

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

1 In the Matter of:
2 IE TMI INVESTIGATION INTERVIEW
3 of
4 Gregory R. Hitz
5 Shift Supervisor
6
7
8

9 Trailer #203
10 NRC Investigation Site
11 TMI Nuclear Power Plant
12 Middletown, Pennsylvania

13 May 23, 1979
14 (Date of Interview)

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21 NRC PERSONNEL:
22 Dorwin R. Hunter
23 William H. Foster
24
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1 FOSTER: The following interview is being conducted of Mr. Gregory R.
2 Hitz. Mr. Hitz is Shift Supervisor for Operations at the TMI Nuclear
3 Power Facility. The present time is 4:28 p.m. Today's date is May 23,
4 1979. The place of the interview is trailer 203 located immediately
5 outside the south gate of the TMI site. Individuals present for the
6 interview are: Dorwin R. Hunter. Mr. Hunter is an Inspection Specialist
7 with the Office of Inspection and Enforcement, Performance Appraisal
8 Branch. My name is William H. Foster. I'm a Senior Inspector and
9 Auditor for the Office of Inspector & Auditor, NRC, and I will be
10 monitoring the interview. Mr. Hitz was previously interviewed as part
11 of this investigation on April 22, 1979. At this point I am going to
12 turn the interview over to Mr. Hunter.
13

14 HUNTER: Thank you. Greg, a couple of things that we will sort out
15 just to get things rolling. You were in Unit 1 on March 28 and we were
16 trying to locate some information where a phone call was made to Unit 1
17 from an outside agency and giving a person possibly information to the
18 tune of checking high pressure injection on, or getting high pressure
19 injection on, or would you express to management in Unit 2 to the
20 desire to provide high pressure injection and to get it into the core
21 at that time. Do you recall any telephone conversation with an outside
22 agency with that tone to it?
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1 HITZ: I guess I'm confused; okay, you know there is a phone call that
2 we make to outside agencies, and one of the agencies that we talk to,
3 we give them the status of the plant, Unit 2: Did high pressure injection
4 actuate, what's the RCS pressure, what's the RCS temperature, so forth
5 and so on. Is that what you are referring to or...

6
7 HUNTER: No. That would be status, okay.

8
9 HITZ: Yes, plant status.

10
11 HUNTER: But a specific call back to unit control room, because they
12 couldn't get Unit 2 control room, okay?

13
14 HITZ: Well, I had talked, this was sometime later in the morning. A
15 group of NRC officials had come into the control room and I had directed
16 them to set up their office in the Unit 1 Shift Supervisor's Office.
17 And I had talked to some people in the NRC and giving them plant status
18 which they could not get out of the Unit 2 control room. We got the
19 information over our hot line and I gave that information to the people
20 from the NRC. And, if I understand your question, did someone direct
21 me to tell the Unit 2 control room to go on to high pressure injection?

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1 HUNTER: To assure or to express the concern that high pressure injection
2 should be initiated or maintained in the morning or early afternoon,
3 you know sometime, maybe like 12:00, plus or minus a couple of hours,
4 either way. Do you recall getting an outside call and then relaying
5 that to Unit 2?
6

7 HITZ: I know that I relayed a lot of information to Unit 2. On these
8 lines there were a lot of conversations that were transmitted to me to
9 transmit back to Unit 2. That specific instance I don't remember, but
10 I do remember talking to them and telling them, hey, you know this
11 outside agency or that agency recommends that we look at doing this or
12 possibly look at doing that. I know there was a lot of concern that
13 they were looking at the pressure-temperature relationship and the fact
14 that we were floating, what they call floating on the core flood tanks.
15 And it seems to me that was the area that they were talking about, and
16 why we don't go back to high pressure injection, and I relayed that
17 message to the individuals in Unit 2. It looks to these people that
18 maybe you ought to think about going back on high pressure injection.
19 You know, you ought to look at that and see what you think you ought to
20 do.
21

22 HUNTER: Would that be the understanding that you had during these
23 conversations, that you should consider going back on, or think that
24 you should consider, high pressure injection?
25

1 HITZ: Yes, that's to me, to the best of my recollection, you know
2 because I said are you, I'm pretty sure I asked the individual, whoever
3 it was, and I don't remember who it was, "Are you telling me to go on
4 high pressure injection?" Or if that was instance, I always said "Are
5 you telling me to do this or are you telling me to do that?" And the
6 guy always said, "I'm not telling you to do anything, I'm recommending
7 or suggesting that you do that."
8

