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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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OFFICE OF INVESTIGATIONS

INTERVIEW

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IN THE MATTER OF: :  
INTERVIEW OF : Docket No.  
DAVID FIELDS : (not assigned)

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Thursday, December 1, 1994

Conference Room 202  
Crystal River Plant  
6745 N. Tallahassee Road  
Crystal River, Florida

The above-entitled interview was conducted at  
08:32 a.m.

BEFORE:

JIM VORSE Senior Investigator  
William McNULTY Investigator  
CURT RAPP Reactor Engineer

EXHIBIT 8  
PAGE 1 OF 40 PAGE(S)

CASE NO. 2 - 94 - 036

*Reviewed by me on 12/14/94*  
*U Fields*  
*12/14/94*



## 1 APPEARANCES:

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18 On Behalf of the Interviewee, David Fields

19 GREG HALNON

20 Operations Manager

21 Crystal River Nuclear Plant

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1 P-R-O-C-E-E-D-I-N-G-S

2 MR. VORSE: Today is December 1st, 1994. The  
3 time is 08:32 a.m. We are at the Crystal River Nuclear  
4 Plant, Admin Building, Room 202 in Citrus County, Florida.

5 We have an interview of Mr. Fields. And I'm  
6 going to go ahead and ask Mr. Fields to spell his name and  
7 his job title for us, please.

8 MR. FIELDS: It's David Fields, F-I-E-L-D-S.  
9 I'm a Nuclear Shift Supervisor.

10 MR. VORSE: And you are represented by the  
11 Operations Manager?

12 MR. HALNON: (Nods affirmatively.)

13 MR. VORSE: Will you please spell your name,  
14 sir?

15 MR. HALNON: My name is Halnon, H-A-L-N-O-N.  
16 First name is Greg.

17 MR. VORSE: And I understand that Mr. Fields has  
18 asked you to sit in during this interview.

19 MR. HALNON: That's correct.

20 MR. VORSE: Okay. My name is Jim Vorse. V as  
21 in Victor, O-R-S-E. I'm a Senior Investigator with the  
22 U.S. NRC, Region II.

23 Mr. McNulty, would you please spell your name.

24 MR. McNULTY: My name is William McNulty,  
25 M-C-N-U-L-T-Y. I'm also an Investigator with the Nuclear

1 Regulatory Commission.

2 MR. RAPP: My name is Curt Rapp, R-A-P-P. I'm a  
3 Reactor Engineer with the Division of Reactor Safety in  
4 Region II, NRC.

5 MR. VORSE: Thank you.

6 Mr. Fields, would you please give us your job  
7 description, what you do.

8 MR. FIELDS: I'm a nuclear shift supervisor. I  
9 have, I think, ten people reporting to me. I work  
10 rotating shift work. We operate the plant from day to  
11 day.

12 MR. VORSE: Would you describe what your  
13 responsibilities are in your position?

14 MR. FIELDS: I'm responsible for the safe  
15 operation of the nuclear plant. And I'm a Senior Licensed  
16 Operator. And I'm the senior licensed person on site on  
17 the back shifts that, you know, supervise the safe  
18 operation of the plant.

19 MR. VORSE: Could you describe to me your  
20 evaluation of the make-up tank overpressure curve as shown  
21 as Operation Procedure 103-B?

22 Could you give me your assessment of what you  
23 think about that curve, as the way it was then?

24 MR. FIELDS: The curve in 103-B, which is an  
25 operating procedure, describes two regions to operate the

1 make-up tank and gives an acceptable region and an  
2 unacceptable region. The unacceptable <sup>region</sup> reason is to the  
3 left the side of the curve.

4 The purpose of the curve would be to -- the  
5 amount of hydrogen you could have in the make-up tank at  
6 any one time, that overpressure, to ensure on some sort of  
7 a large break LOCA.

8 And also with that large break LOCA a failure of  
9 one of your suction lines where you had two high pressure  
10 injection pumps injecting water at 540 gallons per minute  
11 off of one line of the borated water storage tank.

12 If you were in the accept -- unacceptable region,  
13 there is a possibility that the tank would empty and the  
14 expansion of the hydrogen would actually push down into  
15 the suction of the make-up pumps and you would no longer  
16 be pumping water, you would gas bind your <sup>HPI</sup> ~~HBI~~ pumps and  
17 your pumps would fail.

18 MR. VORSE: What did you think of the accuracy  
19 of that curve back on September 7th?

20 MR. FIELDS: Excuse me?

21 MR. VORSE: The accuracy of the curve, what did  
22 you think of --

23 MR. FIELDS: When?

24 MR. VORSE: Back in September 7th.

25 MR. FIELDS: Oh, okay. We had suspected that

1 the curve was not totally accurate. And I base that on a  
2 surveillance that we performed during the outage, SP-630,  
3 which is an <sup>HPI</sup>~~HPI~~ full flow test.

4 During that test we took data off the computer  
5 and, actually watching the trace on the pin, the recorder  
6 itself indicated that it looked like as the make-up tank  
7 was drawn down, the actual trace drawn was going to  
8 approach and cross that curve.

9 So we suspected that it wasn't totally accurate.  
10 The data for that is here.

11 MR. VORSE: Okay. Where was that?

12 MR. FIELDS: The test was run -- I believe it  
13 was run the 9th, May 9th, 1994.

14 MR. VORSE: Could you give me a Problem Report  
15 number on that?

16 MR. FIELDS: That's Problem Report 94-149. On  
17 the 10th of that month one of the people on my crew, my  
18 chief nuclear operator, wrote a procedure discrepancy  
19 report form. And it says, "Procedure number OP-103B, Rev.  
20 12, discrepancy suggesting curve eight max make-up tank  
21 overpressure. While performing SP-630 we started with the  
22 make-up tank at 60 inches, 12 pounds. When level  
23 decreased to 20 inches, the overpressure was five pounds  
24 as read on MU-14-LIR-1.

