	<hr/> <b>3</b> <hr/>
<b>\$20,000</b> 148:6	<b>11/10/14</b> 88:20 116:16	<b>199,999s</b> 114:12	<b>3</b> 10:2 38:9 49:15 68:21 72:13 87:14 88:11 94:10 101:3, 4 151:4
<b>\$500</b> 144:14	<b>11/14/2014</b> 84:25 101:14	<b>199-</b> 112:19	<b>3,000</b> 12:11
<hr/> <b>(</b> <hr/>	<b>12</b> 14:22,24 24:14 44:11 89:15,19 90:17	<b>1st</b> 100:18	<b>3,012</b> 9:19
<b>(16)</b> 81:20	<b>12/1/2007</b> 66:16	<hr/> <b>2</b> <hr/>	<b>3.8.2.1</b> 121:3
<b>(a)</b> 80:8	<b>12/1/2008</b> 66:16	<b>2</b> 25:25 26:2 29:23 61:23 80:8 83:5,12 86:14 107:21 114:6 151:4	<b>3.821</b> 125:22
<hr/> <b>0</b> <hr/>	<b>122</b> 37:20	<b>20</b> 38:3 48:6 74:4	<b>30</b> 135:14 151:2
<b>0</b> 115:22	<b>12:17</b> 156:6	<b>20-minute</b> 48:12 49:1 64:6,14 65:12 73:25 74:1	<b>300</b> 102:18
<b>03</b> 85:5	<b>13</b> 10:8 18:4 24:14 39:15 44:11	<b>20/20</b> 138:16	<b>31</b> 10:1 115:5,8
<b>04-20</b> 48:12	<b>15</b> 52:14 60:24,25 61:25 116:6	<b>200</b> 68:8 101:10 114:13	<b>31.1</b> 86:19 87:2,7,9
<b>0800-03-03-.03</b> 113:20	<b>15-</b> 144:8	<b>200,000</b> 104:2 105:2 106:8 107:25 108:15 112:10	<b>32</b> 115:4
<b>0800-03-03.01</b> 84:16	<b>15-10</b> 11:11 24:7 27:7 33:9 46:3	<b>200-something</b> 52:15	<b>320,000</b> 103:10
<b>0800-03-03.07</b> 84:21	<b>15-11</b> 16:19 46:3	<b>2003</b> 20:25	<b>357-A</b> 135:18
<b>0800-3-3</b> 78:12	<b>15-12</b> 17:9 37:18 46:3	<b>2008</b> 17:12 21:14	<b>358</b> 135:15
<b>0800-3-322</b> 48:11	<b>15-13</b> 38:5 46:3	<b>2013</b> 124:16	<b>37</b> 89:15
<hr/> <b>1</b> <hr/>	<b>15-14</b> 46:4	<b>2014</b> 42:14 79:23 80:19 100:18	<hr/> <b>4</b> <hr/>
<b>1</b> 14:19 26:1,2,3 38:4 46:6 47:20 48:2 60:3 68:13,14 69:7 71:25 96:1 97:19 108:17 114:6 115:16 125:22	<b>15-15</b> 67:21	<b>2016</b> 132:4,6,14 133:6	<b>4</b> 38:4 47:10 48:12 81:19 86:10
<b>1,942</b> 9:24 10:24	<b>150</b> 93:20 94:5,10	<b>210</b> 101:19 114:15, 16	<b>4,000</b> 12:10
<b>10</b> 27:8 29:25 30:1 35:8 44:11 67:22 68:6 94:11 135:18 144:23 152:6	<b>16</b> 12:17 14:21 17:19,21 82:3	<b>22</b> 48:12 49:1,11 73:23	<b>4,918</b> 9:20
<b>10,415</b> 9:21	<b>16-year-old</b> 134:4	<b>24</b> 18:1 68:11	<b>4-</b> 144:14
<b>10-minute</b> 78:4	<b>160</b> 101:9,18 108:7 115:25	<b>240</b> 103:18 105:5,7 108:25 116:4	<b>40</b> 145:19
<b>100</b> 93:20 94:5	<b>17</b> 10:1	<b>25</b> 84:5	<b>400,000</b> 110:9,18 111:11 113:3
<b>100,000</b> 104:11 109:22 112:19	<b>1800</b> 143:15	<b>250</b> 102:18 108:8, 24	<b>4000</b> 71:21
	<b>19</b> 33:10,24 34:12 37:3		<b>40s</b> 136:23
	<b>1958</b> 150:3		<b>423 413-3805</b> 69:10
	<b>1978</b> 73:7		<b>45</b> 116:6
			<hr/> <b>5</b> <hr/>
			<b>5</b> 29:23 47:20,25

48:1 60:3 69:25 82:15 84:4 94:6 113:21	<b>8356</b> 38:10 39:6 <b>8357</b> 38:11 39:6 <b>8358</b> 39:6 <b>858</b> 39:6 <b>87</b> 73:19 <b>8856</b> 38:8 <b>8858</b> 38:10	<b>accordance</b> 86:18 <b>accountability</b> 139:17,18 <b>accreditation</b> 88:3 90:5,8 <b>accurate</b> 84:3 <b>acronym</b> 83:15 84:6 <b>acronyms</b> 76:12 <b>act</b> 13:18 66:23 77:5 <b>action</b> 81:13 <b>actions</b> 154:11 <b>active</b> 14:4 <b>actual</b> 19:13 26:8 32:8 33:1,6 35:2,5, 7 40:14 50:23 63:14 119:1 <b>actuation</b> 72:1 <b>add</b> 25:20 29:1 39:16,17 40:10 47:11 49:19 50:5 53:18 76:25 80:10 82:16 83:9 85:2 87:3,4 100:25 112:8,22 113:1 115:11 125:21 126:13 127:5 151:14 <b>added</b> 12:20 15:2, 6 69:10 75:24 80:3, 19 82:18 85:1 86:23 88:20 90:16 93:9 113:7 116:16 <b>adding</b> 66:3 84:10 97:25 151:22 <b>additional</b> 46:25 69:3 73:20 77:4 <b>Additionally</b> 88:7 <b>additions</b> 8:24 <b>address</b> 12:14 22:19 33:2 35:19 36:11,25 84:18 110:18 116:12 <b>addressed</b> 84:21 96:15	<b>addresses</b> 33:20 35:16 115:2,20 116:8 <b>addressing</b> 96:14 <b>adds</b> 145:13 <b>adjourned</b> 156:5 <b>adjournment</b> 156:3 <b>adjustment</b> 125:2 <b>adjustments</b> 18:20 <b>administration</b> 13:25 <b>administrator</b> 130:23 <b>admit</b> 145:17 <b>adopt</b> 8:15,18 77:7 <b>advised</b> 54:3 <b>advocate</b> 150:23 155:18 <b>affirmative</b> 9:5 45:13 67:12 77:19 <b>affirmatively</b> 73:25 <b>afford</b> 58:9 140:22 141:3,7 <b>affordable</b> 141:16 143:4 <b>afraid</b> 64:3,25 <b>agency</b> 9:20 83:21 85:11 <b>agenda</b> 4:18 8:15, 16,19,25 9:12,13 11:7 12:7 44:23,25 72:16 78:5,9 79:14 81:13 129:21 133:18 <b>agents</b> 10:21 <b>agree</b> 20:9 25:7 34:6 59:11,23 84:10 86:21 89:6 121:16 122:2 141:21 144:19 147:6
<b>5,000</b> 128:17 <b>50</b> 94:12 <b>500</b> 94:12 <b>500-horse</b> 134:3,5 <b>50s</b> 136:23 <b>54</b> 38:9 <b>54D</b> 36:12 <b>55</b> 38:8 149:7	<hr/> <b>9</b> <hr/> <b>9</b> 46:24 95:6 101:5 <b>9,900-</b> 9:23 <b>901</b> 34:13 <b>92</b> 73:19 <b>946</b> 9:24 10:21,22 <b>95</b> 53:20 <b>996</b> 9:23 10:18 <b>9:00</b> 4:3 156:1 <b>9th</b> 130:16 156:2		
<hr/> <b>6</b> <hr/> <b>6</b> 11:9 46:22 94:6 154:19 <b>60s</b> 136:23 <b>68</b> 38:3 <b>68-122</b> 37:20	<hr/> <b>A</b> <hr/> <b>a.m.</b> 156:1 <b>abbreviate</b> 88:23 <b>abbreviated</b> 83:14 <b>abbreviating</b> 26:1 <b>abbreviation</b> 26:2 <b>absolute</b> 118:14 <b>absolutely</b> 110:12 126:21 <b>Abstentions</b> 9:8 45:14 67:14 77:21 <b>AC</b> 41:6 <b>accept</b> 15:24 <b>acceptable</b> 98:3,4 <b>access</b> 78:24 <b>accident</b> 135:25 <b>accomplished</b> 135:24		
<hr/> <b>7</b> <hr/> <b>7</b> 50:6,15 60:14,15 61:15,23 70:24 71:24 <b>70-horse</b> 135:16 <b>70s</b> 73:16 <b>75</b> 115:23 116:1 <b>78</b> 73:19 <b>7800</b> 29:15			
<hr/> <b>8</b> <hr/> <b>8</b> 33:12 35:2,8,24 41:4 83:4,12 86:10 113:20 115:7,8 127:3 <b>800</b> 48:24 <b>800-03-03.01</b> 101:4 <b>800-3-3</b> 68:10 78:13 79:5 <b>800-3-3-04</b> 48:25			

**agreed** 35:20,24  
44:13 59:20 80:12  
83:8 88:6 90:6  
113:25

**agreeing** 44:14  
45:5

**agreement** 44:16

**ahead** 47:22 58:16  
59:25 76:23 81:5  
137:2 139:12

**air** 128:19

**alarm** 30:5,8 40:7,  
12,14,23,24 50:23  
72:1

**alarms** 5:1

**all--** 107:13

**Allen** 6:13 12:4  
40:12 41:3 43:20  
44:21

**allocate** 132:8

**allot** 132:24

**allowable** 115:18,  
25

**allowed** 30:7

**allowing** 117:14

**alteration** 89:21,  
23 90:13,18,23

**alterations** 84:19,  
22 89:16,17,20  
90:17 95:18 96:21  
100:5

**altered** 84:1

**altimeter** 119:2

**altitude** 115:9,14  
116:24 117:9,25  
118:8,10,11,17,22,  
25 119:2,5,11,13,  
16,23 120:12,14,19  
121:2,4,5,11,12  
122:1,23 123:5,9,  
10 124:10,17,19  
125:20,23 126:3,4  
127:4,10,13,14  
128:4,20

**Amber** 5:18,19  
16:17 87:7

**Amber's** 11:17

**amendments**  
114:1

**amount** 76:8 98:23

**and/or** 122:14

**announcements**  
5:7,13

**anymore** 52:8

**apologies** 33:15

**apologize** 16:16  
32:19 33:13 79:15

**appeared** 19:19

**Appendix** 46:23  
47:1 60:17 61:16  
66:1

**appliances** 87:16

**applicable** 122:3,7

**application** 113:3

**applies** 116:13

**apply** 95:19

**approval** 13:3,7  
45:3 66:24 77:12,  
24 81:8 97:2 98:17

**approve** 28:21  
44:8 67:5

**approved** 26:6  
44:7 45:18 47:4  
67:17 87:21 88:15  
95:5,6,7 98:14  
135:4 143:18

**approximately**  
68:8,15 115:15  
117:9 135:16

**arc** 94:25 95:5

**archaic** 124:8  
135:1

**area** 5:6 10:5 63:25  
92:14 113:10 137:9

**areas** 10:5 112:15  
136:22

**argue** 144:25

**argument** 145:4  
146:3

**Arkansas** 151:3

**ASL** 123:10

**ASME** 53:11 78:25  
80:10,17 82:16,21  
83:6,9 84:17 86:15,  
19 87:2,7,8 96:1  
97:8 101:10,20  
108:9 112:10 144:8

**aspect** 113:2

**aspects** 41:7,16

**asset** 22:12

**assigned** 84:6  
138:1

**assigns** 38:16

**assistant** 5:23  
9:13

**assume** 34:4

**assuming** 120:11

**assure** 59:5

**atmospheric** 75:7  
111:10

**attached** 100:20

**attend** 48:7,11,23  
49:10 139:20  
142:8,14 152:3

**attendance** 51:6  
136:4

**attendant** 61:23  
64:7 70:25

**attendants** 60:13,  
23 71:3 136:6

**attending** 139:8  
151:25

**attention** 43:10  
100:19 148:18

**attorney** 36:20

**audience** 147:1  
148:15

**audit** 19:16

**authorization**  
87:19 88:12

**automatically**  
30:7

**availability** 51:8

**aviation** 121:14,17

**award** 45:23

**aware** 4:24

**aye** 9:4 45:12 67:11  
77:18

---

**B**

---

**back** 4:18 10:15  
16:2 19:23 20:21  
24:5 51:10 55:10  
57:8 64:4,6,8,13  
65:5 72:18 73:15  
93:12,18 96:11,12  
97:4 101:3 107:20  
114:10 124:7  
126:19 141:22  
146:15

**bad** 48:17 65:3  
144:10 149:20  
150:7

**Bailey** 6:9 56:19  
74:10 75:20 76:2,7,  
11,20 85:24 86:5  
91:17 106:11,14,17  
115:6 127:23  
128:3,7 129:4  
148:12,18,24

**ball** 155:6,22

**banging** 150:3

**barrier** 142:10

**Barton** 6:13 12:3,  
4,22,24 13:19,24  
14:9,12,16,24 15:5,  
9,14,18,24 16:4,9,  
13,25 17:5,7,16,21,  
25 18:5,8,13,16,20  
19:15,25 20:11,14,  
19 21:10,12,16,24  
22:9,13,22 23:4,7,  
10,15,19 24:2,10  
25:4 29:19 30:13,  
17,21,24 31:6,9,11,  
15 32:4,12,15,17,  
25 33:13,16 36:21  
37:5,17 40:6,16,21  
41:1,10,20,25 42:3,  
5,8,11,17,22 43:1,  
19,21 45:7,20