9 HUNTER: Okay.
10

11 HITZ: Okay, and thats, you know, I, in turn, transfer that information
12 to Unit 2.
13

14 HUNTER: That's why I was asking the question more, than, to direct
15 that the conversation or tone was recommending that to your management
16 or to people in Unit 2 that they should in fact consider safety injection
17 or high pressure injection?
18

19 HITZ: That's right.
20

21 HUNTER: Do you recall something similar to that?
22

23 HITZ: Similar to that, yes, I do.
24
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1 HUNTER: Okay, now I'm asking. Who did you send, who did you relay that
2 message to or any other messages that you had went to Unit 2 to relate?
3

4 HITZ: Okay, we have a hot line. Basically, how that works is you pick
5 up a phone in Unit 1 and it automatically rings a phone in Unit 2 and
6 when he picks it up he's talking directly to you, between the two
7 control rooms. I talked to several individuals over there. And I
8 can't specifically say, hey, for this instance I talked to this indivi-
9 dual, for that instance, I talked to that. Because it was my job in the
10 Unit 1 control room to get plant status back from Unit 2 so I could run
11 backup calculations for offsite doses and so forth and so on. Now
12 that, you know, it could have been any number of individuals that I
13 talked to.
14

15 HUNTER: Would it be worthwhile for you to try to relate the indivi-
16 duals that you recall talking to during that time?
17

18 HITZ: I talked to, you know, you are talking the whole day or the
19 whole time that I was here. Because I talked to control room operators.
20 You know, I talked to Mark Coleman, I talked to Len Right, I talked
21 Denny Olson, I talked to Mike Ross (he is the supervisor of the office).
22 I talked to Jim Selinger, he's the Unit 1 superintendent. And you got
23 to understand, I talked to these, you know, every time I picked up the
24 phone depending on what each of these different individuals were doing.
25

1 I could have gotten a different guy each different time. You know, Mr.
2 Ross and Mr. Seelinger were directly involved in directing the activities
3 of the unit. Consequently, if they were involved in a meeting on
4 making the major decisions such as what you were talking about, of
5 putting high pressure injection back on, I could have gotten some
6 control room operator. And I would tell that individual, "Please relay
7 this following information to Mr. Ross and Mr. Seelinger."
8

9 HUNTER: Would that be the type of comment that you would use to relay
10 to a certain person?
11

12 HITZ: Yes, I always make sure that the information, if I received any
13 information that I was to transfer over to the Unit 2. I always made
14 sure that if I didn't talk to either Seelinger or Ross, that that
15 information got to them via the individual that I was talking to.
16

17 HUNTER: Okay, now good, that's what we are looking for. That will key
18 us back to one or two people that we can discuss that that particular
19 issue.
20

21 HITZ: Now there are times also that I talked to the Shift Supervisor
22 over there. Alright, and there were two of them over there at the
23 time. And that was Mehler and Chwastyk.
24
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1 HUNTER: Okay, I understand.
2

3 HITZ: See, I tried to work, you have to understand, I tried to work at
4 the top of the chain and work my way down. Do you understand what I'm
5 saying? To get the man who was in charge, and if I couldn't get him, I
6 would try to get the man directly underneath him. And if I couldn't
7 get him I would try to get the man directly under that individual and
8 that went like Seelinger, Ross, Chwastyk, Mehler. Chwastyk and Mailer
9 are in the same plant as the control room operators.
10

11 HUNTER: Greg, did you keep a log of your phone conversations during
12 that time period. Or any kind of notes?
13

14 HITZ: Of my individual...I...we kept notes. I didn't keep specific
15 notes of anything that I transmitted to them. The notes that we kept
16 were the conversations that were transmitted over the headsets between
17 the ECS and the control room and between the ECS and the offsite teams.
18 But my specific conversations between Unit 1 and Unit 2, no I did not.
19