25 "This went from the acceptable region to nearly

1 unacceptable. This curve is supposed to be a P1V1 equals  
2 P2V2 curve." And I have a little question mark next to  
3 that.

4 So at that time my shift and myself were fairly  
5 concerned that the curve didn't appear accurate.

6 MR. VORSE: Did you bring this to anyone's  
7 attention?

8 MR. FIELDS: Yes, I did. This procedure  
9 discrepancy report is attached to the problem report. The  
10 problem report was written against the whole performance.  
11 Several other problems occurred in the performance of  
12 SP-630. And this was one of the things attached to it.

13 I was a support shift supervisor that night. I  
14 wasn't the actual nuclear shift supervisor that night, but  
15 the support shift are the people who actually ran the  
16 test, super -- I got the test together to run. These are  
17 my log entries from performance of that test. And I  
18 documented it in that, also.

19 MR. McNULTY: We would like to get copies of  
20 that.

21 MR. VORSE: Yeah. Have you got an extra copy of  
22 that, Mr. Fields?

23 MR. FIELDS: Yes, I do.

24 MR. VORSE: Okay.

25 MR. McNULTY: We'd like you to provide us with a



1 copy. We appreciate it.

2 MR. VORSE: I understand that maintaining this  
3 curve is a difficult process.

4 Would you agree with that, to maintain the curve  
5 while you're doing the test on every shift?

6 MR. FIELDS: (No response.)

7 MR. VORSE: Do you understand what I mean?

8 MR. FIELDS: What -- No. I don't understand  
9 the question.

10 MR. VORSE: Okay. To maintain the curve as it's  
11 described in Procedure 103, Operation Procedure 103-B, I  
12 understand it's a somewhat difficult process to maintain  
13 that curve while you're conducting a test. Is that  
14 correct?

15 MR. FIELDS: What test are you talking about,  
16 SP-630?

17 MR. VORSE: The --

18 MR. FIELDS: Or just normal operating?

19 MR. VORSE: The --

20 MR. McNULTY: Normal operating.

21 MR. VORSE: -- normal operating.

22 MR. FIELDS: The normal operating, no, we have  
23 no trouble. We were requested by the chemistry department  
24 and Management to maintain on the high end of the curve to  
25 basically fill the tank with hydrogen at some low level



1 and then raise the level and squeeze the pressure up so  
2 that you are right on the -- at your high level of the  
3 curve at the maximum pressure so that we could get maximum  
4 hydrogen into the RCS trying to maintain 25 cc's per kg.

5 MR. VORSE: How long does that process normally  
6 take?

7 MR. FIELDS: A matter of minutes. You know, 15  
8 minutes. But to maintain it there is not that difficult.  
9 We don't have that much, you know, leakage from the make-  
10 up tank.

11 MR. VORSE: On September 7th of this year there  
12 was a deviation from that curve, kind of an experiment, I  
13 understand.

14 Can you explain how that transpired?

15 MR. FIELDS: This problem report, 149, nuclear  
16 engineering had sent a letter and I received a draft copy  
17 of that. The title is Make-Up Tank Hydrogen Overpressure  
18 and it was to Bruce Hickie from the assistant engineer and  
19 the Manager, Nuclear Plant Tech Support.

20 And basically they had determined that operating  
21 the make-up tank at the elevated pressures that they  
22 wanted was acceptable, that operating there was a  
23 conservative place to be.

24 And during large break LOCA conditions  
25 engineering believes this curve is, accurate and

1 reasonably conservative to protect the high pressure  
2 injection from some hydrogen gas intrusion in the worst  
3 case large break LOCA, also fuel accident.

4           And they said even during a fire condition that  
5 we would violate the curve for up to eight hours and that  
6 that would be all right, that you would never have a fire  
7 and a loss of coolant accident at the same time.

8           Anyway, I was given a copy of this letter, this  
9 draft letter. And my management asked me, since my shift  
10 had been the ones who were concerned about the make-up  
11 tank overpressure <sup>issue</sup> ~~ratio~~, had raised safety concerns about  
12 the issue and said, this problem report is going to be  
13 closed out, do you have anything you want to add to this  
14 or do you have any kind of response that you would like to  
15 make before the problem report is closed out.

16           And that's when we came to the determination that  
17 there are a lot of issues in the problem report. But the  
18 one issue we looked at was the actual draw down of the  
19 tank where you would show that the curve wasn't truly  
20 accurate. We said we think we can -- we, as a shift, not  
21 we as talking to management, said we think we can  
22 demonstrate that that curve isn't accurate.

23           To do that my shift basically came to me and  
24 said, this is what we would like to do, we would like to  
25 bring the make-up tank to its maximum level of 86 inches

1 and its maximum pressure, and then we want to bleed that  
2 volume down just to its low level limit of 55 inches and  
3 we'll plot the response, the system response, as basically  
4 we'll plot a curve of how the actual system would respond,  
5 how the pressure -- overpressure on the make-up tank would  
6 actually look on actual <sup>HPI</sup>~~HBI~~ injection or any type of  
7 thing, basically.