**Barwick** 73:13  
**base** 145:13  
151:20  
**based** 58:11 67:6  
90:20 98:3 102:6  
120:12  
**basic** 111:3  
**basically** 13:19  
18:13 19:10 96:3  
104:25 114:12  
117:5  
**basing** 109:15  
**basis** 51:8 142:14  
154:24  
**battery** 86:13  
**Baughman** 6:7  
8:22 10:14,19,22,  
25 20:10,12,15,20  
21:11,15,19,25  
22:6,10 24:5,11  
26:14,17,23 27:24  
29:1,24 30:1 33:22  
39:20,22,25 40:12,  
22 41:2,13,21 42:2,  
4,7,9,12,18 43:2,9,  
20 44:7,12,14  
45:24 46:1 49:21  
50:21 51:4 53:18  
60:1,15,18,21,25  
61:11,18 62:3,12,  
20,24 63:4,8,12,16,  
19 66:24 69:11,17,  
19 72:9,14,20,24  
73:5,12,18,22 74:1,  
7,11,17 75:9,22  
76:15 77:9 81:4,6,  
15 87:1 91:6 92:23  
93:12,16 96:10  
98:7,24 99:2,15,21  
103:21 105:9,13,  
17,20,23 106:2,10  
118:5,16 119:3,9  
120:17,23 121:1,  
10,16,22 122:2,13,  
25 123:7,18,24  
124:15,24 126:10  
127:7,20 129:12  
133:16,20 137:21  
138:9,14,22,25  
139:15 141:4,12,25  
142:4,20 145:21  
146:6,23 147:2,7

150:9,13 151:10  
155:4  
**bear** 71:17 83:13  
84:2,23 85:6  
**begin** 5:18  
**Bell** 7:8  
**belonged** 73:9  
**benefit** 11:17  
63:18  
**Bennett** 5:21  
105:15 117:16,18,  
22 118:1  
**bet** 127:16  
**big** 11:20 35:13  
142:13 143:11  
**bigger** 137:16  
**biggest** 16:15  
25:11 51:11  
**Bill** 136:7  
**Bingo** 37:7  
**bit** 106:15 119:21  
**blank** 24:9,13,16  
62:21  
**blind** 155:19  
**block** 71:3  
**blocks** 32:24 43:7  
116:17,20  
**blowdown** 40:7,9  
**blows** 136:13  
147:2  
**blueprints** 73:15  
**board** 4:4 5:21,25  
6:2,10 13:2,12,15,  
17 15:22 17:18  
19:9 20:13 22:11  
33:4 38:6,23 53:8,  
20 56:3 63:6 66:23  
74:18 76:17 77:5,  
14 78:25 79:10  
83:6,13,14,17,19  
84:1,2,5,6,20 85:1  
88:2,13,24 89:7  
90:4,6,7,10,21  
95:11 96:9,18  
100:12 115:20

116:8,12 127:25  
134:22 143:17,18  
148:25 156:1  
**Board's** 142:23  
143:7,12  
**boards** 136:11  
**Bob** 7:13,22 63:24  
140:17  
**body** 88:3 90:5,8  
143:16,24  
**boiler** 4:4 6:7,11,  
16,18,20,21,23,25  
7:2,6,9,12,13,15,  
16,18 8:4 10:2  
13:10 19:13 20:25  
23:24 26:4,9,12,15,  
18 28:5 29:5,6,17  
30:3,10,21 31:2,17,  
23 38:6 45:2 48:6,  
7,10,11,22,23  
49:10,15,18 50:1,2  
52:16 54:11 56:1,  
16 58:10,12,16,24  
59:1 60:12,22  
61:23 64:2,7,12,14,  
18,21,22,25 65:9  
66:2,4 68:15,20,21  
70:25 71:3 75:1  
76:1,9,18,19 78:21,  
24 80:2,9,11,12,16  
81:24,25 82:6 83:8,  
10,22,24,25 84:9,  
12,15,18 85:12  
86:11,12,20 88:1,6  
89:1 90:1,3,6,10,  
11,12,25 93:8,21  
98:25 99:4 103:24,  
25 105:20,24  
107:24 108:3,4,5,9,  
13 109:13 110:8,  
21,23 111:3,24  
113:25 115:21  
116:11,23 117:1  
118:8,9,18,20,21  
119:15 120:8,15  
121:8,18 122:15,  
16,20,23 123:5,11  
124:13,18,21 126:2  
127:11 130:17  
133:14 134:3,5  
135:16,24 136:1,4,  
13 137:13,14,18  
138:21 139:3,6,16

140:13 142:4,6  
144:17,25 145:5  
149:19 152:23  
153:7  
**boilers** 7:8 11:13  
12:17 14:21,23,24  
15:3,19,20 16:20  
17:11,19 18:4  
20:21 33:7,21  
34:16,17,22 35:6,7,  
15,18 37:4 46:6  
53:22 57:15 58:5,8  
59:2,6 65:6 67:22  
68:9,10 69:6 72:17  
73:6,18 74:3,21  
78:17,20 83:12  
85:5 86:11,14,16  
105:1 107:3 115:24  
116:5 120:16  
124:8,10 128:16  
134:14,18,19  
135:14,18 136:21,  
23,24 137:11,24  
138:1,8 140:7  
151:2 152:15,25  
153:3  
**boiling** 123:16  
**book** 92:5  
**books** 13:25 14:6  
18:17  
**boss** 149:14  
**bottom** 38:4 111:7  
**bought** 73:10  
**Boulevard** 46:7  
**boundary** 94:20  
**bounds** 53:7  
**boy** 138:15  
**boys** 142:13  
**Bradshaw** 14:9,10  
22:22,23,24 24:12  
34:5 35:21 36:3,6  
42:1  
**brave** 45:22  
**break** 78:4,8  
**breech** 134:13  
**Brian** 6:2 9:17  
118:6 127:8

**briefly** 134:13

**bring** 33:3 41:3  
43:10,13 51:10  
58:10,15 61:7  
64:22 69:4 97:4  
119:17

**bringing** 107:8

**brings** 103:4  
134:20

**Brother** 134:10

**brought** 93:8 97:7  
154:12

**BTU** 102:7 103:10  
106:3 108:17 110:9  
151:1

**BTUS** 102:18  
104:11 105:2  
111:11 112:10  
114:13,20

**budget** 131:24  
132:9

**budgetary** 132:16,  
24

**budgets** 131:23

**build** 132:8 152:3

**building** 5:4,5  
12:16 15:6,7 17:10  
25:25 33:24 36:12  
52:20 108:19  
122:20

**buildings** 16:5  
34:18

**built** 136:21

**bump** 79:14

**bunch** 94:13  
102:10

**burden** 145:13

**burner** 29:5,7 30:7  
40:15,25 50:24  
51:9 109:8

**buses** 141:19

**business** 11:8,10  
55:15

**button** 27:19 29:3  
30:5,11,18 31:1,4,8

149:16

**buttons** 30:2

**Byars** 24:13 41:11  
42:8

---

**C**

---

**C-10** 27:14,15

**C-11** 29:24

**call** 4:4 9:3 45:12  
61:11 67:10 77:17  
87:5,6 97:5 102:9  
110:8,20 156:3

**called** 58:1 119:10

**calls** 47:15

**cancer** 33:23  
34:23,24

**Canonico** 5:8 32:6

**Canonico's** 84:10

**capital** 87:9 89:22,  
24 90:21,22,24  
101:20 108:9,10,11  
114:14

**captures** 107:2

**card** 55:18,20  
147:16

**care** 129:11  
136:17,19 138:1  
146:24 154:14

**careful** 92:17

**Carlene** 5:21 44:4

**carried** 75:2

**carry** 133:22

**case** 33:8 93:8  
149:15

**cases** 155:25

**cast** 120:9 123:6

**catch** 87:10 131:23

**categories** 113:4

**category** 60:16

**caveat** 96:22

**center** 8:9 12:6

46:5,6,17,19 52:9  
146:24

**central** 12:15  
35:21 47:18

**century** 146:16

**certificate** 84:1,20  
87:19 88:12 114:21

**certificates**  
138:19

**certification**  
133:15 143:5 144:2  
147:11 148:11  
150:12 153:2

**certified** 152:16  
153:3

**cetera** 33:7 34:13  
100:7 124:21

**Chairman** 4:2 5:16  
6:2,15 8:13,20,23  
9:2,6,8,11 10:10,12  
11:2,5 12:22,25  
13:23 14:7,10,13,  
17,25 15:8,12,17,  
21 16:1,7,10,14  
17:4,6,9,17,23  
18:3,6,9,15,19,24  
20:3,4 21:18 22:3,  
15,16,17,20,23  
23:6,9,12,17,21  
24:3,20 25:5,15,18  
27:3,7,10,13,17  
28:7 31:19,22  
32:16 34:16 35:9,  
13,17 36:1,8,22  
37:6,12,24 38:1,13,  
16,20,22 39:4,7,9,  
13 40:20 42:24  
43:3,12,22,24 44:3,  
10,16,19 45:8,11,  
14,17,21,25 46:2,  
13 47:6,8,12 48:24  
49:2,4,8 50:9,15,20  
51:21,25 53:9,14  
54:5,10,19,24 55:4,  
12,23 56:10,11,12,  
22 57:6 58:6 59:18,  
21,24 61:4,6 62:6,  
13,16,23 63:5,13,  
17,21 64:16 65:4,  
14,18,21 66:8,11,  
14,20 67:2,4,13,16,  
20 69:1,13,20,24

70:10,17,23 71:8,  
11,16,22 72:5,8,11  
73:3 75:18 76:5,8,  
13,16,21 77:3,8,10,  
20,23 78:1,9 80:25  
81:3,5,10,16 82:11,  
14 83:1,4 85:19,24  
86:4,7 87:3,6,12  
88:25 89:6,9,14  
91:7,12,19,22 92:1,  
6,9 93:4,14,19  
94:2,11 95:12,22  
96:17 97:1,11,13,  
16,21 98:21 99:1,  
12,19,22 100:1,3,6,  
8,16 102:2,6,20  
103:1,6,23,25  
104:4 106:16,22,24  
107:4,15,19 108:2,  
23 109:1,11,14  
110:6,13 112:3,5  
113:8,12,15 114:16  
115:1,7 117:17,20  
118:2 119:24  
121:23 125:12,16  
126:5,8,14,17,22,  
24 127:2,15,18,21,  
23 128:2,5,8,13,14,  
23,25 129:9,13,18  
130:20 131:20  
132:7 133:9,13,19  
137:8 142:17,22  
144:15,18 146:20  
147:10,15,18,22,25  
148:4,10,16,23  
149:3,23 152:8,10  
155:23

**chance** 8:16  
145:20

**change** 13:9 15:2,  
10,11 22:25 23:11  
42:15,22 49:3 82:8  
89:10 90:20 92:25  
100:12 111:23  
121:21 130:14,19  
150:6 154:5,12

**changed** 13:3,6,9,  
10,20 19:24 121:20  
150:5

**changing** 84:6  
85:1

**chaos** 52:19

**Chapman** 5:23  
9:16 10:11,17,20,  
23 11:1 55:20 89:8  
103:9,13 120:25

**chapter** 38:3 68:10

**charge** 136:17,18

**charged** 136:11  
138:10 139:19  
141:13 155:9

**chart** 32:23 42:23  
43:1,5 70:4 71:4,  
12,14

**charts** 24:22

**check** 39:8,23  
40:2,5,9,13,14,23  
49:21 50:5,6 51:15,  
22 56:17 76:5  
96:22 139:4 151:18

**checked** 51:11,12,  
13

**checking** 40:8  
50:23

**checklist** 13:4,14  
46:22,24

**checks** 40:24  
135:7

**cheese** 141:19

**chief** 5:24 8:6 10:9  
83:21 85:2,11,12  
87:21 88:8,15  
127:17

**chief's** 9:14

**children** 138:15

**church** 139:1  
146:24 147:3

**circuit** 40:23,24

**circuitry** 30:12  
50:23

**circuits** 72:1

**circulate** 105:8

**circulating** 105:4  
111:8

**circumstance**  
65:16

**citizens** 145:14

**clarification** 51:2  
70:9 116:21 119:17

**clarifications**  
116:15

**clarified** 40:1

**clarify** 60:10 70:24  
89:5

**clarifying** 89:5

**clarity** 113:1

**class** 137:13 151:4

**classifications**  
151:11

**classified** 60:22

**clean** 79:9 81:12,  
17 129:14

**cleaner** 86:5

**cleaners** 153:22  
154:8

**clear** 56:20 73:1  
81:11 93:2 98:5  
100:25

**clearer** 34:3 37:10

**clients** 58:7,18

**close** 12:11 31:23  
154:9

**clue** 137:17

**CNN** 138:17

**cock** 117:1,3,5

**code** 9:25 71:17  
79:4 80:18 82:22  
84:15 86:15 89:20  
90:18 91:13,14,16  
92:1,3,10 95:13,18,  
20 96:8 97:22 98:1,  
9 99:8 100:3,4  
101:11 108:10  
112:14 115:20  
116:3 119:4,18  
127:12 128:1  
150:17 153:12

**codes** 53:16 56:25  
78:25

**coils** 108:19

**cold** 55:1 58:23

**Coleman** 17:10

**Colleen** 5:11

**colon** 114:8

**column** 39:16,17  
40:1 76:25 125:18  
126:9

**comb** 25:7

**combination**  
121:2 131:6

**combined** 15:15  
33:18

**combustion** 7:4  
111:9

**comfortable**  
71:19 95:22 100:9,  
14 120:2

**comma** 86:12,14,  
16,17 87:20,22  
88:14,16 89:24  
90:10,12 101:11,  
15,16,20,21 108:10  
116:6,14 117:1,2

**commas** 86:2

**comment** 53:3  
65:20 80:7,9,23  
81:19,21 82:16  
83:5 84:10 85:16  
86:9,20,22 87:14,  
17 88:10 89:12,15  
90:3,20 100:18,19  
108:15 113:8  
114:10 115:4,19  
116:15 127:7

**commented**  
146:11

**comments** 10:13  
11:19 19:9 22:15  
24:4 25:13,21  
43:22 44:22 47:7  
50:20 59:24 63:22  
65:23 67:9 69:2,21  
71:23 72:8 76:22  
77:4,16 79:11,12,  
18,23 80:1,3,4,6,21  
81:1,11 82:12 83:1,  
7 85:20 86:25  
88:22 91:3 98:1  
100:8 102:16