20 HUNTERL In a previous interview we talked, or in a previous interview
21 (I have read a number of interviews now), anyway you made a tour of the
22 auxiliary building. Can you go through your path, your activities, and
23 what you did while you were in the auxiliary building on this tour?
24
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1 HITZ: Sure. We deemed it necessary to go into the auxiliary building
2 due to the fact of the water situation on the floor, to try and determine
3 if we had a leak or what exactly was the problem down there. So one of
4 the health physics people and myself donned the proper protective
5 clothing and so forth and so on, the Scott airpacks and went into the
6 building with the proper radiation monitors that we used to monitor our
7 dose rates, and we...the first place I went was to the radwaste panel,
8 and I wanted...when we got into the building I wanted to try and see if
9 I could do anything about the standing water on the floor, that is, to
10 transfer water from the auxiliary building sump into one of the neutra-
11 lizing tanks. I also wanted to make sure that I didn't have leakage
12 through the reactor building isolation valves via the reactor building
13 sump into the auxiliary building. So the first thing I looked at was
14 the reactor building sump pumps. They were not running; they were off,
15 but they were in the auto position. So I turned them to the off position.
16 The reactor building isolation valves were in fact closed, but some of
17 the downstream valves, which do not receive any S signal, or SFAS
18 signal, to close, were still open, and they should have been open
19 because they transfer... you know, when you transfer water those valves
20 normally stay open. I closed those as a backup in case there was
21 leakage by the valves, by the reactor building isolation valves. I
22 also tried to start the transfer pumps to transfer water from miscel-
23 laneous waste holdup tank into the neutralizing tank so I could drain
24 the auxiliary building sump into the miscellaneous waste holdup tank.
25

1 I could get none of the pumps to start down there. Due to the fields
2 of radiation that we were in, I couldn't afford much time to go check
3 breakers, or so forth and so on. My efforts were futile to get any
4 water transferred. So I deemed it necessary at this time to take a
5 tour of the auxiliary building to see if I could determine if there was
6 (a) a leak, or (b) how bad the damage was in the building as far as
7 water depths and so forth and so on. One of the places I went was into
8 the area of the auxiliary building sump, and the water level in the
9 auxiliary building sump was flush with the floor, meaning that the
10 water that we had on the floor had backed up through the floor drains.
11 Everywhere there was floor drain, there was standing water.

12
13 HUNTER: OK and, if I recall right, then you left the auxiliary building
14 and got out of your clothing and, via Unit 2, went back to Unit 1?

15
16 HITZ: That's correct.

17
18 HUNTER: All right, let me go to another area I will cover with you.
19 The emergency feedwater valves, the EF flow valves A and B, have been a
20 problem and they were a problem during this event; they were closed,
21 and we are doing a specific investigation effort concerning the emergency
22 feedwater surveillance program, and I'm in fact involved in that particular
23 activity. We have discussed with a number of operators to determine,
24 Greg, exactly how they do business, how they do the surveillance,

1 what's saved in the surveillance procedure, what's discarded into the
2 trash, you know, what's in the surveillance file. One of the problems
3 that we came up with is that the EF-12 flow valves apparently have been
4 found closed before, and possibly even the pumps in "pull to lock." I
5 need to ask you if you have ever been aware that they were, in other
6 words, you noted that they were not in their normal condition, that
7 might be the 5's, the A7's or the 8's or the 12's and also the pumps,
8 or was it ever reported to you that they weren't in their normal condition,
9 that you recall?

10
11 HITZ: You're talking any time during the plant...

12
13 HUNTER: Yes, sir, when they were not supposed to be closed, meaning
14 mode 1 through whatever, that they were not in there normal position.

15
16 HITZ: They're supposed to be in their normal position when the turbine
17 header pressure gets equal to or greater than 800 pounds...why? why?
18 any time in plant life.

19
20 HUNTER: So in Unit 2, that would be from core load, you know, it seems
21 to come in this direction...

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1 HITZ: It seems to me that during a heatup one time; let me think,
2 okay? It seems to me that during a heatup one time we did have a
3 problem with one of those. We were in the process of a heatup, and by
4 that I mean we were going from a decay heat removal situation where the
5 RCS temperature was 100 and some degrees, maybe 100, 140 degrees, and
6 we were heating up. And of course when you heat up, the secondary side
7 starts to pressurize. And what happened is, at shift relief time--my
8 shift was coming on and another shift was going off--and one of the
9 things that you got to do in order to go from one particular mode of
10 operation to another particular mode of operation is to fill out a--they
11 have certain surveillances that have to be done. And one of the surveil-
12 lances that you have to do after you get up above 200 pounds in the
13 turbine, in the steam side, on the secondary side, is the emergency
14 feed pump surveillance. I believe that we were taking, we were in the
15 process of going up, getting close to this 800 pounds and they were
16 finishing up the surveillance on the emergency feed system. And in the
17 process of the turnover we found that the 12 valves were closed, I
18 believe we found the 12 valves closed. I'm pretty sure of that, okay?
19 All right. Do you understand what I'm saying? We were, like one
20 shift, like I'm coming in to relieve you, okay? And you are doing a
21 surveillance, and it looked to me like it was the in point where they
22 were finishing up on the surveillance and we were coming in to take
23 over. Now whether...I can't remember whether we did the steam generator
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25