8           So anyway, I asked and we all asked, I said,  
9 well, can we legally do this.

10           MR. VORSE: Who did you ask?

11           MR. FIELDS: My assistant, my chief, my other  
12 chief, my nuclear operator.

13           MR. VORSE: What's the name?

14           MR. FIELDS: All the people you're going to  
15 interview today.

16           MR. HALNON: Rob Weiss was the assistant shift  
17 supervisor.

18           MR. VORSE: Rob Weiss.

19           MR. FIELDS: Yes. And, you know, we --

20           MR. VORSE: You discussed it amongst yourselves  
21 in your shift.

22           MR. FIELDS: Amongst ourselves. This is a  
23 midnight shift.

24           MR. VORSE: Okay. I understand.

25           MR. FIELDS: We said, well, can we legally do

1 this. So we pulled up Operating Procedure 402, which is  
2 operation of the make-up system, and we looked at the  
3 steps in there. We looked at the limits and the  
4 precautions.

5 And nothing in the procedure prohibited us from  
6 operating the make-up tank from 86 inches to 55 inches.

7 You know, under system bleed it tells me to  
8 select which bleed tank you're going to bleed the tank to.  
9 Select your control switch to the bleed position. When  
10 make-up tank decreases to the low level alarm, then select  
11 the make-up valve to normal and place the bleed mode  
12 selector switch in the <sup>IN</sup>~~N~~<sub>OFF</sub> position.

13 MR. VORSE: And that's what you did?

14 MR. FIELDS: And that's what we did. To refill  
15 with hydrogen, you know, it tells you to open your  
16 hydrogen inlet valve, MUV-134, and, you know, establish  
17 hydrogen pressure in make-up tank if desired, otherwise --  
18 and says, okay, refer to curve eight at OP-103<sup>B</sup>~~8~~ to the  
19 maximum make-up tank overpressure, open MUV-143 on the  
20 main control board. When the make-up tank is at the  
21 desired pressure, then close MUV-143. So that was  
22 restoring to the normal conditions that we had before.

23 So we thought that using an approved operating  
24 procedure in an extremely minor -- what we considered at  
25 the time a minor evolution we could legally operate the

1 system to basically draw a curve.

2           In the process of that this list here was put  
3 together of our thinking process. After we did this, we  
4 went through a Management Review Board to investigate the  
5 test. And some of the things that we had -- "As a shift,  
6 we propose to raise make-up tank level to 86 inches and  
7 increase make-up tank pressure to the limit of curve  
8 eight. Make-up tank would then be decreased to 55 inches  
9 and the pressure response of the make-up tank would be  
10 plotted.

11           "The question was asked, what covered this  
12 evolution. It was decided that OP-402 provided adequate  
13 guidance. No limits and precautions would be violated.  
14 Make-up tank normal operating band is 86 to 55 inches and  
15 make-up tank hydrogen overpressure was set at the limit of  
16 OP-103B as described in OP-402, Section 419," which is  
17 both of the sections I've read to you.

18           "Nothing outside of normal routine operation of  
19 the make-up system was proposed. And the question was  
20 raised whether we wanted to bleed level below 55 inches.  
21 We decided that a test procedure would be required to  
22 proceed outside the normal operation limits of OP-402.  
23 Therefore, the bleed was stopped at 55 inches.

24           "At no time was this evolution considered a test.  
25 The purpose was to show that the approved curve was non-

1 conservative during routine operation and accident  
2 situations.

3 "Pre-job discussion with operators in the control  
4 room established what actions would be performed and which  
5 instruments would be monitored.

6 "We expected the make-up tank pressure high, <sup>JK</sup>  
7 annunciator alarm to come in -- into alarm. As a  
8 precaution, and understanding the bases of curve eight,  
9 the auxiliary nuclear operator," which in this case was  
10 Jim Atkinson, "was stationed in the Aux building to be  
11 immediately available to vent the make-up tank in case a  
12 loss of coolant accident occurred. A third licensed  
13 operator was in the control room to plot the pressure and  
14 level on curve eight.

15 "The evolution was started, data taken, and make-  
16 up tank level and pressure restored over a 32-minute time  
17 frame without incident. The collected data was plotted  
18 and became the basis of Problem Report 94-267."

19 So this was our thinking process when we ran the  
20 test. We felt like it was covered by procedure, it was  
21 not a test. And that was our failing as -- my failing as  
22 the supervisor to not realize that the curve we were  
23 drawing, the curve that we considered inaccurate was a  
24 design bases curve.

25 If those words had come into my mind, I would

1 have said, a design bases curve means that I need more  
2 paperwork than just operating in the operating procedure.

3           So that was covered thoroughly in the Management  
4 Review Board. But at the time we felt totally justified  
5 in operating the system as described in our operating  
6 procedure.

7           I have a time line of the actual test. The level  
8 decrease started at 0447. The level decrease stopped at  
9 0501. And then we started the pressure level increase and  
10 the pressure was back within limit. As the pressure is  
11 back within limit as level was increased to 59 inches,  
12 total time make-up tank pressure exceeds the limit, was 35  
13 minutes.

14           MR. VORSE: Did anyone on your shift say this  
15 was a problem, we shouldn't do this, this may be a design  
16 basis thing, or we need to have a -- you know, the Review  
17 Committee look at this?

18           Did anyone -- Did anyone say that?

19           MR. FIELDS: No, sir. No one brought that up.

20           MR. VORSE: Did you --

21           MR. FIELDS: And I wouldn't have expected that  
22 the reactor operator would. That's sort of my  
23 responsibility to know that.

24           MR. VORSE: And it's my understanding that you  
25 did not discuss this issue with anyone other than your own



1 shift.