113:13,18 114:23  
115:2 117:6,15  
127:18 129:10,11  
133:10 155:24

**commercial**  
101:8,17

**commission**  
83:20 85:9 143:9

**Commissioner's**  
7:20

**committee**  
130:10,22 131:3,8

**communicate**  
23:22

**communication**  
30:4

**companies** 98:8  
131:17 132:8

**company** 8:5 73:9  
105:2 111:5 130:25  
143:11

**compensate**  
122:12 128:19

**complete** 80:5

**completely** 108:5  
109:5

**completing** 130:6

**completion** 17:12

**complex** 33:25

**Compliance** 81:24  
82:6

**compliments**  
25:12

**comply** 28:3 74:15

**complying** 50:11

**compression**  
120:21

**comprised** 153:15

**concept** 111:10  
145:6

**conceptual** 19:20  
28:17

**concern** 20:22  
71:24 74:17

**concise** 133:21  
**condition** 30:6,17  
57:20 58:2  
**conditioning** 30:4  
**conditions** 28:18  
56:6  
**conduct** 130:17  
**conference** 104:8  
130:1,5,7,9,10,21  
131:8,15 132:16  
133:10  
**configurations**  
111:14,16  
**confirm** 33:1  
**conflict** 11:24  
43:25 46:10 59:3  
**conflicts** 11:25  
67:24  
**confused** 72:25  
119:14,21  
**congregation**  
147:3  
**connected** 116:24  
124:19  
**connection**  
116:25  
**cons** 137:6  
**consensus** 155:7  
**considered** 89:17  
**consistency** 51:4  
76:25  
**consistent** 16:12  
24:22,25 33:20  
35:25 44:25 51:7,  
13,14  
**constitutes** 15:1  
**construction** 22:4  
85:5 116:13  
**consultant** 6:24  
56:21  
**contact** 22:18 23:2  
36:3,6 56:1  
**contacted** 134:20

**content** 76:18  
**contingency**  
59:21  
**contingent** 28:22  
45:3 54:25 55:2  
77:12,23  
**contingently**  
45:18  
**continually** 60:4  
**continue** 4:17  
143:18 155:13  
**continued** 56:5  
**continuing** 142:24  
**continuously**  
68:16  
**Contractor's** 90:1  
91:1  
**Contractors** 90:14  
**control** 7:5 12:16  
26:9 27:21 30:10,  
22 31:12 71:21  
**controller** 29:5  
54:9  
**controls** 31:16  
111:16  
**convenience** 59:7  
**conversation**  
16:18 55:19 65:1,  
11,19 79:21  
**convert** 36:21  
**Cookeville** 8:9,10  
46:4,7,16,19  
**copies** 32:18  
**copy** 49:8 63:15  
79:8,9 83:17 85:7  
**corner** 96:19  
**Corp** 8:12  
**corporate** 131:22  
**correct** 14:15  
15:19 17:20,24  
19:12 26:4,6 31:23  
33:18 34:6 62:19  
66:4,10,13 70:5,21  
72:10 74:2 82:1

86:21,22 95:16,21  
104:13 107:25  
109:22  
**corrected** 30:6  
**corrections** 8:24  
37:15 118:3  
**correctly** 25:12  
84:17  
**correlated** 123:11  
**correspondence**  
36:25  
**corrosion-**  
**resistant** 82:20  
**cosponsors**  
131:16  
**cosponsorship**  
131:18  
**cost** 140:2 141:12  
144:8 148:24 152:4  
**costs** 131:13  
**counsel** 6:9 43:12  
**country** 146:9  
**county** 10:5 32:2  
133:24 134:2,20  
143:20 150:11,15  
152:18 153:1,14  
**couple** 93:8  
**court** 5:20  
**cover** 11:10,23  
14:20 16:19 34:24  
36:1 46:2 50:16,17  
72:14,15,21 73:4  
107:6  
**covered** 65:22  
**covering** 4:20 10:4  
**critical** 43:8 64:13  
**Cromwell** 6:25  
128:13,15  
**CSD-1** 29:20,22  
51:17 110:10  
111:15,24 125:6  
**curious** 128:7  
129:4

**current** 66:17  
80:20 82:1,3,22  
83:11 84:24 86:23  
88:20 89:25 90:16,  
25 107:23 113:22  
114:3,9 124:16  
126:11  
**curve** 137:2  
**cusps** 140:10  
**custodians**  
136:19  
**cut** 94:20 134:1  
**cutoff** 39:23 40:3,  
15 49:22 104:2  
135:7,12 139:3  
151:16,18 153:25  
**cutoffs** 151:11  
**cutting** 154:9  
**cycle** 55:10  
**cycling** 54:1 55:7

---

**D**

---

**DA** 75:6,8,9,12,21,  
22  
**daily** 39:16,17  
51:18,19  
**Dallas** 6:20 137:9  
138:10 150:14  
**Dan** 6:9 110:6  
**dandy** 66:15  
**danger** 25:8  
**Danny** 7:2 109:3  
111:2 119:6 120:6,  
7,18 123:19,24  
**Danny's** 114:11  
**dash** 37:20  
**data** 83:18 85:8  
97:10  
**date** 17:12 24:8,13  
32:8,20 66:15,17  
73:15 130:13,19  
132:19,21,22  
**dated** 42:13

**dates** 19:18,20  
22:4 37:16 132:2

**Dave** 6:7 98:1  
124:14,16 150:8

**David** 7:4 49:20

**Davidson** 7:13  
63:24 65:2 140:17  
141:11,24 142:3,18

**day** 18:2 40:10  
51:3,12,14,22 58:4  
68:11 73:10 111:19  
137:10 146:24  
153:24

**days** 68:11 124:7

**deadly** 141:6

**dearator** 75:23

**deal** 104:25 136:15

**dealing** 101:24  
123:22

**death** 75:13 136:13

**debate** 123:25  
132:17

**debated** 98:2

**Deborah** 7:9 130:3  
133:14

**Decatur** 67:23  
68:7

**December** 15:6  
42:13

**decide** 23:2 131:14

**deference** 147:9

**define** 118:23,24  
119:12

**defined** 83:15 84:5

**definition** 41:17  
47:9 80:8,15,22  
81:20 82:19 93:2  
108:12 119:12  
122:3 127:24 128:4  
129:3,5

**definitions** 84:14,  
16 128:9,11

**degrees** 52:14  
101:10,19 105:7  
108:8 114:14,15,16

**Del** 7:6

**delayed** 58:4

**delete** 113:23  
122:6,8,10

**deleting** 119:22  
120:3 122:12

**delinquent** 9:22  
10:15

**demand** 68:11  
109:7

**density** 128:19

**Deonne** 7:8

**department** 70:18  
81:21,22 82:3,4  
90:9 121:18 122:1

**depending** 122:14

**depends** 36:23

**deputy** 19:1 45:4  
67:8 77:15

**description** 61:20

**descriptions** 47:1  
61:16 66:3,5,16

**design** 86:17  
110:21

**designating** 113:5

**designee** 85:3,12  
88:9,16

**desire** 79:6

**destroys** 52:23

**destruction** 75:14  
136:14

**Details** 60:19

**determinations**  
19:24

**determined** 131:4

**Development**  
81:23 82:5 90:10

**device** 51:6 122:15

**devices** 88:4

**diagram** 24:24  
41:23

**diagrams** 24:24

**dial** 115:13 117:8  
119:8 120:10,11,22

**Dickerson** 7:16

**dictated** 122:13

**dictates** 122:17

**die** 149:22

**died** 146:18

**difference** 57:13  
93:23 94:8,9 95:1  
107:10 111:12  
153:6,10

**differently** 40:2  
128:17

**difficult** 52:10

**digital** 12:18 30:24  
40:18

**diligence** 155:5

**directed** 5:2,4

**direction** 140:10  
155:18

**director** 14:3  
41:23 42:1

**disagree** 84:9

**disaster** 4:25

**disconnects**  
43:15

**discount** 151:2

**discrepancies**  
28:25

**discussed** 45:1  
74:18 131:2,10,15

**discusses** 71:1  
97:3

**discussing** 131:9

**discussion** 26:11  
33:4,20 43:25  
57:19 77:13 78:10  
80:5 113:14  
127:20,22 129:21,  
25 137:3 139:23  
150:24 152:7,13  
155:12

**display** 29:10  
40:18

**displays** 12:18

**distance** 26:8  
31:25

**distinction** 102:24

**distributed** 35:16

**district** 140:22,23  
146:8,9

**Div** 96:1

**Division** 81:23  
82:5 97:19

**divisional** 110:3

**document** 40:21  
63:14

**documented**  
32:10

**dollars** 141:12

**Domenic** 146:17

**domestic** 122:18

**Don** 155:3

**Donnelley** 7:23,24

**doubt** 28:16  
140:18

**Dower** 7:20

**draft** 79:9,24 80:15  
81:7,12,17 86:23  
87:13 88:21 90:16  
101:14 107:23  
114:4,9 116:19  
129:14,22 135:22

**drive** 64:10 95:3  
149:7

**driver's** 141:6

**drop-dead** 132:22

**dry** 64:12 94:20  
153:22 154:8

**dual** 58:8

**due** 21:8 155:5

**Dulworth** 8:10  
61:5,9

**Dunlap** 12:14

33:12,25 34:5 35:2,  
8,22,24 37:2

**duties** 47:2 66:2,4

**dynamite** 134:3

---

**E**

---

**E-stop** 29:14

**E1** 41:23 43:5

**E2** 42:13 43:6

**earlier** 150:14  
152:13

**early** 73:16

**ease** 78:14

**East** 36:14 56:3

**Eastman** 36:6,11

**edge** 39:16 54:22

**editorial** 13:9  
22:25 23:11 25:21

**educate** 127:17  
149:8

**educated** 4:13

**educating** 138:11  
149:11

**education** 12:12,  
16 138:11 142:24  
149:10

**educational** 25:24

**effect** 48:4

**effectively** 152:4

**egress** 26:18

**EHJ** 56:8

**Eight-foot-three**  
39:1

**electric** 80:9,16

**electricity** 80:17

**electronics** 52:5,  
21

**elevation** 123:23

**eliminate** 123:4

**embodied** 143:16

**embrace** 143:23

**emergency** 4:25  
26:14 29:14 55:6

**emphasis** 12:12

**employed** 83:20  
85:10

**employees** 68:8

**employing** 68:8

**end** 22:7 54:1 66:4,  
5 86:2 125:21  
131:23 141:25  
142:14 153:24

**energy** 12:15  
134:3

**Eng** 8:12

**engineer** 8:3,7  
40:17,19 69:7,12,  
13 71:10 125:7

**Engineering** 8:1  
46:16 68:3

**engineers** 6:6  
125:10

**English** 142:2,5,7

**enlarged** 73:17

**entities** 135:10  
142:1 147:5

**entity** 53:25

**environment** 52:2  
146:5

**equation** 141:10

**equipment** 20:24  
21:2,3 28:8,10 38:6  
52:24 58:25 120:4  
141:7,14 142:6

**Erection** 91:1

**Erector** 90:12

**Erectors** 90:1 91:1

**error** 151:11

**error/poor** 53:23

**essential** 139:9

**Eugene** 5:25 39:20  
79:22 80:23 85:17  
86:9 100:18 101:1,

3 110:13 113:22  
129:12 151:7  
155:10

**Eugene's** 79:12  
80:1,3,7,9 81:21  
82:16 83:5 87:17  
90:3 100:19 129:11

**evacuate** 52:19

**evacuation** 59:15

**event** 28:13 131:18

**exact** 99:18

**examples** 93:11  
96:20,21 152:12

**exceed** 101:9,10,  
18,19

**exceeded** 114:7

**exceeding** 108:7

**exceeds** 102:11

**exception** 84:25  
93:6

**exceptions** 110:4

**exchanger** 93:7  
96:2 97:23 105:18,  
24 111:3,6

**excuse** 9:19,23  
20:10 141:1

**exempt** 114:5

**exemptions**  
113:21 114:4

**exercise** 79:7  
139:10,12

**exercised** 154:20

**exist** 28:18

**existing** 17:11  
63:2

**exit** 5:4

**experience** 45:24  
137:1

**experienced**  
146:10

**explanation** 18:22

**explicitly** 50:13

**explode** 149:21

**explosion** 58:24  
146:15 154:5,6

**extent** 134:14,19  
142:25

**external** 86:11

**externally** 108:7

---

**F**

---

**F1** 39:15 49:25

**fabrication** 86:17

**facets** 135:19

**facilitate** 59:4

**facilities** 41:23  
42:1 61:2,24  
136:16,20 140:8

**facility** 12:15  
34:23,24 35:10,12  
37:13 51:8,11,20  
57:23 58:2 60:22  
63:3,11,15 69:5  
71:1,4 73:16  
138:15

**fact** 19:11 109:15  
124:21

**factory** 146:15

**faculty** 12:11

**Fahrenheit** 101:10  
105:7

**fail** 52:7

**failed** 58:24

**failure** 21:8

**fall** 23:4 104:7  
105:9 107:24  
130:1,5,9,13,16  
131:21 132:1,4,6,  
13 133:10

**falling** 113:9

**falls** 108:20 135:4

**familiar** 142:23

**fan-assisted**  
111:9

**fashion** 139:21  
151:17  
**fast** 64:11  
**fault** 56:25 71:17  
**favor** 9:4 45:12  
67:10 77:18 145:15  
148:9  
**features** 31:20  
**February** 52:14  
**federal** 150:2  
**feedwater** 75:7  
76:1,18  
**feel** 79:20 96:9  
**fees** 131:9,12,13  
**feet** 26:13,25 27:20  
28:6 68:15 135:15  
**feet altitude**  
128:18  
**fell** 112:21  
**felt** 150:20  
**fiberglass** 97:10,  
16,17  
**field** 99:3,6 135:10  
**fields** 149:9  
**figure** 68:14 106:6  
**filed** 83:21 85:11  
**filled** 24:17 62:10  
69:8 108:5 109:5  
**finagle** 102:8  
**final** 97:4 114:2  
**find** 27:2 59:13  
69:24 78:16 107:17  
154:4  
**finding** 28:25  
**fine** 31:21 66:15  
71:12 84:7 96:7  
**fine-tooth** 25:7  
**Finks** 78:6 88:23  
89:4,13 117:24  
**fire** 20:18 64:10  
137:19