1 surveillance or not. I don't believe we did. I believe it was the
2 final; the final touches were being done when we came in. I'm almost
3 sure of that.
4

5 HUNTER: You need time, you're saying the EHV12 A&B valve?
6

7 HITZ: Yes, three-twelve.
8

9 HUNTER: What about the pumps? At any time do you recall them being
10 "pull to lock?"
11

12 HITZ: Boy, pumps "pull to lock." I can't remember, I just can't
13 remember any time.
14

15 HUNTER: We'll proceed through this thing. At the point, in the modes
16 in tech specs, as soon as you go into a specific mode, the feed system,
17 the emergency feed water system, needs to be in the operable condition,
18 meaning 3 pumps, 2 flow paths. If, in fact, at that time those pumps
19 were B 12 A&B valves closed, and header valves closed, meaning that the
20 two headers were inoperable or shut, would that put you in violation
21 of the tech specs?
22

23 HITZ: If I was in the mode that they were supposed to be in? Absolutely.
24
25

1 HUNTER: Do you recall if you were in violation of tech specs at that
2 condition that you were speaking of, when you found the 12 A and B
3 valves closed?
4

5 HITZ: I couldn't have been in violation of tech specs or I would have
6 wrote it down, I would have reported it. That would have been a reportable
7 incident.
8

9 HUNTER: Let me ask you, if in fact you find them, in, an operator or
10 to his shift foreman that you report the valves were in other than
11 normal position, what's your action at that time?
12

13 HITZ: Which condition am I in? Am I in a condition where I'm violating
14 tech specs or not violating tech specs?
15

16 HUNTER: Violation of tech specs; a condition where a piece of equipment
17 has failed or a valve has failed.
18

19 HITZ: Okay, if I come in and I find a condition where we are violating
20 tech specs, I immediately make corrective action for that. And the
21 tech specs tell me what the corrective action can be. If in fact I have
22 to cool back down, I'll cool back down. If I've got, if I'm on a time
23 clock, which sometimes you get yourself on a time clock, I'll take the
24 corrective action, and if I can complete that corrective action on a
25

1 time clock, then I can continue on with my heatup. OK? Or whatever I'm
2 doing, or I can stay at power, let's see. But I must write a report.
3 OK? I must notify the Supervisor of Operations, and I also make it a
4 point to notify, well, I made it a point to notify the Supervisor of
5 Operations and I must notify the Station Unit Superintendent also. I
6 also notify the PORC members right away. It depends what time of the
7 day it is as to how we notify the NRC.

8
9 HUNTER: Let me ask you a couple of questions concerning the emergency
10 feedwater system valves, the EF12 valves; also the EF11 valves. Have
11 you ever had problems with the EF11 valves being left in manual? Have
12 you ever run into that type of situation?

13
14 HITZ: I have run into a situation where I've had the main feedwater
15 valves in manual. The main reg valves, yeah.

16
17 HUNTER: I understand.

18
19 HITZ: I have had them blocked open. We did some maintenance and it
20 calls for those valves to be tagged open, and evidently what they did
21 was they tagged them open, they put them in manual, and when they went
22 and removed the tags they never put them back in auto; and the valves,
23

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1 of course, when you put them in manual and open them, they do not
2 respond to the ICS control station. They stay wide open; as a matter
3 of fact, it caused me to have a turbine and reactor trip.
4

5 HUNTER: I understand; okay. Another condition that we were interested
6 in is whether or not you personally have seen anything at any time, an
7 event where the EF11 B valves on a unit trip, or your steam generators
8 come to the low-level control point of 30 inches--have you ever seen
9 when these valves didn't respond to that low-level control point?
10

11 HITZ: Well, I personally have seen EFV11 B not respond to its control
12 point.
13

14 HUNTER: And maintain steam generator level of 30 inches after a unit
15 trip.
16

17 HITZ: I believe there was one time; you've got to understand that I've
18 been involved in several trips. OK? And I believe that there was one
19 trip that we had where we had to take manual control of one of the
20 emergency feed valves, if not both.
21

22 HUNTER: Greg, if that happens, what would be your action? More so
23 interested in, yes, I had the problem, and also, what are your actions
24 as a Shift Supervisor?
25