2 MR. FIELDS: That is correct.

3 MR. VORSE: And as you said earlier, you were  
4 not aware that that was a design basis for 103B.

5 MR. FIELDS: No, sir.

6 MR. VORSE: Was anyone else posted to make  
7 adjustments if there was a loss of coolant accident, other  
8 than that one individual?

9 MR. FIELDS: He had a trainee with him, Stan  
10 Kaconas, who was not a licensed operator. He was -- They  
11 were both in the Aux building. And it's a simple  
12 evolution to that make-up tank.

13 MR. VORSE: Have you got anything, Bill?

14 MR. McNULTY: Not yet. But maybe Curt has some  
15 things.

16 MR. RAPP: Yes. I have a couple of questions  
17 here, if you don't mind.

18 You referred to the bleed down of the make-up  
19 tank as being covered by the operations procedure.

20 Is that a normal or routine evolution to bleed  
21 the make-up tank down to the 55-inch level?

22 MR. FIELDS: It's not abnormal. Normally when  
23 you're operating, you would on a daily basis add like 200  
24 gallons of de-min water. So you would bleed down some  
25 from the -- to a bleed tank and add your 200 gallons of

1 demineralized water to the tank.

2           Those limits just happen to be where the alarm  
3 set points are to the tank and that's the normal operating  
4 region of the tank.

5           MR. RAPP:    So the point being then is the  
6 operators are familiar with the process.  It's not  
7 something that they do like once every six months.  It's  
8 done --

9           MR. FIELDS:   At least --

10          MR. RAPP:    -- like once --

11          MR. FIELDS:   At least daily.

12          MR. RAPP:    At least daily.

13          MR. FIELDS:   Yes, sir.

14          MR. RAPP:    Okay.  So they did have exposure to  
15 it.

16                 What's the process by which you resupply hydrogen  
17 to the make-up tank?

18           MR. FIELDS:   There's a control board operated  
19 switch that opens a valve.  That valve <sup>feeds</sup> ~~feeds~~ the regulator  
20 valve which, from the hydrogen supply, goes to the top of  
21 the tank.

22           MR. RAPP:    Okay.  So you just look at the tank  
23 level and then you just add that amount of hydrogen to get  
24 a certain pressure level based on that curve.

25           MR. FIELDS:   Yes, sir.  The regulator is set low

1 enough that you normally wouldn't exceed the curve.

2 MR. RAPP: What's the regulator set at?

3 MR. FIELDS: I don't know what it was set at  
4 right then. I think around 20 pounds. And then the  
5 actual top limit with the curve was 27 pounds.

6 MR. RAPP: So if your VC -- Excuse me. I --  
7 It's GCTO. I've used that term.

8 MR. FIELDS: I know what you mean.

9 MR. RAPP: If your make-up tank is at a certain  
10 level above that 20-pound regulator value, then you would  
11 not add any hydrogen to it at all.

12 In other words, if your level was such that your  
13 gas pressure was above 20 pounds, there would be no  
14 addition of hydrogen.

15 MR. FIELDS: No. We would adjust the level  
16 in the tank to bring the pressure up to 27 pounds. You  
17 know, we were directed to operate at the high end of the  
18 curve --

19 MR. RAPP: Okay.

20 MR. FIELDS: -- so that we would, in fact,  
21 maintain maximum hydrogen overpressure.

22 MR. RAPP: All right. So the question then  
23 becomes, if you needed to add hydrogen to the tank and the  
24 pressure in the make-up tank was already above the 20-  
25 pound regulator value, how would you add hydrogen?

1 MR. FIELDS: I wouldn't.

2 MR. RAPP: You wouldn't.

3 MR. FIELDS: I could not add hydrogen if it was  
4 already above the regulator set point. I mean, I could  
5 open the bypass valve and get additional pressure.

6 MR. RAPP: Uh-huh.

7 MR. FIELDS: There is a bypass valve around the  
8 regulator. But normally the way we did it was open up to  
9 the regulator full and then raise the level and actually  
10 squeeze the hydrogen to get the pressure that we desired.

11 MR. RAPP: Okay. So the maximum pressure then  
12 you could get would be the 20 pounds supplied by the  
13 regulator based on a certain level.

14 MR. FIELDS: Yes, sir.

15 MR. RAPP: Okay. And how often do you have to  
16 add hydrogen?

17 MR. FIELDS: I'm going to guess and say once a  
18 day. At the time we were adding it more often because we  
19 were under directions from Management to maintain maximum  
20 pressure in the make-up tanks. It was -- Chemistry was  
21 desirous of maintaining hydrogen concentrates in the  
22 reactor core system.

23 MR. RAPP: Okay. A little change of direction  
24 here.

25 Is there any plant procedures that cover

1 performing special tests for evolutions not described or  
2 controlled by procedures?

3 MR. FIELDS: Yes. I think AI-400 Bravo probably  
4 describes -- That's the initiation of the new procedure.  
5 And in that they describe -- You ask yourself certain  
6 questions and if you answered yes, it becomes a test.

7 And then that pushes you into doing a 50.59  
8 review and then the Plant Review Committee Review.

9 MR. RAPP: Was a 50.59 review done prior to  
10 performing this particular evolution?

11 MR. FIELDS: No, sir. It wasn't considered a  
12 test.

13 MR. RAPP: It wasn't considered a test.

14 MR. FIELDS: Not by the operator crew.

15 MR. RAPP: So the only time you use a 50.59  
16 review is when you do a test?

17 MR. FIELDS: Oh, we use 50.59's for a lot of  
18 things, for -- Most procedure changes require a 50.59  
19 review. Modifications to the plant require a 50.59  
20 review. You know, we see a lot of them. We initiate a  
21 lot of them.