**fires** 146:18  
**fixed** 28:23  
**fixing** 149:20  
**flames** 111:7  
**flex** 64:10  
**floors** 136:18  
**flow** 116:24  
**flowed** 124:20  
**Flowers** 7:4  
**focus** 13:16  
**folks** 43:13 70:20  
143:20 150:15  
**follow** 91:16  
**food** 152:5  
**foot** 135:18  
**forget** 46:10 78:23  
**Forgive** 153:16  
**form** 63:6 91:9  
134:17 139:20  
151:17 155:11  
**formed** 130:10  
**forms** 135:5,10  
**formula** 125:8  
**forthcoming**  
151:5  
**forum** 152:6  
**forward** 11:15  
109:15 135:22  
**found** 10:1 21:14  
**Fox** 138:17  
**Frazier** 8:6 149:5,  
24  
**free** 71:18 79:20  
149:10  
**frequency** 51:3  
52:23 53:1 54:1  
**frequent** 71:25  
**front** 34:24 35:3  
72:21 79:19 134:11  
138:16

**FRP** 97:11,14  
**full** 4:7 108:19  
**fullness** 126:6  
**function** 26:21  
57:5  
**functioning** 57:11  
**funny** 138:9  
**furnished** 108:6  
**furnishing** 68:12  
**future** 21:17  
133:22  
**fuzzy** 32:5

---

**G**

---

**G-101.1** 108:11  
**G-a** 117:19  
**g-a-g-e** 117:21  
**gas** 146:18  
**gauge** 64:10  
115:9,10,11,14,22  
116:3,6,24 117:3,9,  
19,25 118:8,9,10,  
13,14,17,18,21,22,  
25 119:4,5,7,9,13,  
16,23 120:10,12,19  
121:2,5,11,12  
122:23 123:5,14,20  
124:3,11,19 125:20  
127:11,13,14  
128:4,11,21  
**gauges** 111:21  
115:10 121:4  
122:11 124:17  
125:23 127:4 129:3  
**Gee** 46:1  
**general** 12:16  
25:24 43:6 84:13  
**gentleman** 67:25  
149:5  
**gentlemen** 12:3  
45:20 46:8 55:13,  
21 67:16  
**George** 24:13  
41:10 42:6,7,8

**get all** 78:19  
**girls** 142:13  
**gist** 104:16 125:3  
**give** 34:21 42:5  
45:23 56:20 127:24  
128:3 132:7 135:11  
153:17  
**giving** 9:20,24  
10:23 95:11 119:1  
121:7 124:4  
**glad** 22:10 155:15,  
21  
**Glen** 6:5  
**glowing** 149:19  
**glued** 96:3  
**golden** 133:6  
**good** 4:2,8,15  
10:25 11:5 12:3  
20:16 21:11,19  
22:12 31:7 37:1  
39:8 53:1,5,13  
56:10 60:25 61:11,  
12 63:4,12,16  
65:10,18,19,20  
76:14 78:2 81:15  
82:9 87:5,6,10  
89:11 91:6,7 92:23  
97:7 99:15,21  
102:23 103:4  
113:8,12,14 119:3  
126:13,21 127:20,  
21 128:24 129:8  
132:12,13,21 133:8  
140:11 141:4  
143:21 149:4  
**goodness** 140:8  
**gotcha** 62:3,12  
63:19 72:20 73:18  
**governed** 93:3  
**governing** 100:23  
**governor** 149:6  
**grabs** 148:18  
**gracious** 79:14  
**grads** 149:8  
**graduated** 115:14  
117:9

**grandchildren** 147:3  
**granted** 155:19  
**graphite** 96:2,4  
 97:7,13,18,21  
**gray** 112:15 113:10  
**great** 28:24 55:18  
 57:18 129:24 152:7  
**ground** 121:15  
**group's** 59:4  
**guarantee** 119:13  
 146:23  
**guaranteeing**  
 59:9  
**guard** 29:8,18  
**guess** 12:8 20:18  
 41:11 54:20 56:14  
 57:18 72:14,18  
 92:13 115:10  
 123:18  
**guy** 7:11 136:17  
**guys** 4:12 28:24  
 51:24 74:13 101:24  
 113:15 120:1,4  
 133:16 140:16  
 142:22 155:16

---

**H**

---

**H-a-r-r-i-s** 69:18  
**H1** 62:21  
**H10** 103:12  
**hair** 134:1  
**hairdresser**  
 147:21  
**hairdressers**  
 147:24 148:1  
**half** 115:15,16  
 117:10,11,12  
**Hammock** 7:24  
**hand** 74:22,23  
 117:3 139:5  
**handle** 55:13  
 109:18 113:10

117:2 131:11 139:4  
**handles** 13:11  
**hands** 106:3  
 124:24 141:22  
**hang** 102:19  
 107:11 108:21  
**hanging** 103:10  
 106:25 108:16  
**happen** 54:7,13,15  
 57:2 141:17 149:20  
 155:15  
**happened** 40:17  
**happening** 30:19  
**happy** 130:7  
**Hard** 31:10  
**harder** 131:24  
**hardware** 20:23  
 21:7 47:3  
**Harris** 69:16,17  
**Harrison** 69:6,9,15  
**Hartford** 143:14  
**Hawk** 27:6 71:21  
**head** 28:1 73:24  
**header** 33:5,10  
 36:13  
**heading** 87:16  
**health** 5:9 12:5  
**healthcare** 12:12  
 52:1  
**hear** 11:19 31:25  
 79:19  
**heard** 87:2 104:20  
**Hearing** 9:2 44:3  
 46:13 67:9,25 77:3,  
 17  
**heartbeat** 64:11  
**heat** 52:20 80:17  
 93:7 96:2 105:18,  
 24 107:11 108:18  
 111:3,6 114:12,19  
**heated** 103:19

**heater** 82:15,19,20  
 101:6,7,15,16,17  
 102:5 103:2,3,22  
 104:20 105:14  
 111:20 112:9 118:9  
**heaters** 100:21  
 101:24 104:10,15,  
 22,23 109:18  
 112:10,12,13,16,  
 21,24 113:6 114:4,  
 18,19  
**heating** 80:16  
 102:22 105:1,4  
 107:14 110:8 113:3  
 116:23 122:16,20  
 124:18  
**heels** 143:3  
**helpful** 129:25  
**helps** 43:16  
**hey** 61:6 98:19  
 130:4 149:19  
**high** 53:24 75:15  
 134:18 138:12  
 149:8  
**high-pressure**  
 12:17 68:9,12  
 153:11  
**higher** 123:15  
 140:5  
**hire** 13:22 69:4  
 152:24  
**historic** 124:8,10  
**historical** 120:3  
 122:23  
**history** 145:10  
**HLW** 82:17,22 83:9  
 101:11,21 103:8,  
 13,14,15 105:10,14  
 106:9  
**HLWS** 111:13  
**hold** 30:2,5,11,18  
 31:1 137:19 150:22  
**holder** 84:2,20  
 87:18 88:12 89:25  
 90:24  
**holding** 89:22  
 90:19

**Holt** 6:16 102:17,  
 21,24 103:10,15,  
 17,19 104:1,13,24  
 105:6,8,12,18,22  
 106:1,7,13,21  
 107:9,16 108:1,14  
 109:21,24 110:5  
 139:1 153:17  
 154:11,16,25  
**home** 4:16 5:8,10  
**homework** 135:21  
**hope** 8:16 60:7  
**horsepower**  
 135:14 151:3  
**hospital** 59:10  
**hosting** 130:24  
**hot** 82:21 100:20  
 101:6,15,24 102:4  
 103:2,3 104:10,15,  
 20,22 107:23  
 108:3,6,12 109:18  
 111:14,20 112:9  
 115:20 116:22,23  
 118:8 122:15,16,  
 18,19 124:17,18  
**hour** 26:6 52:9  
 102:7 112:10  
 114:13,20  
**hours** 18:2 26:5,7  
 68:11  
**hundred** 146:12  
**hundreds** 141:9  
**Hupf** 7:6  
**hurry** 117:23  
**HVAC** 12:4 41:14,  
 18,24  
**HWL** 122:15  
**hydronically**  
 122:20 150:1  
**hydrostatic**  
 116:14  
**hyphen** 89:25  
 90:24

<b>I</b>	<p><b>incident</b> 145:3 146:10 148:15,19 151:7</p> <p><b>incidents</b> 53:22 137:2 144:23 145:1,12</p> <p><b>include</b> 25:22 32:7,22 83:25 87:12 88:8 130:25 131:3,14</p> <p><b>included</b> 50:25 79:2 80:13 116:18 119:20</p> <p><b>including</b> 101:6, 16 103:2 113:5 114:18 127:9</p> <p><b>income</b> 148:7,8</p> <p><b>incoming</b> 70:2</p> <p><b>incorporate</b> 93:17</p> <p><b>incorporated</b> 82:7</p> <p><b>incorporation</b> 95:25</p> <p><b>incorrect</b> 37:19</p> <p><b>increase</b> 74:15</p> <p><b>independent</b> 31:4</p> <p><b>independently</b> 20:2</p> <p><b>individual</b> 16:5 51:10 62:10</p> <p><b>individually</b> 102:13</p> <p><b>individuals</b> 62:1 68:19</p> <p><b>indoctrination</b> 20:18</p> <p><b>industries</b> 8:3 67:21 68:5,6</p> <p><b>industry</b> 20:25 135:21 139:23,25 140:6 142:13</p> <p><b>influx</b> 136:20</p> <p><b>information</b> 11:14,23 19:12 21:6 24:16 25:9 46:25 54:6 78:21</p>	<p>116:19 121:6 123:13 124:1 151:5</p> <p><b>initial</b> 64:17</p> <p><b>initially</b> 112:8</p> <p><b>injury</b> 75:14 136:14</p> <p><b>input</b> 101:2 114:12,19 118:7 135:9,20 137:5 139:25 152:7</p> <p><b>insert</b> 87:8</p> <p><b>inside</b> 30:10,20 32:9 124:22 153:12</p> <p><b>inspect</b> 112:16,20</p> <p><b>inspected</b> 112:25</p> <p><b>inspecting</b> 112:18 120:4</p> <p><b>inspection</b> 19:2 44:8 45:2,19 56:14, 23 57:17,25 58:1,4 65:6 66:25 67:7 75:15 77:15 78:25 83:21 85:10 98:23 100:24 114:21 122:4 128:1 138:19 139:24</p> <p><b>inspections</b> 9:18 153:21 154:4</p> <p><b>inspector</b> 4:10 6:12,17,19,20,22, 23 7:1,3,12,14,15, 17,19 9:19 10:4 19:1 45:4 53:7 63:25 67:8 83:20, 22 85:2,10,11 87:22 88:8,15 92:22,25 98:16 123:13 124:2 128:16 143:9 147:16</p> <p><b>inspector's</b> 85:3, 12 88:9,15 130:7</p> <p><b>inspector-in- training</b> 7:7</p> <p><b>inspectors</b> 4:9 9:23,24 10:8,18 119:20 124:5 127:9 131:1 143:14,15</p>	<p><b>inspectors'</b> 118:7</p> <p><b>install</b> 22:1</p> <p><b>installation</b> 83:23 85:14 86:17</p> <p><b>installed</b> 16:20,22 17:1 49:16</p> <p><b>installers</b> 112:23</p> <p><b>instance</b> 143:15 144:7</p> <p><b>instantaneous</b> 100:20 101:6,16 102:4,18 103:3 104:10,20 108:4 109:4,18 110:20 112:9,11,13,16,20 113:6 114:19 129:17</p> <p><b>instantaneous- type</b> 107:6</p> <p><b>instructions</b> 100:23</p> <p><b>insurance</b> 9:20,23 10:16,20 130:25</p> <p><b>intended</b> 107:16 118:18</p> <p><b>intends</b> 77:5</p> <p><b>intent</b> 112:7</p> <p><b>interest</b> 11:24,25 44:1 46:11 67:24 131:6</p> <p><b>interested</b> 22:7 74:24</p> <p><b>interesting</b> 142:11</p> <p><b>Interestingly</b> 150:14</p> <p><b>interface</b> 30:5</p> <p><b>interject</b> 51:24 112:4 148:12</p> <p><b>Internet</b> 153:13</p> <p><b>interpret</b> 98:19</p> <p><b>interpretation</b> 34:11 93:1 95:15 96:12 128:11 153:12,15</p>
----------	--	--	---

**interpretations**

153:13 155:25

**interpreted** 40:2

123:9

**introduce** 11:22

46:8 68:1

**introduction**14:20 15:15,24  
16:11 17:10 18:21  
33:11,17 34:22  
37:22 101:12,22**introductions**

4:21 5:17

**investigation**

112:2

**invited** 150:24**involved** 91:20

139:24

**iphones** 120:25**iron** 120:9 123:6**issue** 28:14 34:3

81:12 96:12 129:14

**issued** 24:8,12

109:16

**issues** 5:9 19:11

56:4 129:22

**item** 4:22 8:15 9:1311:7,9,10,11,23  
12:1 27:4,17 46:4  
66:23 67:20,25  
71:25 78:10,11  
81:9,13 82:3 122:7  
129:19,21 130:1**items** 11:16 12:713:17 18:12 31:19  
44:11,15 78:10  
79:14,16 97:22**IV** 80:10,18 82:17,22 83:9 84:11,14,  
17 101:11,20,21  
108:10,12 120:8,16  
123:6**Iwanszyn** 8:8**Iwanyszyn** 8:846:18 47:14,18  
49:17 51:23 52:1  
53:5,12 54:4,8,14,20 55:2,5,17,21  
56:7 57:4,8,18  
59:11,20,23 60:24  
61:3,5,7 67:19