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1 HITZ: First of course, I get control of the plant. And once I've got
2 control of the plant...if I'm not mistaken, when we write a work request,
3 and what you do is, if you have a problem with a piece of equipment you
4 write a work request to get it fixed. I'm not positive, but I think
5 those are the valves that we have the problems with the controllers,
6 the Bailey controller on it. Not the one in the control room that the
7 air E to peak converter so forth and so on down at the valves.
8

9 HUNTER: At the valves.
10

11 HITZ: We have had problems with those. I'm positive, I'm 98% sure
12 that that's on the emergency feed water, the 8-11s.
13

14 HUNTER: Have you ever had the problem with maintaining steam generator
15 levels even in manual on a loss of...
16

17 HITZ: Yes, there was a trip that we had problems with. We had to go
18 to the 32's and 33's.
19

20 HUNTER: Okay, would you, can you recall the trip, or the type of trip,
21 or the time frame?
22

23 HITZ: The time frame was the shift relief time again. The Shift
24 Supervisor that I was relieving was still there, George Chwastyk.
25

1 HUNTER: Can you recall the time in-plant life?
2

3 HITZ: Boy, I sure can't. It was before commercial operation.
4

5 HUNTER: And during the startup program, before commercial?
6

7 HITZ: I'm almost sure of that, yes.
8

9 HUNTER: And what was the problem there, do you recall?
10

11 HITZ: It seems to me that, if I'm not mistaken, that's when the, for
12 some reason the feed pumps just wound down and didn't pump. And they
13 actually, it was either the feed pumps wound down or we lost the con-
14 densate and condensate booster pump, which of course was the operating
15 feed pump. We were at low power level. And when I say low power, I'm
16 talking somewhere between 20% and 25% power.
17

18 HUNTER: Greg, when you say "wound down", would that be other than a
19 feed pump trip, or would you just...
20

21 HITZ: For some reason, I've seen, I've had a situation where the pumps
22 just, for some reason, never even, just went back to minimum speed.
23
24
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1 HUNTER: And what does that do to you?

2
3 HITZ: Decreases feedwater flow.

4
5 HUNTER: And the results of that would be what?

6
7 HITZ: High reactor coolant system pressure, which would cause a reactor
8 trip if the reactor was online.

9
10 HUNTER: I can trip on the high reactor pressure; then would the emer-
11 gency feedwater come on automatically?

12
13 HITZ: Only if the feed pumps tripped or received a trip signal to
14 trip.

15
16 HUNTER: And if the feed pumps did not trip?

17
18 HITZ: Nothing, the emergency feed pumps won't start.

19
20 HUNTER: And what would be plant shift reaction to that?

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1 HITZ: Well, the first thing you try to do is get the feed pump back
2 up. If the feed pump won't come back up, you trip the two main feed
3 pumps or the feed pump that was on--at this time it should only be one.
4 And when that trips, the emergency feed pumps start automatically.
5

6 HUNTER: Do you recall going through a problem like that and having to
7 go on the 32 valves? Is this the same situation?
8

9 HITZ: Yes, this is the same situation.
10

11 HUNTER: Did the guy have to manual start the aux water feed pumps?
12

13 HITZ: I can't remember; see, the Shift Supervisor (the other Shift
14 Supervisor) and I were in the Shift Supervisor's office turning over,
15 and all I did was look up and I seen the rods fall in. I seen all the
16 control rods trip, and I knew we had reactor trip. When we went out,
17 we were in a loss of feed condition. The emergency feed pumps were on
18 at this point.
19

20 HUNTER: As you understand it though, since the main feed pumps only
21 went ...
22

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25

1 HITZ: They either wound down or they tripped.

2
3 HUNTER: That would not trip the aux feed pumps. The operator would
4 then have had to notice the condition and start the auxiliary feed
5 pumps...

6
7 HITZ: Yes. That's true. The emergency feed pumps only start in two
8 conditions, three conditions. And that's not one of the conditions.

9
10 HUNTER: Okay, the guy would have started the emergency feed pumps.
11 Then, what happened to the 11 valve, do you recall? That you had to go
12 on backup _____ with the 32 valves.

13
14 HITZ: I didn't look at the 11 valves, I looked at steam generator
15 level. And steam generator level was not responding. So we went to
16 the 32's in this _____.