22 MR. RAPP: But you didn't consider this  
23 evolution to be a change to a procedure or change to a  
24 plant configuration that would warrant a 50.59 review?

25 MR. FIELDS: No, sir, I did not.

1 MR. RAPP: You said that in OP-402 that you  
2 would not have violated the limits.

3 The hydrogen curve is not contained in OP-402?

4 MR. FIELDS: The curve is, I think, the last  
5 enclosure of that procedure, no limits and precautions.  
6 The front section of the procedure, limits and precautions  
7 does not mention violating that curve.

8 The only place that curve is mentioned is when  
9 you are venting the make-up tank or filling the make-up  
10 tank. It says, refer to this curve.

11 MR. RAPP: What instruments were used or  
12 monitored during this particular evolution?

13 MR. FIELDS: Control board instruments, the  
14 make-up tank level and pressures, MU-14-LIR-1.

15 MR. RAPP: Are those analog or digital  
16 instruments?

17 MR. FIELDS: Analog. We were also plotting it  
18 by computer. The computer basically comes off in the same  
19 instrument ~~strain~~<sup>string</sup> And we were monitoring the computer  
20 output, also.

21 MR. RAPP: Is the computer readout in a digital  
22 format --

23 MR. FIELDS: Yes, it does.

24 MR. RAPP: -- that is displayed on the screen or  
25 do you have to just plot the data that comes on the

1 screen, as well?

2 MR. FIELDS: It plots digital -- You know, this  
3 is the value, this is the level of pressure -- level of  
4 pressure. You know, I think it was set at like 20-second  
5 intervals, or something like that. I don't remember what.

6 But it just comes up on the CRT screen, yes.

7 MR. RAPP: Did you get good agreement between  
8 the analog indications and the --

9 MR. FIELDS: We felt that we did. I don't  
10 remember exactly, but we felt that we did, because it's  
11 basically coming off the same instrument ~~strain~~. *string*

12 MR. RAPP: When you add hydrogen, do you use the  
13 analog or the computer point?

14 MR. FIELDS: We normally use the analog. It's  
15 right there at the control switch for the valve. And you  
16 watch it, the hydrogen come in and you watch the pressure  
17 come up.

18 MR. RAPP: A philosophical question, I guess,  
19 here.

20 What is your expectation when engineering hands  
21 you or gives you a limit or an operating curve with  
22 regards to design basis?

23 MR. FIELDS: Well, my expectation of that would  
24 be that it would be an accurate curve. You know, the  
25 curve -- You know, I guess I didn't even realize -- You



1 know, it showed -- The curve is in our procedure and the  
2 curve was in OP-103.

3 I honestly didn't even associate the two as  
4 Engineering generated this curve. I'm not really sure if  
5 I had a real good feel for where the curve came from. I  
6 remember it -- I remember when it came out and we put the  
7 curve in and put the modification to the alarm circuit so  
8 you would get the alarm.

9 But I didn't -- I didn't really remember, you  
10 know. I certainly didn't remember this is an Engineering  
11 design bases curve. I didn't -- I did not realize that  
12 when that annunciator alarm came in, you had just violated  
13 an Engineering design bases.

14 MR. RAPP: Is that typical the case of operating  
15 limits that when you violate them, you also violated  
16 design basis conditions?

17 MR. FIELDS: That was the first I'd ever heard  
18 of such a thing. You know, there are a couple of control  
19 board indications that I recognize as being probably  
20 design bases, like loss of sub-cooling margin tells me  
21 this is serious business. You know, there's probably a  
22 design bases behind that.

23 Most of the curves, most of the alarms I consider  
24 as a warning, okay, you need to take -- you know, pull out  
25 your ~~ancillary~~<sup>OF</sup> response procedure and take the actions

ALARM

1 required by that procedure.

2 I think it's unusual that that alarm is a design  
3 bases alarm.

4 MR. RAPP: Thank you.

5 MR. McNULTY: Just to follow up, when the alarm  
6 does go off when you go outside the curve, is there a  
7 procedure that you're supposed to follow to --

8 MR. FIELDS: Yes, sir. And it's at -- Well,  
9 I've got it. The alarm comes in on the main control  
10 board, so we pull an annunciated <sup>OK</sup> ~~response~~ response procedure. In  
11 this case it is PSA-2, annunciated <sup>OK</sup> ~~response~~ response. And it gives  
12 a picture. This window lights up, the window that says  
13 make-up tank pressure high, low.

14 "Indicated conditions that make-up tank pressure  
15 is greater than the overpressure value calculated by the  
16 plant computer <sup>redundant</sup> ~~redone in~~ an indication which will verify  
17 the alarm is MU-14-LIR-1 and the computer points X-359,  
18 X-401.

19 "Operator actions for a valid alarm. Ensure  
20 MUV-141 and 143 are closed, which are the hydrogen valves  
21 that let hydrogen in. And two, reduce pressure within the  
22 limits of the make-up tank pressure level curve of  
23 OP-103."

24 Under discussion it says, "The values of the  
25 computer point are input to a calculation which actuates

1 this event point when make-up tank level pressure  
2 combination are being operated in the unacceptable region  
3 of curve eight of OP-1030<sup>B. dk</sup>.

4 And we expected to see this alarm when we pulled  
5 the annunciated<sup>or</sup>~~ed~~ response. And we said, all right, we're  
6 going to do these things, but we're going to get our data  
7 in the 35 minutes that we were actually in the  
8 unacceptable region of the curve. We knew what action  
9 needed to be taken to meet this annunciated<sup>or</sup>~~ed~~ response  
10 procedure.