---

**J**

---

**Jack** 6:18**Jackson** 6:24 19:1  
22:16,18 23:18,20  
56:11,13,21 57:12  
58:13 63:13 64:20  
67:8 71:17 77:15  
91:4,9,15,18,21,23  
92:4,7,11,17,21  
93:20,23,25 94:5,9,  
14,21 95:1,3,7,10,  
21 103:12 127:16**Jackson's** 45:4**James** 7:25 8:10  
46:15 50:21 61:5,6  
63:12 68:2 69:19**janitor** 149:18**Jann** 7:20**January** 52:14**Jefferson** 78:6  
132:12**jeopardy** 146:12**Jerry** 6:25 128:15**Jesse** 7:15 112:6  
114:22 118:13**Jesse's** 114:10**JIT** 52:8**job** 11:20 13:9  
24:23 28:24 43:6  
46:25 55:14,15  
60:16 61:16,20  
62:16 66:3,5,15  
138:1,7**jobs** 140:3**Joe** 8:8 46:18  
136:8**Joey** 53:18 64:17**Johnson** 6:5 28:2,  
9,13,15 33:23 34:2,  
8,21 35:4,11,15,18,21 36:2,5,10,15,18  
37:9 38:21,25 39:5,  
8,11 58:20 59:14  
60:16,19 67:3  
125:10,24 126:1,6  
144:12,16,21  
145:24 146:11,21,  
25 147:6,14,17,20,  
23 148:1,5,17  
152:9,11,18 153:1,  
4,5 154:8,15,23  
155:2**Johnson's** 71:24**joined** 78:7**joining** 96:4**joint** 131:3**judge** 120:19,20**jurisdiction** 55:25  
96:23,25 97:2,4  
98:4,15**jurisdictional**

98:16 109:16

**Just-in-time** 52:8

---

**K**

---

**keeping** 14:13**Kelley** 7:18**Ken** 23:1,5,7,15**Kenneth** 14:8,9,10  
22:22,24**Kenny** 24:12 42:1,  
14**Kerry** 8:6**killed** 146:17**kind** 18:10 20:17  
25:6 81:8 85:21  
106:19 136:5 145:7  
150:5**knew** 18:17 26:3  
61:7 74:13 123:13  
140:6**knowing** 155:20**knowledge** 118:24  
143:17,24**Knoxville** 52:10**Korea** 136:22**Kostadine** 7:22

---

**L**

---

**Labor** 81:23 82:4  
90:9**ladies** 12:4**language** 142:9**law** 28:3 36:19  
53:16 55:24 56:1  
92:3 135:15**laws** 140:14**lay** 152:5**leader** 32:23**leaders** 145:9**leading** 53:21**learn** 145:12**leave** 36:2,5 47:21  
48:5,9,10,22 92:10  
95:13 100:2 106:24  
129:20**leaves** 93:1**leaving** 96:8**left** 92:21**legal** 6:9**legislation** 143:1,  
6,24**legislature** 135:23  
144:24 148:21  
149:1 153:20**letter** 72:15,19  
73:4 116:3**letters** 14:21**level** 50:5 53:24  
75:15 121:15  
123:10,17 126:3  
128:17 140:5**levels** 151:3**lever** 117:2**liability** 139:16,19

**license** 90:2,8 91:2  
134:1 141:6,7

**licensed** 32:2

**licensing** 90:11  
144:14

**licensings** 134:21

**licensure** 147:12,  
25

**light** 27:22 75:12

**limit** 28:7,9 76:8  
102:10,11

**limitation** 106:4

**limitations** 114:7

**limited** 87:24  
88:18

**lined** 82:15,19

**lines** 32:22,23

**lining** 82:21

**liquid** 126:5,9

**list** 10:15 62:14  
63:10 68:20 71:19

**listed** 21:22 25:25  
46:23 60:16 84:16  
117:6

**listen** 155:17

**listing** 60:9 61:12,  
13,19

**lists** 61:16 71:17

**live** 144:10

**lives** 146:12

**living** 78:23

**loaded** 74:11

**locate** 29:12

**located** 12:9,15  
29:4 33:7,21 34:17,  
23,25 35:8,10,12  
46:6 67:22 68:7  
117:4

**location** 5:3 19:18  
33:2,6 34:5 35:2,5,  
22 68:13,14,18  
73:17

**locations** 15:20  
19:13 22:19 25:9  
78:17

**Lochinvar** 115:21

**lockers** 136:19

**lockout** 27:19  
31:10

**lockup** 29:2

**locomotive** 124:7

**log** 24:12 26:4  
32:1,8,11 38:6  
39:15 49:18 50:1,2  
62:9,11,21,22  
63:18 136:2

**logbook** 77:1

**logging** 144:2

**logs** 24:7,15

**long** 8:4 17:13 73:7  
98:7 112:14 143:22  
155:21

**longer** 113:9

**look-** 10:7

**looked** 18:16 22:8  
54:2 118:20 134:23  
139:5

**lot** 18:25 39:10  
50:22 52:4 73:17  
86:5 94:9 97:24  
134:6 136:22  
137:15 145:11  
154:3

**lots** 125:10

**louder** 74:9

**love** 54:16 123:24

**low** 39:23 40:3,8,14  
49:21 50:7 53:22,  
24 56:15 59:17  
64:21 135:7 139:3  
151:11,16,18,21  
153:24

**low-pressure**  
111:3,24 134:19  
139:2 153:7,8

**lower** 128:19

**lowercase** 101:5

**lucky** 148:6

---

## M

---

**made** 8:18 15:10  
33:18 77:7 113:24  
118:3 143:16

**mail** 33:7

**main** 23:2 47:15

**maintain** 76:24  
143:8

**maintained** 30:10

**maintenance** 51:6  
53:23 61:25 62:2  
65:10 87:21,23  
88:14,17 149:13  
151:12

**majority** 112:11  
134:16,25

**make** 4:16,19 5:14  
17:7,15 19:23 20:8  
21:12 23:10 25:7,  
19 32:10 33:20  
35:25 37:15 40:2  
44:25 49:3,9 56:7  
57:16 58:16,25  
59:2 70:8 71:18  
73:1 81:17 89:10  
91:14 93:23 95:1  
97:4,23 98:18,20  
99:17 109:21  
111:24 116:21  
121:21 125:2  
126:24 129:21  
131:13 133:16,21  
134:6 135:13,22  
138:23 140:16  
141:15,16,17 143:1  
144:4 145:3 147:9  
148:6 151:24

**makes** 57:12 86:5  
107:9

**making** 11:18  
25:11 40:13 59:7  
90:5 98:12 104:17,  
22 106:2 108:15

**malfunction** 52:16

**man** 36:23 45:22  
149:19

**Manassas** 33:10,  
24 34:12 37:3

**mandate** 111:16

**mandated** 51:5  
111:22

**manned** 18:1

**manner** 57:5  
116:25 124:20

**manual** 14:13,19  
16:3,25 19:14,22  
22:20,21,25 24:7,  
12,15 25:23 26:9  
27:3 31:16 32:9  
33:2,5 34:11,12  
35:6 40:8 43:8 45:6  
49:5 57:1,3 61:12,  
13 62:4,8,17,20  
63:1,2,10 67:1  
74:20,23 75:2,11  
77:13 134:12

**manuals** 13:1  
14:18,22 15:23  
16:8,9,23 17:15  
18:6 19:12,19 20:2,  
21 21:4,25 24:7,12,  
21 25:1,5 26:5  
28:16 43:13 44:24  
45:18 145:25

**Manufactured**  
85:8

**manufacturer**  
38:14,19 39:10

**manufacturer's**  
83:16,18,19 85:7,9

**manufacturers**  
115:21 116:2

**manufactures**  
104:17

**manufacturing**  
52:3

**March** 17:12

**Marcus** 8:4

**Mark** 89:11

**marked** 13:4  
113:23

**Martin** 104:8 112:8

**match** 19:4,6,14  
139:17  
**matches** 45:5  
**material** 95:6,7  
**matter** 11:14  
136:25 137:1  
**MAWP** 115:24  
**max** 103:18  
**maximum** 26:24,  
25 115:18,25  
117:14  
**meals** 131:15  
**means** 54:1 60:8  
80:16 82:3,20  
101:7,17 108:3  
**measured** 119:11  
**mechanic** 68:21  
**mechanical** 6:6  
42:13 52:21 53:25  
142:5  
**mechanicals** 52:5  
**Medical** 8:9 46:5,6,  
17,19  
**meet** 116:3  
**meeting** 4:4 77:14  
78:7 130:15,18  
134:8 150:24  
155:12 156:1  
**meetings** 81:14  
132:24 133:22  
155:14  
**member** 6:1,3,8  
**members** 15:10  
**members'** 79:10  
**memo** 100:20  
104:8,10 124:22  
**Memphis** 12:6,9,  
14 22:1 23:13  
35:10 137:9,17  
152:14,19,21,23  
**men** 56:3 155:16  
**mentioned** 32:1  
124:9 145:21 146:6

**messages** 56:15  
**Michigan** 134:22  
150:11,25  
**microprocessor**  
31:20  
**mill** 68:7 73:14  
**million** 108:17  
**millions** 141:12  
**mind** 11:21 51:24  
71:17 106:20  
**minimized** 53:2  
**minimum** 26:12,  
23 116:4  
**minority** 134:24  
**minute** 4:11  
**minutes** 30:3,6  
48:6 67:7 74:5  
79:13 133:19 137:5  
152:6  
**mirror** 135:3  
142:24  
**misinterpretation**  
37:11  
**misinterpreted**  
39:1  
**mode** 30:2 72:2  
**model** 142:23  
143:8  
**models** 21:21  
**modifications**  
128:18  
**modular** 102:9  
**module** 29:10  
**modules** 102:9  
**moment** 10:2,7,9  
16:18 58:2  
**momentary** 27:19  
29:3  
**monetary** 141:15,  
23  
**money** 132:9,25  
140:3,19,24,25  
141:18,20 148:24

**monitor** 29:11  
50:2 60:5  
**monitoring** 30:11,  
20,24 31:4 42:20  
47:19 60:2 68:20  
74:4  
**monitors** 118:14  
**Monroe** 34:13  
**Montgomery** 10:5  
**months** 20:14,15  
21:5 45:22 154:19  
**months'** 45:24  
**Morelock** 4:2 5:16  
6:2,15 8:13,20,23  
9:2,6,8,11 10:10,12  
11:2,5 12:22,25  
13:23 14:7,10,13,  
17,25 15:8,12,17,  
21 16:1,7,10,14  
17:4,6,9,17,23  
18:3,6,9,15,19,24  
20:4 21:18 22:3,15,  
17,20,23 23:6,9,12,  
17,21 24:3,20 25:5,  
15,18 27:3,7,10,13,  
17 28:7 31:19,22  
32:16 34:16 35:9,  
13,17 36:1,8,22  
37:6,12,24 38:1,13,  
16,20,22 39:4,7,9,  
13 40:20 42:24  
43:3,12,22,24 44:3,  
10,16,19 45:8,11,  
14,17,21,25 46:2,  
13 47:6,8,12 48:24  
49:2,4,8 50:9,15,20  
51:21,25 53:9,14  
54:5,10,19,24 55:4,  
12,23 56:10,12,22  
57:6 58:6 59:18,21,  
24 61:4,6 62:6,13,  
16,23 63:5,13,17,  
21 64:16 65:4,14,  
18,21 66:8,11,14,  
20 67:2,4,13,16,20  
69:1,13,20,24  
70:10,17,23 71:8,  
11,16,22 72:5,8,11  
73:3 75:18 76:5,8,  
13,16,21 77:3,8,10,  
20,23 78:1,9 80:25  
81:3,5,10,16 82:11,

14 83:1,4 85:19  
86:4,7 87:3,6,12  
88:25 89:6,9,14  
91:7,12,19,22 92:1,  
6,9 93:4,14,19  
94:2,11 95:12,22  
96:17 97:1,11,13,  
16,21 98:21 99:1,  
12,19,22 100:1,3,6,  
8,16 102:2,6,20  
103:1,6,23,25  
104:4 106:16,22,24  
107:4,15,19 108:2,  
23 109:1,11,14  
110:6,13 112:3,5  
113:8,12,15 114:16  
115:1,7 117:17,20  
118:2 119:24  
121:23 125:12,16  
126:5,8,14,17,22,  
24 127:2,15,18,21  
128:2,5,8,14,23,25  
129:9,13,18 130:20  
131:20 132:7  
133:9,13,19 137:8  
142:17,22 144:15,  
18 146:20 147:10,  
15,18,22,25 148:4,  
10,16,23 149:3,23  
152:8,10 155:23  
**morning** 4:2 11:11  
12:3  
**motion** 8:18,21  
25:19 44:5,7,8  
66:22 77:4,7,11  
**motivation** 144:22  
**mounted** 29:6  
31:22  
**mouth** 125:17  
**move** 5:17 38:5  
66:24 113:17  
**movement** 140:9  
**moving** 11:9  
**mud** 73:1  
**multiple** 25:9  

---

**N**

---

**names** 62:10,17  
111:5

**Nashville** 52:10  
130:24

**national** 38:6,23  
53:15,20 63:6  
76:16 78:25 83:6,  
13,14,17,19 84:2,5,  
6,20 85:1 88:2,13,  
24 89:7 90:4,6,21  
96:18 100:12  
115:19 116:8,11  
127:25 142:23  
143:7,12,17,18

**natural** 4:25

**naturally** 111:11  
112:20

**NB** 38:21 83:14,16,  
17 84:7,23 85:1,6,  
7,9 88:24 89:7,8,9  
90:21 100:12 151:8

**NBIC** 55:25 76:17  
84:23 93:3,11,13  
94:16,17,18 96:11  
124:16,23 125:22  
126:11 127:5,24  
129:3

**NDTS** 75:16

**necessarily** 40:24

**needed** 18:17  
43:11 79:16

**needing** 21:8

**negate** 99:20

**neglected** 139:14

**negligence** 51:5  
136:4

**Neil** 6:24 37:1 45:3  
56:21,22 67:8  
77:15 92:24 127:16

**Neville** 7:25 46:15,  
20 47:11,13,23  
48:1 49:3,7,14,24  
50:2,4,11,18,19  
51:1,19 57:25  
60:14 61:15,22  
62:8,15,19,25 63:7,  
9,15 65:12 66:6,10,  
13,19 67:18 68:2,3,  
6 69:3,12,16,18,23  
70:7,12,14 71:9,15,  
20 72:4,7,12,18,23