17
18 HUNTER: And what would go ahead in case the 11's were not opening?
19 Was this before you had actual indication on the 11 valves? In other
20 words, they only had a signal to them and later on you ended up with
21 some...actually ended up with indication on the valves themselves.

22
23 HITZ: Yes, but that doesn't tell you valve position.

1 HUNTER: Even on Unit 2 it still doesn't?
2

3 HITZ: No.
4

5 HUNTER: Okay, so you went to the 32's just in case?
6

7 HITZ: Yes, you know, if you go to measure variables it tells you valve
8 demand. It tells you what the valve should be, but it doesn't tell you
9 where the valve is. And, you know, the steam generator level was not
10 reacting the way it was supposed to, and I know for a fact that this
11 was before commercial operation, because it was right after we did the
12 cooldown from outside the control room test.
13

14 HUNTER: What's the time frame on that?
15

16 HITZ: That would have been fall, sometime in the fall. But it was
17 right after we did the cooldown from outside the control room. That's
18 when you go out and manually control your steam generator levels and
19 makeup tank level and pressurizer level from outside the control room.
20

21 HUNTER: Okay, and the operators then would have used the 32's. Are
22 those full open, or are they just stroke valves?
23

24 HITZ: We sent people down to control room them, manually.
25

1 HUNTER: And then they would manually control the 32's or _____
2 assuming he opened them all in, got some water to the steam generator?
3

4 HITZ: Yes, to the best of my recollection, that's what happened.
5

6 HUNTER: And those in are there, because of, just in case, this type
7 problem, they bypass the 11 valves?
8

9 HITZ: That's correct.
10

11 HUNTER: Another question I want to ask them to discuss a little bit...
12

13 HITZ: Let me say something, I believe that's the point where we found
14 out that we had problems with the little grey Bailey control box down
15 at the valve center.
16

17 HUNTER: Okay, the problem then really was the 11 valves, the actual
18 local controller?
19

20 HITZ: Right.
21

22 FOSTER: We are going to break now and change the tape. The time is
23 4:58 p.m.
24

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1 FOSTER: We are going to continue with the interview of Mr. Hitz. The
2 time is 5:00 pm.
3

4 HUNTER: Okay, Greg, we have just discussed the fact that the EFV 32
5 A&B valves, the back S valves on the automatic feedwater for steam
6 generators had been used and, subsequent to that use of those valves,
7 it was found out locally that EF 11 A&B valve local Bailey controllers
8 were at fault, and that the valves did in fact not open or they didn't
9 respond all the way out. I am assuming that.
10

11 HITZ: Right.
12

13 HUNTER: Okay, and I indicated I would like to ask another question
14 concerning the emergency feedwater system as a whole. We'd like to get
15 an indication from you. The Unit 1 and Unit 2, you have operated both
16 units. Now Unit 1 seems to be a fairly calm unit, on a unit trip.
17 Things seem to work, and you have not had S's and you haven't had the
18 problems since preops started. On Unit 2, the operators and Shift
19 Supervisors look at Unit 2 as being a very sensitive unit--the best way
20 to put it, I guess. The primary system is very sensitive to a trip.
21 Things change, pressurizer level goes below 80 inches, may lose their
22 heaters. They have had safeguards features, EFF actuation due to low
23 pressure. The operators are getting very good at trying to maintain the
24 plant on the line by starting the second makeup pump, closing letdown,
25

1 and doing the things to try to stabilize. Some of them even take the
2 pressurizer spray valve, crank it open, and try to clip that pressure
3 spike, and then put it back to auto; then feed from the BWST to try to
4 maintain pressurizer level. Looking at that concept, on a loss of feed
5 accident. One of the things that would happen or on a turbine trip with
6 the main feed pumps, you could run into an overfeed problem, if you
7 were still feeding the steam generators as the turbines or feed water
8 regulator valves came down. If one of them was in manual, you would
9 overfeed and end up with a severe cooldown transient. If you have a
10 main feed pump trip and the auxiliary feed system starts, and the steam
11 generators start down level with the auxiliary feed pumps on, and
12 operating at shutoff pressure behind the EF11 valves, that would be the
13 normal situation. If, in fact, as a generator goes below 30 inches the
14 EF11 valves start to open and try to maintain 30 inches, that could, in
15 fact, constitute a, or would that in fact, constitute an excessive
16 feedwater flow? Would it constitute excessive feed flow in the operator's
17 eyes? Are they sensitive to that particular aspect of the plant.

18
19 HITZ: I think you want to know, if the operator puts the valves to
20 manual and just runs the 11's open, to get water back in the generator?