11 And we felt that having a person stationed in the  
12 Aux building and the people aware of the situation on the  
13 control board and were aware of why the curve was  
14 developed that the 35 minutes to develop a smooth curve  
15 wasn't an unacceptable time frame.

16 You know, a lot of procedures we operate with the  
17 alarm comes in. Not a lot of procedures. I'm not saying  
18 -- When we do a surveillance procedure, an alarm comes  
19 in and you don't take the action at that time because  
20 you're running a surveillance procedure or you're running  
21 the operating procedure.

22 And that's why we felt that we could draw the  
23 curve.

24 MR. McNULTY: Is there a time frame for a  
25 response within that procedure?

1 MR. FIELDS: No, sir, there's not, that I know  
2 of.

3 MR. McNULTY: It doesn't say immediately?

4 MR. FIELDS: No.

5 MR. VORSE: What did -- What would you feel  
6 would be a safe time to take action?

7 MR. FIELDS: Well, the curve is based on having  
8 loss of coolant accident and having a malfunction or high  
9 pressure injection system. Under those two situations  
10 when your borated water storage tank gets down to about 25  
11 feet, which is 40 minutes into the casualty, then -- then  
12 you need to be concerned about hydrogen <sup>entrainment</sup> and ~~trainers~~ in  
13 the make-up tank, in the make-up pumps, the high pressure  
14 injection pumps.

15 So we understood that and we said, well, we don't  
16 have a loss of coolant accident and we don't have a  
17 malfunction of the <sup>HPI</sup>~~HBI~~ system, we're not injecting water  
18 at 540 gpm on two trains.

19 You know, what we felt were adequate safeguards  
20 was to station the guy in the Aux building to recognize  
21 when we call you, we want you to vent the pressure off the  
22 make-up tank. And the control board operators were aware  
23 if those situations happened, we would have suspended the  
24 bleed and gone after the casualties.

25 So we felt we had a good understanding of why the

1 curve was developed.

2 MR. VORSE: Did you ever have any feuds with  
3 engineering about that curve?

4 MR. FIELDS: I personally did not. We were  
5 involved as a shift with sort of following up. And that's  
6 why my management came to my shift and said, hey, they're  
7 going to close this out, do you have anything you want to  
8 add.

9 I know of two people who had safety concerns  
10 written, but they chose not to submit them. You know,  
11 this -- the concern was the amount of pressure in the  
12 make-up tank. Why operate at the maximum. You know, why  
13 -- why put yourself into a situation where if you had a  
14 ~~HPI~~<sup>HPI</sup> actuation, maybe your ~~HPI~~<sup>HPI</sup> pumps wouldn't become  
15 hydrogen bound, but you would lose indication in the make-  
16 up tank.

17 So did we have a feud? I don't have feuds, that  
18 I know of, with anybody. But I was concerned that they  
19 were going to close out a concern.

20 MR. VORSE: Can you give me the -- what concern  
21 is that on the PR?

22 MR. McNULTY: One forty-nine.

23 MR. VORSE: One forty-nine?

24 MR. McNULTY: Yeah, 149.

25 MR. FIELDS: On Problem Report 149? And it

1 states, "Title make-up tank pressure limit, technical  
2 basis inadequate. Curve 8 103 maximum overpressure make-  
3 up tank overpressure limits. The maximum amount of  
4 hydrogen overpressure."

5           And then it goes into the calculation and then,  
6 yeah, something that's talking about the ideal gas flow.

7           This is what we wrote up based upon our data that  
8 we developed. And then what we showed was that you would  
9 go to the unacceptable region, and you would exceed the  
10 margin specified in this Engineering calculation,  
11 190-0024.

12           So I think we were operating within plant policy,  
13 plant rules as far as telling Engineering, you know, we  
14 don't think it's -- we don't think your curve is accurate.

15           And I specified to several people on several  
16 occasions that I had no reason to embarrass Engineering, I  
17 had no reason to -- you know, I wasn't mad at Engineering.

18           I was initially going to just send Engineering  
19 that data and say, please include this in the Problem  
20 Report 94-149 and re-evaluate. The shift manager who  
21 reviewed the data said, well, this is really pretty  
22 important, go ahead and make it a problem report.

23           I honestly felt it was just some important data  
24 that needed to go to Engineering so that they could more  
25 accurately evaluate the problem report that already

1 existed.

2           And I guess my answer is emphatically, no, I did  
3 not feud with Engineering.

4           MR. McNULTY:   Let me ask, when you did your test  
5 during the outage in May --

6           MR. FIELDS:    Yes, sir.

7           MR. McNULTY:   -- did you come up with the same  
8 results as -- Did it look the same as far as the computer  
9 line went?

10          MR. FIELDS:    It --

11          MR. McNULTY:   I guess my question is, why did  
12 you think you needed to do it again if you had already  
13 done it once?

14          MR. FIELDS:    Because Engineering was going to  
15 close out the problem report saying that it was still  
16 acceptable to have maximum pressure in the make-up tank.

17          MR. McNULTY:   Well, why would doing it again and  
18 showing another graph change their mind --

19          MR. FIELDS:    Because the first time --

20          MR. McNULTY:   -- if you'd already done one.

21          MR. FIELDS:    The first time it only approached  
22 the curve.

23          MR. McNULTY:   Okay.

24          THE WITNESS:   Engineering's response was both of  
25 these were approaching zero, therefore, they'll never



1 cross.