73:24 74:3,13  
77:25 134:10

**news** 104:19  
138:17

**nice** 4:7 102:14

**night** 54:25

**nitpicky** 65:23  
85:25

**nodding** 73:24

**nomenclature**  
122:21

**noncode** 91:20,24  
112:12,19

**noncoded** 109:22

**noncodes** 112:21

**Nondestructive**  
76:4

**nonlined** 111:15

**nonproactive**  
147:8

**nonstandard**  
124:12

**northeast** 146:15

**note** 24:19 26:10  
29:23 50:5,6,12,15

**noted** 12:1 67:6

**notice** 153:21

**noticed** 25:21,24

**notified** 98:5

**notorious** 154:9

**November** 79:23  
80:19

**now's** 122:6

**number** 9:18,25  
13:10 15:19 38:17  
48:14 49:15 60:3  
61:23 69:9 83:16  
108:10 127:8  
146:14 152:1,2

**numbers** 26:10  
38:6,23 39:12  
61:14,20

**Numeral** 101:21

**numerical** 86:14  
115:16

---

**O**

---

**oath** 74:6,10

**objects** 100:24

**observation** 95:11

**obsolescence**  
21:2

**occurring** 5:1

**October** 100:18  
130:18 132:15,23  
133:3,4

**oddball** 38:10

**office** 7:9,21 37:3

**Ohio** 135:14

**one-half** 117:11

**online** 58:10 143:8

**open** 57:16 80:4  
117:5 137:4,7  
139:6

**open-ended** 98:18

**operable** 57:14

**operate** 28:5 65:13  
68:9,11 128:16  
134:2,5 152:15

**operated** 74:14

**operates** 12:17  
28:10

**operating** 24:7,11,  
15 41:4 47:14,15  
58:14 64:18 65:9  
73:22 74:4 75:6  
116:5,14 136:2,24  
139:7,16 141:6,9,  
14 153:3

**operation** 56:5  
73:7

**operational** 24:23

**operations** 41:6,  
19,24 74:21

**operator** 41:14  
42:14,19,20,21  
48:6,11,23 53:23  
62:7 133:14 135:17  
144:17 151:11

**operators** 32:3  
42:9 60:5,7 134:18  
135:12 136:6 151:4  
152:23

**opinion** 91:15

**opposed** 9:6 19:13  
45:14 67:13 77:20  
92:15 108:25  
111:23 118:14  
153:11

**opposite** 140:4

**optimistic** 145:17

**option** 57:21 65:13

**order** 15:11 16:17  
144:21

**org** 32:23 70:3  
71:14

**organization**  
43:17 87:21,24  
88:14,18

**organizational**  
24:22 41:22 43:5  
71:4,12

**organizations**  
89:21 90:19

**originally** 130:15  
154:2

**Oswald** 6:18  
137:25

**outlet** 108:9

**output** 102:7

**overlooked** 75:13

**overnight** 155:15

**overseeing** 14:5

**oversight** 75:15

**overwhelmed**  
32:7

**owner** 6:3

**owner-user** 87:23  
88:17

**owner-user's**  
87:20 88:14

**owner-users** 79:1

**owner/users** 6:8

**oxygen** 75:25  
76:9,17

---

**P**

---

**P.E.** 147:19,20

**P.M.** 156:6

**pack** 102:10

**pages** 13:14 16:11

**paid** 140:21

**paint** 96:19

**panel** 30:22 109:8

**paperwork** 21:13  
99:8

**paragraph** 29:23  
41:5 47:20 48:2  
49:1 66:3 80:8  
81:20 83:5,12 84:5,  
11,12,24 86:10  
87:14,16,18 88:11,  
24 89:15,16,19,20  
90:17 100:13  
101:13 107:21  
113:23 114:11  
115:7,8,13 116:21  
126:13 127:3

**paragraphs** 114:5

**parallel** 117:4

**parenthetical**  
86:10,14 87:15,20  
88:2,7,9,11,13  
89:22,24 90:22,24  
101:5,15 108:11  
113:21 114:6  
115:16,17 117:10,  
12

**parents** 140:6

**Parks** 5:5

**part** 22:11 23:23  
24:18 29:15 30:12  
31:12 43:8 65:3  
66:11 75:10,11

82:17,22 83:9  
95:25 97:18 99:13  
101:11,21 110:1  
119:18 125:22  
127:12 139:22  
142:8 151:23

**partially** 93:4

**participate** 79:21  
131:25

**parts** 52:8,11 58:5  
96:4

**party** 144:6

**passed** 17:13  
43:11 79:16 93:9

**passes** 146:4

**passionate** 54:16

**past** 37:16 93:8  
121:19

**path** 109:15

**patience** 79:11

**patients** 52:15  
54:17

**pay** 131:17

**PEB-2** 80:18

**people** 54:16  
58:23 60:7 61:19  
70:19 79:3 102:8  
105:16 106:18  
112:23 113:10  
127:9 131:22  
137:12,23 139:11  
140:5,19 141:10  
142:2,9 143:13  
144:4,24 145:11,25  
146:16,18 148:5  
150:4 151:17  
152:14,16 153:3,23  
154:13

**Perfect** 50:8

**perform** 58:11,19  
76:3 94:19

**performed** 19:17  
89:21,23 90:19,23

**performing** 40:19

**period** 30:4 56:9  
86:3,16,19 87:8,9,

23,25 88:5,17,19  
89:23 90:2,22 91:2  
101:10,12,20 114:4  
115:23 116:1,2,5,7,  
10 117:3,5 154:19

**permissible** 53:6

**Perry** 6:11

**person** 14:5 32:20  
34:4 41:8 61:1  
136:16 137:25

**personal** 91:15

**personally** 122:5

**personnel** 5:3  
13:21 41:4,8 47:21  
48:5,9,21 60:1,3,5,  
9,12,21 61:2,14  
62:3 70:2 136:3,10,  
25 138:12

**pertain** 113:20

**pertaining** 87:15

**pertains** 115:4,8

**pet** 56:13

**Peters** 7:2 109:3,  
12 110:7,11,17  
114:15 119:6  
120:7,21 121:9,13,  
17,25 122:9,22  
123:1,14,20 124:12  
125:4,7,14

**phone** 13:10 47:13  
69:9

**phrase** 88:7

**physical** 12:13  
15:20

**physically** 61:19  
64:9

**pick** 56:15 57:1  
71:18

**piece** 120:4 141:6,  
9,14 142:6

**pilot** 120:14

**pipe** 117:2,4

**pipng** 24:24 86:18  
109:6,7,8

**place** 19:19 35:14

60:8 134:18 135:1  
136:9 140:15  
150:25 151:25

**Placing** 93:20

**plan** 26:8 54:21,25  
59:21 68:13 143:3  
149:12

**planning** 59:19  
65:5 130:8 133:11

**plans** 21:12,16  
24:23

**plant** 24:23 42:20  
61:2,24 64:11  
67:22 68:6 69:7,12,  
13 71:1,4,10 73:7,  
8,14

**plastic** 97:17,24

**play** 147:13

**plenty** 146:7

**plug** 94:23 95:8

**plug-in** 95:3

**plugging** 94:21

**podium** 11:16

**point** 11:23 26:17  
28:21 42:25 43:3  
53:13 54:5 56:8  
58:21 65:8 92:24  
95:9,16 96:14 97:7  
103:4 123:2,16  
129:8 131:2 140:11  
146:2,8 148:13  
149:4 151:13,14  
152:11

**political** 145:18

**politically** 153:18

**Polysilicon** 8:12

**poor** 151:12

**popping** 86:10

**position** 29:12  
69:8 70:8,15

**positions** 68:21,  
23

**positive** 39:23  
40:2,5,13,14 49:19,  
21 50:6 76:25

135:7 151:18  
**possibility** 52:22  
130:14 131:16  
**possibly** 73:15  
**post** 48:6,10,22  
**posted** 61:25  
**posting** 62:1  
**potable** 82:15,19,  
21 101:6,7,15,17,  
24 102:21,25  
103:2,22 104:3,15  
105:14,19,23 106:7  
107:10,12 111:14  
113:5 114:4,17  
122:18  
**potential** 55:9  
75:13 134:3 139:14  
154:5  
**power** 80:16  
86:10,11,16  
**practical** 51:21  
154:22  
**preamble** 80:10,  
18  
**predominantly**  
124:9  
**preference** 89:3  
**preheat** 75:25  
**prepared** 25:16  
**present** 11:15  
135:23  
**presentation** 12:1  
135:22  
**presented** 104:7,8  
155:11  
**presenting** 11:18  
**pressing** 79:16  
**pressure** 75:23  
78:19,20,24 83:13,  
22,25 84:13,15  
85:6,13 88:3,4  
90:11,12,13 94:20  
101:8,18 111:21  
115:9,14,18,22,25  
116:14,24 117:8,  
12,14 118:7,11,14,

15,17,21,24 119:4,  
5,8,10,11,13,15  
120:2,10,13,19,22  
121:1,4,7 122:11,  
14,17,19 123:11,22  
124:11,19 125:19,  
23 127:4,13 128:4,  
11,12 129:3 149:25  
**pressures** 108:7  
**presumption**  
92:13  
**pretty** 79:7 133:21  
**prevent** 138:20  
148:20  
**prevented** 154:5  
**previous** 83:7  
**previously** 46:22  
131:10  
**primary** 22:18  
**principals** 149:17  
**priority** 138:12  
**privilege** 144:13  
147:13 148:2,6  
**privy** 21:6  
**proactive** 138:17  
**probability** 52:25  
59:17  
**problem** 23:1  
37:13 40:4 56:18,  
24 57:7 64:23 99:6  
139:14  
**procedure** 95:5  
**proceed** 18:12  
46:14 68:1  
**proceedings**  
156:5  
**process** 43:14  
57:4 58:8 68:13  
112:17 131:11  
134:15 151:23  
**produces** 151:8  
**professional**  
124:2 144:13  
147:13 148:2,6

**program** 31:12,16  
57:17 143:5,23  
150:12 153:2  
**programmer**  
27:21 29:4,10,15  
**programs** 143:21  
**progression**  
73:19  
**progressive** 148:8  
**prohibited** 93:6  
**project** 132:6  
**projected** 17:12  
**promoted** 14:2  
**proper** 59:19  
**properly** 26:21  
57:11 64:18  
**proposal** 107:21  
115:12 132:22  
133:2  
**propose** 140:1  
**proposed** 80:20  
81:22 90:16 101:1,  
4 112:8  
**proposition**  
138:10 142:8,12  
**pros** 137:6  
**protect** 76:19  
**protects** 76:9  
**prove** 51:5 59:8  
136:3  
**provide** 32:11  
89:16 97:9 132:10  
140:20,21 142:19  
**provided** 79:22  
**prudent** 125:1  
**PSI** 115:23,25  
116:2,4,6 121:9,10  
**PSIG** 101:9,18  
108:8  
**public** 11:16 58:22  
59:9 136:12 139:19  
141:13 145:4  
148:19 155:5

**pull** 93:14  
**purchase** 78:16  
**purpose** 58:21  
59:4 78:12  
**purposes** 101:8,  
17  
**pursue** 131:12  
**Puryear** 8:2 68:4  
70:11,13,22 71:6  
73:8,13,21 74:6  
75:8,16 76:4 77:2  
**push** 27:19 29:3  
143:6 149:6,16  
**pushing** 39:15  
145:17  
**put** 16:6 26:3,8  
65:7 74:10 94:3  
96:12 97:18 122:22  
123:3 142:25 154:3  
155:11  
**putting** 15:4 25:8  
112:23 129:7  
135:18 137:23  
155:9

**PVX** 47:9

---

**Q**

---

**QC** 10:2  
**qualifies** 92:24  
**quarterly** 81:14  
**question** 12:23  
21:7 27:23 34:7  
45:12 57:9 63:25  
65:18 68:24 72:6  
73:5 74:11 79:20  
91:6,8 97:6 116:12  
119:3 128:10 129:2  
141:4 147:11 150:8  
152:9  
**questioning** 28:13  
**questions** 10:13  
11:3,18 24:4 25:13  
47:6 63:21 69:1  
76:14,21 77:16  
80:21 82:11 83:2  
85:19 86:25 88:22

100:9 114:24  
133:10 136:1

**quick** 137:7

**quickly** 137:4

**quiet** 125:15

**Quixote** 155:3

**quotations** 86:2

---

**R**

---

**R1** 99:8

**Randall** 7:18

**range** 112:21  
115:22 116:6,7

**rated** 115:24

**rating** 116:4

**Raypak** 115:21

**RBI** 115:21

**re-add** 83:5

**read** 14:22 15:15  
17:15 30:9 35:23  
43:15 79:3 80:1  
81:18 82:2 83:12  
85:4 86:1 87:8  
88:11 89:18 99:24  
101:5 107:22 114:2  
117:6 121:12  
127:10,13

**reader** 92:2

**reading** 28:2 85:21  
89:19 115:10  
125:19

**reads** 19:4 25:11  
80:15 82:19 90:8  
100:10 101:14  
108:2 116:22  
124:17

**ready** 49:13 81:12  
129:20,22 143:5

**real** 93:2

**reality** 111:4  
154:21

**realize** 143:13

**reapproved** 66:17

**reason** 18:25 33:3  
47:22 48:5,9,10,22  
51:23 59:6 91:4  
104:6

**reasons** 19:1

**receive** 36:24

**recent** 75:12

**recognize** 4:12

**recognized**  
152:22,23

**recommend** 127:4

**recommendation**  
**s** 76:17

**recommended**  
51:17 53:3 88:6  
130:23

**recommends**  
53:8

**record** 73:3 75:20  
86:1,6 106:11,19  
155:5

**recording** 53:21

**rectangle** 120:9

**recycle** 51:9

**red** 149:19

**reduces** 98:23

**redundancy** 58:12

**reference** 49:10  
51:17 84:14 93:12  
96:11 116:8 125:22  
126:2,25 127:5

**referenced** 49:4

**references** 22:21  
37:19 50:7 79:2  
84:15,17 124:7,17

**referring** 39:22  
47:23 49:24

**refers** 116:13

**reflect** 16:23 18:7

**reflected** 21:3

**reflective** 110:2

**refrigeration** 41:5

**refuse** 58:19

**Regional** 8:9,11  
46:5,16,19

**register** 102:4  
116:7 118:17

**registered** 83:16  
85:7 102:13 104:11

**registration** 106:4  
114:20 131:12

**regulation** 145:5

**Regulations**  
81:24 82:5 83:10

**rein** 71:18

**reinforce** 92:2

**reinforced** 97:17

**reinspection**  
21:21

**reinstate** 88:2 89:1  
90:4

**reinstated** 90:7

**related** 126:6

**relates** 36:19  
120:15

**relationship** 121:7

**relatives** 147:4

**relief** 87:22 88:4,16  
116:1 117:13  
139:4,11 154:1,17

**remember** 5:11  
93:7 144:23

**remind** 106:14

**reminded** 100:22

**remote** 27:18,19  
29:2 30:11 42:20  
47:21 48:4,8,21  
60:2,3,4 68:14,16,  
17

**remotely** 29:6,11

**removal** 11:13

**remove** 35:24  
91:13 99:25

**renewal** 12:21  
13:2,5 14:1 15:3

19:2 46:5,21 47:4  
67:6,17 72:9,16

**renewals** 21:22

**reorganization**  
78:11

**reorganize** 78:18

**reorganized** 43:11

**reorganizing**  
78:12

**repair** 58:5 87:22  
88:3,16 89:20,23  
90:13,18,23 91:1,  
14,16,17 92:25  
93:21 94:17 95:14,  
18,20 96:8 98:12,  
22 99:9,11,14,19  
100:4