21
22 HUNTER: That. How he treats those, whether he would put them in manual
23 or keep them closed, or put them in manual and open them to try to
24 limit the transient on the plant. Have you got any feeling for that?

1 HITZ: How would the operator respond if the valve didn't function and
2 he was now controlling the valve? Or if he just, if it was in manual
3 and he wanted to go up and just popped it to auto, that type of thing?
4

5 HUNTER: Let's say that we're sitting and the plant is at 97% power;
6 feedwater pump trips due to whatever; both of them trip; you really
7 don't get a chance for a runback or anything, it's just down and you
8 get the reactor trip. It's obvious that the auxiliary feedwater pumps
9 should start and do start, no problem. Considering the normal lineup
10 that the EF12 valves should be open and the 11 valves should be closed,
11 weighting the ICS low limit to 30 inches, then they would start open.
12 Would there be a possibility that the operators would not allow them to
13 open? Like walking over and putting them in manual while they're
14 closed? Have you ever seen anything like that happen or did you see
15 anything like that talked about?
16

17 HITZ: It would be conceivable, okay, depending on what reactor coolant
18 system pressure was doing. You know, pressure, reactor coolant system
19 pressures and feedwater control; feedwater can control reactor coolant
20 system pressure. It can stop, you can increase or decrease pressure
21 and stop it on a dime by controlling feedwater flow. If pressure is
22 going extremely high and you're into a plant transient, all you got to
23 do is take either the valves or the demands to manual, and either run
24 them open or run them closed and that will stop your RCS pressure. It
25

1 depends what that operator seen the pressure doing. If he seen pressure
2 screaming out the top, it's conceivable that he could put those valves
3 to manual and close them, I'm sorry, open them. Try to open the valves
4 to overfeed the generators, which, in fact, would give you a bigger
5 heat sink and stop your pressure rise on the primary side or, if pressure
6 was going out the bottom, going down real fast, he could take the
7 valves, put them manual and bring them closed. Yes, that's conceivable;
8 I've done it when I was a control room operator. Not on the emergency
9 feedwater valves. I've never would done anything like that in emergency
10 feed water valves. I've never seen emergency feedwater systems start
11 automatically in Unit 1 on a transient; I have seen it start, okay, but
12 due to a reactor trip or feed pump trip.

13
14 HUNTER: What about on Unit 2? Have you ever seen the operators take
15 control of the 11 valves and keep them closed? Say, for instance,
16 pressure is down below 1700 and continuing to drop, take manual control
17 of the F11 valves and keep them closed?

18
19 HITZ: We did when I had a severe trip here; we lost vacuum. I don't
20 know if you are familiar with this trip or not. But we had, for some
21 reason, vacuum went way down on us and it caused the turbine to trip.
22 Well, eventually the feed pumps, which we don't have auxiliary vacuum
23 pumps in Unit 2--they come off the main vacuum pumps. I had a trip to
24 the main feed pumps too and we were working with the emergency feedwater
25

1 valves. And we, I believe we did do some controlling of steam generator
2 level with the 11's in hand that day. That was quite an unusual situation.
3 We bottled up the RCS system. What happened was the bellows on the
4 atmospheric relief valves ruptured. I don't know if you are familiar
5 with this issue or not, okay?
6

7 HUNTER: Yes.
8

9 HITZ: Well the room, we lost all pressurizer heaters because the
10 pressurizer heaters are located in the same room as the code relief
11 valves and the atmospheric dumps. We found, from the control room,
12 that when we closed the atmospheric relief valves from the Bailey
13 control stations, that the noise level decreased to 0 and they didn't
14 hear any steam rumbling. So we kept the atmospheric relief valves
15 isolated and controlled steam generator level manually _____,
16 thus bottling up the RCS system.
17

18 HUNTER: And by controlling them in hand, would you have been... the
19 vacuum was lost so you don't have atmospheric, you don't have condenser
20 dumps.
21

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1 HITZ: I don't have condenser; any cooldown rate that I would have
2 wanted, or any way to cool the plant down, would have been opening the
3 atmospheric relief valves and blowing that live steam into that cubicle
4 which we call the M20 area; but it's the area where the pressurizer
5 heaters and the code relief valves are--the pipe, in fact, itself.
6