2 MR. McNULTY: All right. Okay. I didn't --

3 MR. FIELDS: And then we said, no, that's --  
4 that is not a good answer.

5 MR. McNULTY: The projected line is the solid  
6 line above there?

7 THE WITNESS: This is a rough approximation of  
8 the OP-103 curve.

9 MR. McNULTY: Oh, okay. All right.

10 THE WITNESS: These are the data points plotted.

11 MR. McNULTY: That's what you took.

12 MR. FIELDS: And it's kind of curving in.

13 MR. McNULTY: Uh-huh. Yeah. Because mine are  
14 mixed up.

15 MR. FIELDS: Okay.

16 MR. McNULTY: I wasn't sure which line was which  
17 in your May test. Okay.

18 MR. RAPP: Well, what you're referring to there  
19 is the situation where check valve 60 failed to open.

20 MR. FIELDS: Yes, sir.

21 MR. RAPP: And that was the PR-149.

22 MR. FIELDS: That was one -- Yeah. Right.

23 MR. RAPP: PR --

24 MR. FIELDS: That's the name of it, but it  
25 covered a lot of issues besides just MUV-60.

1 MR. RAPP: -- 149, right? PR-149?

2 THE WITNESS: Yes, 149.

3 MR. VORSE: I'd like to switch gears here,  
4 Mr. Fields, and talk about Problem Report 94-0043. The  
5 description of the event is post-maintenance test  
6 requirements as specified in CP 113A have not been  
7 strictly adhered to. Work Request 308123 is an example of  
8 a work package which had been verified, signed that the  
9 PMT had been performed. Then the package was closed when,  
10 in fact, the PMT had not been performed. PMT means post-  
11 maintenance test.

12 Would you explain -- I understand that you were  
13 involved in this, Mr. Fields.

14 MR. FIELDS: Yes, sir, I was.

15 MR. VORSE: Could you explain your rationale for  
16 what happened?

17 MR. FIELDS: If I can find that. See, no --  
18 See, nobody told me you were going to talk about that.

19 MR. VORSE: Here's a -- Here's the report, if  
20 you want to see it.

21 MR. FIELDS: I know I've got it in here.  
22 Which work request are you talking about now?

23 MR. VORSE: Here.

24 MR. FIELDS: Work Request 308123. I was not  
25 involved with 308123. I was involved with Work Request

1 311570 and 310282. I can explain those.

2 MR. VORSE: Would you explain those to me,  
3 please.

4 MR. FIELDS: All right. Work Request 310282, it  
5 says, "Control rod M-11 has a seawater -- has a closed  
6 cycle cooling SW connection leak, unknown source. Stator  
7 needs to be inspected for source of leak and repaired."

8 Under the work summary, "Installed new --" --  
9 It's hard to read this. Anyway, they installed some new  
10 fittings on the cooling water lines and they pressure  
11 tested the system per MP-103A, test stat. <sup>AS</sup> ~~Has~~ left no  
12 visible leaks." Condition, "Excellent." <sub>dk</sub>

13 The work request specifies a post-maintenance  
14 test procedure, SP-333. SP-333 is an operations procedure  
15 where we move the control rods a minimum of, I believe,  
16 three percent.

17 This is a cooling water leak. SP-333 has nothing  
18 to do with the post-maintenance -- or required post-  
19 maintenance test of this. The real post-maintenance test  
20 is no visible leaks, under full system operating  
21 conditions that it didn't leak.

22 I signed it off. I crossed through SP-333 and I  
23 signed it off saying, you know, basically that the post-  
24 maintenance test that was performed was the visual leak  
25 test. SP-333 has nothing to do with proving one way or

1 another whether it leaks or not. It was an improper post-  
2 maintenance test. I signed it off.

3 I knew we were going to do the test anyway  
4 because we were coming up <sup>after the</sup> ~~on an~~ outage and you stroke your  
5 rods to ~~400~~ <sup>100</sup> percent. So in my mind, it was the wrong -- it  
6 was the wrong post-maintenance test. It wasn't required.

7 I felt I had the authority to make that decision,  
8 and I signed it off as post-maintenance test was sat.  
9 Post-maintenance test was the visual leak test.

10 And I knew we were going to do 333 later on, but  
11 333 had nothing to do with whether it was -- whether the  
12 thing leaked or not. And that's that work request.

13 MR. VORSE: I understand there was a consultant  
14 involved in this same thing. Was he with you or were you  
15 on your own? It was a consultant?

16 MR. FIELDS: It was a contractor.

17 MR. VORSE: A contractor. Right.

18 MR. FIELDS: Yeah. This is on the B&W  
19 maintenance contract. They do our CRD work.

20 MR. VORSE: Was there a contractor involved with  
21 you in this decision-making process?

22 MR. FIELDS: He brought the work request to me  
23 and said, I need to get this signed off, it doesn't leak.

24 And I looked at it and I said, this says SP-333,  
25 that has nothing to do with that. That's not the required

1 post-maintenance test. The real test is the visual leak  
2 test.

3 MR. VORSE: Now, how about the other one?

4 MR. FIELDS: This is Work Request 311570 and  
5 it's another control rod drive, control rods and drive  
6 mechanism.

7 And it says, "In 9R," which is the outage number,  
8 "B&W to lower the CRDM lead screws and couple the shim  
9 drives of the APSRs. After cleaning the closures and  
10 installing any new quick <sup>vent</sup> ~~set~~ O-rings, install the closure  
11 -- closures."

12 And under the work summary it says, "Refurbish  
13 closures, coupled all CRDM's, installed all CRDM  
14 closures." Condition as left was excellent.

15 The post-maintenance test specified in this work  
16 request was SP-401. Under the PMT performed by/verified  
17 by Ed Rae, who was the contractor, the supervisor of the  
18 contractors, wrote down here, "SP-401 notification."