**repaired** 55:8 84:1

**Repairers** 90:1  
91:1

**repairing** 87:24  
88:18

**repairs** 84:19,21,  
22 89:15,17,19  
90:5,16 91:5,20  
92:5,7,15,18 93:6,9  
94:12,13,19 95:17  
96:13,20,21 97:3,  
10 98:8,14 99:7

**repeat** 48:14,17

**rephrase** 133:24

**replace** 17:11  
139:9

**replaced** 21:8

**reply** 82:2

**report** 9:14 83:18  
85:8 91:10 97:10  
151:8

**reporter** 5:19,20  
48:14,19 56:20

**reporting** 32:23

**reports** 146:7

**represent** 28:18

**representative**  
83:19 85:9

**represented** 143:24  
**representing** 6:3, 5,8 46:16  
**request** 55:3 57:13 58:3 72:15,17,19 77:5 82:16  
**requesting** 11:12 46:20 67:21  
**requests** 46:5  
**require** 112:2  
**required** 55:25 97:9 111:17,23 112:25  
**requirement** 56:9 75:11 98:12 109:16 134:6  
**requirements** 68:10 72:6 78:16, 17 79:3 84:12 86:15 111:15 114:5,21 125:5 143:23  
**requires** 92:16 104:21 143:17  
**requiring** 92:15  
**rescind** 150:16  
**research** 12:13 17:2 33:23 34:23, 24  
**reset** 26:12,21 27:20 29:2,17,18 30:15 31:4  
**resetting** 27:18  
**resin** 96:5  
**resistance** 26:20  
**resolved** 129:19  
**respect** 127:12  
**responded** 80:2  
**response** 5:15 9:1,5,7,10 11:4 25:14 43:23 44:2 45:10,13,16 46:12 67:12,15 77:19,22 80:2,14 81:2,25 82:13 83:3,8,24

84:9,19 86:20 88:1 90:6,15 114:25 116:11 133:12  
**responsibilities** 60:20 61:17  
**responsibility** 34:4  
**responsible** 14:5, 11,12 41:6,16 60:2 61:1 69:5 70:2 71:2 148:2  
**rest** 18:11 26:7 84:3 96:9 132:23 150:18  
**restart** 30:7  
**restate** 34:7  
**resume** 78:5  
**retired** 14:1  
**review** 10:2 25:21 43:17 45:4 63:14 80:5 116:17  
**reviewed** 12:25  
**revise** 16:2 43:1 44:22 106:5 116:9  
**revised** 16:11,21, 23 66:18 79:25 117:7  
**revising** 62:17 107:22  
**revision** 13:6,14 17:8 25:23 41:13 46:22,24 65:25 66:12,15 79:24 80:20 82:23 83:11 86:24 87:13 88:10  
**revisions** 19:23 22:4 44:8,9 66:25 67:6 77:13 116:16  
**reword** 48:8  
**Rhone** 7:9 130:3,4, 5,21 132:1,11,13, 18 133:1,4,7  
**Richard** 7:16 8:12  
**Ricky** 7:24  
**rid** 75:25

**righty** 76:23 113:17 133:13  
**road** 79:7  
**Robinson** 5:25 8:18 19:10,16 20:1 25:16,20 26:16,19, 25 27:5,8,11,15,18 28:12 29:22,25 30:2,14,20,23 31:3, 7,10,14,18,21,24 32:5,14,22 33:1,15, 19 34:1,6,15,19 35:1,7,20,24 36:4, 13,17 37:7,15,18, 25 38:3,15,18,24 39:3,15,21,24 40:4, 11 44:13,18 47:7,9, 17,20,25 48:2,16, 20,25 49:6,12,15, 18,23 50:1,3,8,10, 14,17,19 51:16 53:4 54:9 58:7 59:12 65:17,20 72:22 74:9 76:24 77:7 80:24 82:10, 25 85:18 87:5,11 92:12,19 93:3,22, 24 94:8,10,16,24 95:2,4,9 96:24 97:6,12,15,20,25 99:25 100:2,4,7,15 102:23 103:4,7,14, 16,18,24 104:6,14 105:5,7,11 106:23 107:1,5 108:24 109:23 110:1,10, 12,16 111:1 113:14 117:23 124:14,16, 25 126:12,15,18,23 127:1,25 128:6,10, 22,24 129:1,8,16 130:4 132:15,20 133:3,5 150:8,10 151:9 153:4,6,9 154:10  
**rolled** 93:22 94:4, 17  
**rolling** 92:16 93:7 155:6,22  
**Roman** 101:21 108:10  
**room** 4:7,23 12:16 26:9,14,18 29:6,14,

17 64:7,12 68:15 93:1 119:15 134:14 156:2  
**Rosa** 5:5  
**routine** 92:15,18, 24 93:6,9,21 94:22 96:13,15,21 97:3 98:10,12,21 99:7, 11,14,19 144:24  
**roving** 40:19 42:9  
**RR** 7:22,24  
**rule** 48:13,24,25 49:1,11 53:11 64:6, 14 65:12 73:23,25 74:1 78:12,13 79:4, 5 84:16 92:3 101:4 114:6 155:25  
**rules** 4:5 28:10 53:10,16 55:24 78:14 79:2,25 83:10 86:1 90:11 95:15,16 101:1,25 110:3 119:25 129:5 130:17 152:20  
**run** 61:9 105:1 106:8 111:13 125:17 137:13,23 138:21 141:18 142:1  
**running** 64:8 102:18 105:3 107:13 150:2  
**rural** 136:22  

---

**S**

---

**safe** 5:3,5 55:16 56:5 59:2  
**safety** 4:22 27:19 29:2 58:22 59:5,9 87:15,22 88:16 117:13 136:12 139:9,20 141:14 145:5 154:18  
**sake** 16:18  
**sale** 28:4  
**Salem** 73:14

**Sam** 5:23 9:15  
10:14 45:2 100:22

**Sammy** 6:23

**satisfactory** 82:24

**satisfy** 49:9 80:23  
85:16

**sawmill** 136:7

**scale** 115:13 117:8  
120:22

**scenario** 54:7  
64:17,23,24 136:8

**schedule** 23:24,25  
45:1 61:24 62:1

**scheduled** 61:23  
156:1

**school** 85:23  
136:16,17 137:12  
138:2 139:1  
140:22,23 149:7,8  
152:23

**schools** 137:11,17  
138:3,10 140:6  
149:18 152:14

**science** 12:6 17:2

**scope** 89:17

**sea** 123:10,17  
126:3 128:17

**secondaries**  
153:25

**secondary** 58:12

**Secretary** 5:22

**section** 49:5  
80:10,18 82:17,22  
83:9 84:11,14,17  
86:16 95:6 96:1  
97:8,14,19 101:11,  
20 108:10,12 110:3  
120:8,16 122:24  
123:6

**security** 5:2

**seeking** 101:1,2

**sees** 19:3 45:5

**seldom** 54:14

**selecting** 130:12,  
22

**selling** 141:19

**semantics** 145:24

**senator's** 147:4

**send** 155:24

**senior** 42:20

**sense** 17:15 134:7  
138:23 140:16

**sentence** 48:3  
70:1 86:3 117:18

**separate** 16:8,9  
115:23 131:5,7

**September** 130:16  
156:2

**series** 29:15 31:12

**serves** 42:19

**services** 41:18,24  
42:13

**session** 4:5

**set** 18:11 21:13  
113:18 116:1  
117:13 130:15  
134:21,25 135:1,2,  
3 136:9 152:20

**sets** 30:3

**setting** 131:8

**settle** 135:2

**shack** 29:18

**share** 150:11

**Shaw** 8:3 67:21  
68:4,6 73:9

**sheet** 16:19 136:2

**Shelby** 32:2  
133:24 134:1,20  
143:20 150:11,15  
152:18 153:1,14

**shift** 51:2 68:17,22  
70:4,5,8,12,16,18,  
20

**shipped** 83:23  
85:13

**shirts** 131:15

**shoe** 146:15

**shooting** 131:20

**shop** 61:25 62:2

**short** 78:8 133:17,  
21

**shortcoming**  
28:20

**shoulders** 23:16

**show** 13:6 62:11  
66:1 71:12 88:10

**shown** 66:2

**shows** 33:11 37:1  
41:23,24

**shunt** 40:22

**shut** 26:15 31:18  
40:25 51:9 55:14  
56:16 57:22 58:16,  
17 64:21 116:25  
124:20

**shutdown** 50:24  
58:9

**shutoff** 31:8 64:21

**shutting** 40:15  
55:7

**side** 5:5 153:18  
154:22

**sight** 77:15

**signature** 32:8

**signed** 83:18 85:8

**similar** 125:19

**simple** 96:4 112:14

**simplicity** 114:3

**simplified** 43:5

**single** 86:12

**sir** 22:17 24:5  
32:14 33:13 39:19,  
21 40:11 45:7  
49:17 50:3,10  
57:19 59:23 60:1  
61:3 63:23 73:21  
75:22 76:15 82:10  
100:15 109:23  
110:12,16 112:5  
120:23 124:15  
127:1 128:12  
129:1,8 137:21

138:22 150:9 151:9

**sit** 4:23 30:25  
141:22

**site** 19:2 26:8 45:4,  
19 56:23 67:7  
68:13 130:22

**sitting** 40:17 105:3  
125:8,11,14 150:3

**situation** 21:9 64:5  
65:7

**Sitz** 6:23 102:1,3

**sizes** 151:1

**Skeen** 7:11

**skills** 66:9

**slash** 90:13 108:8

**sleep** 54:25

**small** 117:16  
146:14

**smaller** 108:21  
111:4,6 137:11

**smart** 96:18  
143:12

**Smith** 7:15 112:4,6  
113:9 118:12,13  
119:1

**society** 145:14

**solutions** 7:5

**somebody's** 13:9  
147:3

**sooner** 131:21

**sort** 4:25 155:3

**sound** 5:1

**sounds** 132:12,13  
133:7

**source** 80:17

**South** 12:14 33:10,  
24 34:12 35:22  
37:3

**space** 87:9

**Spangler** 6:21

**speak** 11:17,19  
64:16 74:9 142:2,5,

7	<b>stands</b> 75:23	<b>stayed</b> 5:10	61:6 75:18
<b>speaking</b> 15:9 145:16 150:14	<b>start</b> 4:22 52:17 54:12 57:22 65:1,2 73:6 79:17 140:12 151:19,21	<b>steam</b> 64:12 68:12 75:24 76:9 139:3	<b>Superba</b> 68:22 70:5,20
<b>special</b> 135:14	<b>started</b> 26:1 53:20 146:19	<b>steamed</b> 124:9	<b>superintendent</b> 12:5 41:18
<b>specific</b> 28:18 34:17 36:19 72:5 79:3 84:13	<b>starting</b> 151:13,14 155:6	<b>Stefan</b> 8:2 68:4	<b>supervisor</b> 7:10 41:6,15 42:15,19 61:2,24 68:22 70:3, 4,5,8,16,18,21 71:2,5 146:1
<b>specifically</b> 28:3 89:1	<b>state</b> 4:10 6:11,16, 18 7:11 9:19,22 10:17 12:10 24:1 28:3 53:11 55:15 63:24 79:1 83:23 84:8 85:13 87:1 89:24,25 90:8,10, 23,25 91:19 93:5, 10 95:24 104:12 106:11 109:17 115:13 117:8 128:15 131:1 133:23,25 135:5 136:11 140:3,4,25 141:5 142:18 144:20,24 145:19 146:8,9	<b>Steve</b> 6:11	<b>supervisors</b> 61:9 68:17 70:1,12
<b>specification</b> 28:4	<b>state's</b> 74:15	<b>stock</b> 52:11	<b>supplies</b> 109:7
<b>spelling</b> 89:2	<b>stated</b> 84:4 87:7 104:10 109:12,13	<b>stop</b> 86:12,13	<b>supply</b> 8:4 82:21 93:8 107:24 108:3, 13 109:10,13 110:8,23 116:23 122:16,20 124:18
<b>spending</b> 131:22	<b>statement</b> 32:10 83:6 84:3 98:5 109:21 114:8	<b>stretching</b> 93:25	<b>supply-type</b> 110:23
<b>spinning</b> 68:7	<b>statements</b> 37:16 84:22	<b>strike</b> 94:24 95:4	<b>supplying</b> 101:7
<b>spoke</b> 150:15	<b>states</b> 22:1 73:4 87:17 119:7 121:4 125:6 134:23,25 135:13 140:13 145:9,19	<b>striving</b> 78:22	<b>support</b> 134:9 139:23
<b>sponsorship</b> 131:21 132:10	<b>stating</b> 84:12 87:17 109:16	<b>struck</b> 14:19	<b>supports</b> 79:4 114:22
<b>spring</b> 130:7	<b>station</b> 29:8 30:11 31:5 47:15,21 48:5, 9,21 60:3,4 68:14, 16,17	<b>students</b> 12:12	<b>surrounding</b> 10:5 134:23
<b>square</b> 135:15,18	<b>stationary</b> 40:17	<b>stuff</b> 25:11 28:19 58:25 59:8 103:20 144:25 149:9	<b>switch</b> 27:20
<b>staff</b> 8:2 12:11	<b>statute</b> 37:19	<b>subject</b> 37:10 86:15 96:24 97:1 114:20	<b>switchboard</b> 60:5, 6 62:7
<b>staffed</b> 60:4 68:16	<b>stay</b> 126:11	<b>subparagraph</b> 116:9 117:7 127:3	<b>sympathetic</b> 154:24
<b>stages</b> 130:9		<b>subparagraphs</b> 127:6	<b>system</b> 30:25 39:17 55:6 71:21 75:7 110:22 126:4, 7 141:21
<b>stamp</b> 84:2,23 87:20 88:13 89:22, 25 90:22,24 92:15 94:3,18 98:11,22 99:20 104:22 111:17 112:14		<b>substantive</b> 65:23	<b>systems</b> 149:7 152:24
<b>stamped</b> 103:8 107:20 112:11,18 150:2		<b>success</b> 59:5,19 145:20	<hr/> <b>T</b> <hr/>
<b>stamping</b> 83:14 85:6 98:25 99:8		<b>successful</b> 67:7 77:14	<b>T&amp;p</b> 119:9
<b>stampings</b> 99:3		<b>succession</b> 38:12 39:12	<b>table</b> 4:18 107:1
<b>stamps</b> 104:18 111:12		<b>suck</b> 64:12	<b>tabled</b> 129:19
<b>stand</b> 4:11 84:24 111:25 137:19		<b>sufficient</b> 62:5	<b>tabling</b> 150:23
<b>standard</b> 154:12		<b>suggest</b> 132:2	
<b>standards</b> 85:5		<b>suggesting</b> 39:2 132:18	
<b>standpoint</b> 27:25 74:25 95:14,16 106:3 121:14 141:23 145:18		<b>suggestion</b> 64:15 119:22	
		<b>sunset</b> 145:6	
		<b>sunset all</b> 144:25	
		<b>super</b> 41:18,24	