19 If you pull SP-401, SP-401 is nothing more than a  
20 procedure that says, I'm going to go inside the patch  
21 panels. The patch panels are the electrical connections  
22 to the individual control rods.

23 And once you do that, we in the control room need  
24 to verify that the rods are still grouped, group one rod  
25 to these rods, group two rod to these rods, group three

1 rod to these rods.

2           401 is a notification procedure. That's all it  
3 is. It says, sign this off. It says, okay, I'm going to  
4 go into the -- I'm going to go into the patch panel. I'm  
5 going to disconnect the electrical connections. You need  
6 to sign a piece of paper telling the control room that you  
7 did this.

8           And several people do it during the outage.  
9 Electricians do it when they <sup>megger</sup> ~~mega~~ stators. B&W obviously  
10 does it when they disconnect control rod drive mechanisms.

11           So basically it says, notify the control room  
12 that before you start up you must perform an S -- another  
13 procedure. And I believe it's SP-425 or 435 where we have  
14 to pull each individual rod out of the core and verify  
15 that that rod is connected to -- that rod one one is  
16 actually that location in the core.

17           And I tried to explain this to the local resident  
18 when he asked me about it. I said, it's only a  
19 notification procedure. They just notify us to tell us  
20 that you need to do this other procedure.

21           In my mind, he notified me he had done everything  
22 that he needed to do and we had it on our work schedule to  
23 perform the required SP to verify that each individual rod  
24 was on the correct group. And we did that.

25           But as far as this guy and his work package, he

1 had done everything. You know, there -- to me, there was  
2 no reason to hold up his work package when all his -- all  
3 that surveillance procedure says, notify the control room.  
4 And it's notified in writing. You know, I've got -- by  
5 the end of the outage I have several SP-401s that say,  
6 I've gone into this patch panel, I've gone into this patch  
7 panel.

8           So before any outage, before any start-up  
9 following an outage, we do the entire -- all the rods,  
10 pull them all the way out, drive them all the way in to  
11 verify that they're in the right location.

12           So, I guess my answer to this was this NRC  
13 inspection was performed by somebody from Region who came  
14 down, who pulled a lot of data, who read a lot of stuff,  
15 and then went back to Atlanta, wherever he came from, and  
16 then he wrote this inspection report.

17           He didn't talk to me about it. Nobody talked to  
18 me about it. And then he wrote his inspection report that  
19 says that I signed post-maintenance tests before the post-  
20 maintenance test was performed. And I deny it.

21           You know, it was a poorly -- it was a poorly  
22 performed inspection. I talked to the resident about it.  
23 He said, I hate it when these guys come down here. He  
24 said, this guy didn't even talk to me when he did this  
25 inspection.



1           And I really take exception that they would think  
2 that I would -- don't have the integrity to sign off a  
3 post-maintenance test before it's performed. In both  
4 cases -- One of them it was a wrong test and I rejected  
5 that test. They already performed the adequate test. And  
6 this one that they had notified -- It was only a  
7 notification procedure. I considered myself notified. I  
8 was notified in writing and I knew we -- it was scheduled  
9 to do the right test.

10           I -- Nobody talk -- has talked to me about this.  
11 This is the first time I've had my chance to say my  
12 defense, that I really take exception to the fact that the  
13 NRC issued that inspection report and my management did  
14 not talk to me about it.

15           MR. VORSE:   Is there anything else you'd like to  
16 add, Mr. Fields?

17           MR. FIELDS:   No.

18           MR. VORSE:   Do you want to add anything about  
19 the curve?

20           MR. FIELDS:   Not at this time.

21           MR. VORSE:   Does anyone have any further  
22 questions?

23           MR. RAPP:    If I may come across on one question  
24 on the post-maintenance test requirements.

25                        Whenever you determined that a particular post-

1 maintenance test is not required, is there any kind of  
2 paperwork, form, or other procedural evolutions you go  
3 through to justify or explain why this PMT was not  
4 performed?

5 MR. FIELDS: No, sir, that I know of. You know,  
6 the CP-113 may have been changed within several weeks of  
7 this. And what it's changed to right now, it's a little  
8 bit different, but at the time basically you'd strike  
9 through it and then say, you know, wrong SP.

10 Now, I didn't sign through this one -- I didn't  
11 cross through SP-333 because I knew I was going to do it  
12 later on. You know, I was signing that, no visible leaks,  
13 excellent, was the correct post-maintenance test, in my  
14 mind.

15 You know, I did -- I would have normally crossed  
16 through it, maybe initialed it and dated it. But because  
17 I knew we were going to do that procedure in three days,  
18 that's why I didn't cross through it.

19 But, no, there's no procedural guidance on it, on  
20 doing that. I have the authority to determine operability  
21 and what's adequate to determine operability.

22 MR. RAPP: Thank you.

23 MR. VORSE: Mr. Fields, has anyone forced you to  
24 attend this interview? Did you come voluntarily?

25 MR. FIELDS: Yes, sir.

1 MR. VORSE: At this time I'm going to conclude  
2 this interview. And the time is now 9:24.

3 Thank you very much.

4 (Whereupon, the proceedings were concluded at  
5 9:24 o'clock a.m.)

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C E R T I F I C A T E

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Interview of David Fields

Docket Number(s): (not assigned)

Place of Proceeding: Crystal River, Florida

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

*Peggy S. May*  
\_\_\_\_\_  
Peggy S. May  
Official Reporter  
Neal R. Gross and Co., Inc.

~~NOT subject~~

# EXHIBIT 9

**A12**