**tail** 131:23  
**takes** 129:10  
150:25  
**taking** 24:6 95:23  
96:7 136:17,18  
138:1 144:1  
**talk** 26:11 52:18  
55:13 106:17  
140:23  
**talked** 104:15  
134:21,22 135:6,13  
**talking** 38:22 56:6  
61:19 100:22  
102:25 106:18  
107:20 118:12,13,  
16 121:14 123:21  
134:10,11 137:15  
153:18  
**talks** 70:25  
**tank** 107:14 108:20  
**tank-type** 109:9  
**tankless** 108:18  
**tanks** 103:20  
107:11 150:1  
**task** 25:11  
**tax** 144:13 145:13  
147:13 148:2,7,8  
**taxed** 147:16  
**TBR** 149:5  
**teacher** 137:12  
**teachers** 138:15  
**teaching** 12:13  
137:13  
**team** 22:11  
**technical** 15:2,23  
17:18 27:24 149:9  
**technically** 15:1  
105:15 108:18  
**tee** 117:2  
**telling** 15:22 17:18  
53:10,15 132:20  
**temperature**  
101:9,19 108:8  
111:21 114:13

119:8,10,11  
120:10,13 122:12,  
14,18,19 123:22  
**tend** 78:23 106:17  
**Tennessee** 4:4,10  
6:14 7:11 8:7 11:12  
12:5 22:1 39:11  
46:7 53:11,16  
55:15 67:23 68:7  
79:1 81:22 82:4  
83:9 84:16 90:1,9,  
25 92:3 93:5,10  
95:25 104:12  
109:17 133:23,25  
150:18  
**tense** 37:16  
**term** 96:4 119:25  
120:15  
**terminology** 82:1  
91:11 94:1 98:2  
121:25 123:2  
**terms** 121:18  
**test** 39:17,18  
50:12,13 58:11,16,  
19 64:3,5 76:4  
128:12 150:1  
151:21 154:17  
**testing** 52:17  
58:22 72:3,6 76:25  
86:18 116:14  
**tests** 39:16 40:19  
49:18 50:22 154:18  
**Texas** 134:22  
150:10  
**text** 116:17  
**thermometer**  
115:23 119:10  
**thermometers**  
115:9  
**thickness** 76:6  
**thing** 16:15 24:25  
28:12 29:1 34:10  
40:13 41:3 51:12  
55:8 65:25 69:4  
75:3,16 78:22  
99:18 107:7 118:5  
121:24 123:5,8  
125:17,20 133:5

138:5 141:8 143:19  
145:17 154:1  
**things** 13:12 14:18  
21:1 22:5 28:23  
52:11 53:25 56:13,  
25 64:10 73:1  
75:10 97:24 111:22  
142:12 145:8  
146:19 150:5  
151:6,25 153:19  
154:18  
**thinking** 91:24  
112:24  
**third-party** 83:20  
85:10  
**Thompson** 5:19  
69:6,9,15,16 71:7,  
13  
**thought** 26:17  
74:13 87:2 104:21  
112:17 126:2 129:6  
134:15 151:23  
152:5  
**thousand** 26:13,  
24,25 27:20 28:5  
**threshold** 153:10  
**throw** 143:22  
**tied** 124:24  
**tilting** 155:3  
**Tim** 6:16 106:13  
107:8 109:20 110:4  
**Tim's** 114:11  
**time** 5:14 11:23  
32:20 54:22 60:8  
62:18 73:23 78:3  
96:14 104:15,17  
106:18,19 107:13  
112:14 121:20  
122:6 125:1,4  
132:8 147:9 154:20  
155:21  
**times** 40:22 52:4  
54:6,10 74:18  
109:5 110:21  
115:17 117:12  
**title** 13:9 19:14  
62:16 81:21

**titles** 24:23 43:6  
**today** 4:7,20,23  
5:8,10,20 12:21  
45:3 46:20 77:14  
79:11 86:24 130:8  
135:6 136:24  
**today's** 121:20  
122:4  
**told** 54:7 114:22  
138:6  
**Tommy** 6:21  
**tone** 18:11  
**top** 28:1  
**topic** 78:11 139:22  
**tops** 38:4  
**TOSHA** 4:23  
**total** 9:20,21,22,24  
10:8,24 12:20  
**totally** 52:3,19  
**Toth** 104:8 109:15  
**train** 127:11 136:9  
140:18 142:9  
145:12  
**trained** 62:25 63:1,  
10 135:17 136:8,  
24,25 146:1 151:17  
**trainers** 70:6  
**training** 10:6 32:1,  
9,21 41:4,7,16 61:1  
62:9,11,21 69:25  
70:2,19,21,25 71:2,  
25 72:2 74:19,20  
75:1 118:23 127:17  
130:17 133:14  
134:13,17,25  
135:2,3,6,11,24  
136:2,5 140:5,7,20,  
21 143:5,14,16,19,  
21,22 144:2  
145:16,22,23 146:4  
149:9 151:19,20  
155:8  
**trainings** 134:12  
**transcribe** 11:20  
**transcript** 56:19

**translational** 17:2  
**transmits** 30:5  
**transmittal** 72:22,  
23,24  
**transmitted** 30:8  
**transpire** 54:18  
**transpose** 125:9  
**transposed** 38:7  
**Travelers** 132:23  
**TRSP** 15:7  
**true** 65:4 91:12,13  
93:5  
**tube-type** 111:6  
**tubes** 76:10,19  
93:7,20 94:4,12,17,  
18,22 97:23  
**turn** 9:15 11:15  
29:23 100:19  
146:16 153:23  
**turned** 13:25  
**tweaking** 18:18  
**twin** 52:4  
**twisting** 70:18  
**two-type** 111:3  
**twofold** 78:13  
**tying** 106:3  
**type** 26:13 52:16  
100:24 123:20  
133:2  
**types** 111:16  
**typically** 29:9  
75:24 116:5 136:1  
**typo** 38:4,19,24  
39:6,9 117:16

---

**U**

---

**uh-huh** 11:1 92:4  
117:17 126:23  
**UIG** 95:25 97:18  
**uncertain** 30:15

**uncorrected** 10:1  
**understand** 4:13  
17:16 33:16 41:1  
43:19 53:25 61:18,  
20 74:8 76:12  
96:13 141:18  
148:13 152:12  
154:23,25  
**understandably**  
5:10  
**understood** 99:17  
**unfired** 149:25  
**unfired-pressure**  
6:3  
**uninitiated** 75:21  
**unit** 13:10 17:24  
23:24 36:12 45:2  
56:1 57:10,22  
80:12 81:24,25  
82:6 88:6 89:1  
102:9 109:9 110:19  
113:25 140:13  
**unit's** 80:2 83:24  
84:9,18 86:20 88:1  
90:3,6 116:11  
**units** 38:11 52:5  
58:14 110:22 131:4  
**units'** 83:8  
**university** 6:13  
8:7 11:12 12:5,9,10  
22:1  
**unresolved**  
129:22  
**upcoming** 81:13  
132:9  
**update** 5:11 17:14  
33:17 46:24 71:9  
130:2,6  
**updated** 14:14  
20:23 66:1,8,25  
**upgrade** 21:8  
**users** 6:4  
**UT** 23:13 35:10  
**utility** 68:21  
**utilize** 115:22

**utilized** 124:3

---

**V**

---

**valid** 87:18 88:12  
89:22 90:19,21  
144:22 146:3  
**values** 151:1  
**valve** 86:12,13  
117:13 139:4 154:1  
**valves** 86:18  
87:23,25 88:17,19  
116:1 139:11  
154:17  
**variance** 10:3  
11:12 12:19,21  
13:1,3,7 14:1,14  
15:4,5 17:19,22  
18:1 21:22 26:6  
46:5,21 47:2,4,5  
48:4 57:13,14,17  
62:20 66:2,4 67:22  
68:25 69:8,10  
72:12,15,17,19  
74:20,24 77:6,24  
134:10  
**variances** 12:21  
17:20 18:4 134:12  
135:6  
**verbal** 5:15 9:1,7,  
10 11:4 25:14  
43:23 44:2 45:10,  
16 46:12 67:15  
77:22 81:2 82:13  
83:3 114:25 133:12  
**verbiage** 19:21  
93:18 107:2 112:22  
122:8 124:22,23  
**verify** 21:21 38:12  
81:21 108:24  
**verifying** 56:18  
57:14  
**versed** 99:16  
**version** 82:3 84:25  
111:4,6 112:18  
114:3  
**versions** 108:21  
**versus** 21:22  
94:10

**vessel** 6:3 75:23,  
25 78:16,20 83:22,  
25 85:13 88:4  
90:11,12,13 94:3  
97:10,13 99:9  
128:12 134:2  
149:25  
**vessels** 78:19,24  
83:13 84:13,15  
85:6 97:18 120:2  
**viable** 65:6  
**viewing** 32:9  
**VIII** 96:1 97:19  
**vintage** 136:23  
**violation** 9:25 10:1  
**virtually** 29:14  
60:5  
**vision** 135:2  
**visited** 58:8  
**visitors** 4:8  
**visual** 32:9  
**visually** 40:9  
**vocational** 149:9  
**vote** 9:3 25:17  
67:5,10 77:17  
129:20 155:10  
**voting** 9:9 45:15  
67:14 77:21  
**VR** 87:20 88:13

---

**W**

---

**waive** 55:7  
**walk** 121:4  
**walked** 118:20  
119:14 120:18  
121:3  
**wall** 76:5 102:19  
103:11 107:11  
108:16,22 150:4  
**wanted** 4:24 18:10  
26:11 31:24 43:9  
78:15 89:1 99:16  
112:8,22,25 113:6  
118:6 127:23 134:8

**wanting** 123:3

**War** 136:21

**warms** 32:5

**warmth** 59:5

**watch** 152:25

**water** 39:16,17,23  
40:1,3,8,14 49:22  
50:5,7 53:22,24  
56:15 64:21 75:7  
76:25 82:15,19,20,  
21 100:20 101:6,7,  
15,16,17,24 102:4  
103:2,3,22 104:10,  
15,20,22 105:14  
107:23 108:3,6,13  
109:6,18 111:8,14,  
20 112:9,10,12,13,  
16,21,24 113:5,6  
114:4,13,17,19  
115:21 116:22,23  
118:8 122:16,18,20  
124:18 125:18  
126:4,9 135:7  
139:3 151:11,16,  
18,21 153:24

**waxing** 136:18

**ways** 20:21

**Wednesday** 156:2

**week** 4:14 51:14  
58:4 68:12 150:16

**weld** 92:14 94:19  
95:5

**welded** 89:20  
90:18 91:5,13 92:8,  
10 93:24 95:18,19,  
20,23 96:7 99:25  
100:11

**welder** 95:6

**welding** 91:11  
94:19 96:2,6

**whiz** 46:1

**wide** 96:16

**wife** 5:9

**windmills** 155:3

**wishes** 74:16

**woman** 155:16

**wonderful** 53:3

**word** 6:20 91:13  
95:13,23 96:7  
99:25 100:11  
137:9,22 138:4,13,  
18,23 152:17,21  
153:8

**worded** 44:9

**wording** 113:23

**words** 20:24 33:19  
43:7 98:15

**work** 23:24 52:2  
56:18 59:13,15  
74:24 92:12 94:14  
102:14,15 111:18  
134:4 142:20  
152:22 153:25

**worked** 56:4 136:7

**workforce** 81:23  
82:4 90:9 149:11

**working** 59:1 79:9,  
22,24 109:19  
115:18,25 117:14  
131:19 138:2

**Workplace** 81:24  
82:5

**works** 59:8 154:16

**world** 61:9 78:23  
110:8 136:21  
145:10

**worried** 64:2

**worry** 55:1

**wow** 103:7 150:19

**WRC** 131:3

**wrestled** 13:13

**write** 94:11 140:1,  
14

**written** 19:5 48:18  
64:1 69:9

---

**Y**

---

**y'all** 46:14 69:2  
101:23 156:4

**yarn** 68:7 73:14

**year** 53:22 79:15  
132:25 141:19  
148:3 152:1

**years** 13:21 20:22  
22:5 46:21 74:14  
75:12,17 93:9  
104:9 143:10  
144:10,23 149:8,10  
154:20