7 HUNTER: During that incident, Greg, I might assume that there was a
8 low power history on the plant.
9

10 HITZ: Yes, very little.
11

12 HUNTER: Otherwise, you would have been on the safety valves with a
13 secondary.
14

15 HITZ: Yes, sir, we were at... the plant actually tripped. We were
16 below 20% power, I believe, because I noticed, I was watching vacuum
17 and I shouted at a control room operator, I said "the vacuum is going
18 down; send somebody down to the vacuum pumps. Get an operator down to
19 the polishers and let's watch reactor power." And as vacuum continued
20 to decrease, and it decreased at an alarming rate as far as I was
21 concerned--you can open a vacuum breaker and it takes a long time for
22 30 inches of vacuum to dissipate--this was screaming down at a alarming
23 rate. At that time, when I knew that we had a problem, I said to the
24 operator that was on the primary side "start reducing reactor power."
25

1 He started reducing power to try to bring power down along the 15%
2 range instead of the 18% to 22% where we were; but the turbine tripped.
3 At that time, when the turbine tripped, I heard we have microphone
4 that's mounted down where the code relief valves are so we can tell in
5 the control room when the relief valves are lifting. I heard the code
6 reliefs go for an instant, and then everything went silent. And I knew
7 something was wrong. At that time I ordered the control room operator
8 to continually to drive rods till the reactor was, in fact, shut down,
9 and to continued to drive rods until the rods were...we were down into
10 the intermediate range of power level.

11
12 HUNTER: Okay, looking at the same type situation as far as locating
13 emergency equipment in other than normal conditions, looking at the
14 core flood tank valves or the high pressure injection M16 valves, or
15 the B16 valves, or the containment spray pumps, or the decay heat pumps
16 in "pull to lock." Do you recall ever having any input from the opera-
17 tors that any of those particular pieces of equipment were not normal,
18 or during your tour of the control board ever found any of that equipment
19 in the abnormal condition?

20
21 HITZ: I found I can't remember if it was the building spray or the
22 decay heat. I don't even remember what mode we were in. But I did
23 find, it was either one or both, no, it was only one. I can't remember,
24 okay, but I did find a pump in "pull to lock" and I can't remember if
25

1 it was decay heat or building spray. I seem to think it was building
2 spray, but I don't know that for sure, okay? You're got to remember
3 the building spray and decay heat pumps, the control switches are right
4 next to each other. One's elevated a couple of inches. Again, I can't
5 remember what mode we were in.
6

7 HUNTER: Do you recall doing anything with that event or...
8

9 HITZ: If we would have been in a mode were I had to report that, I
10 would have reported that. We talked about this before, when you asked
11 me about the 12 valves being closed. If I'm in a condition, okay,
12 where its not a reportable incident, I will talk personally to the
13 Shift Supervisor of the individual of the shift that I've relieved and
14 make him aware of what I found so that he can definitely talk to the
15 individual who was involved in that situation. If it's in a condition
16 where its a reportable occurrence, and by that I mean where you're in a
17 mode, let's take for example the 12 valves because that's the one
18 everybody talks about. If I was in a condition where steam header
19 pressure was above 800 pounds, that's a reportable incident; its cut
20 and dried.
21

22 HUNTER: No problem?
23
24
25

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1 HITZ: No.

2
3 HUNTER: Okay, have you ever run into problems where, or had the feeling,
4 that something like that may have been reported to the foreman and it
5 didn't get to you? The operators here do not fill out a corrective
6 actions system report.

7
8 HITZ: The control room operators?

9
10 HUNTER: Right, or an incident report or any type of corrective action
11 document that would force the issue, if you will. So it is strictly
12 verbal.

13
14 HITZ: That's right. And I know if it was reported my shift foreman,
15 he would report it me. I know my shift foreman like a book.

16
17 HUNTER: Any comments? I've got the information I need. Any comments;
18 do you have any, we covered a lot of area as far as inoperable systems.

19
20 HITZ: You know, and so much has happened, I have experienced so many
21 trips, and when I say so many trips, I've experienced, you know, I
22 could probably say 5 reactor trips. From the startup program up till
23 now, okay, you know, to try to pick out a specific instance, that's

24
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1 tough. Did you operate those valves in manual at any time from the
2 time you loaded the fuel till now? Hey, that's tough. You know, you're
3 talking, you know, what, 2 years?
4

5 HUNTER: Hopefully, the event that the 12 valves being closed, and I
6 say "did you in fact remember them being closed?" That's significant
7 enough so you wouldn't forget it. I'm hoping that that's the case.
8

9 HITZ: When I pulled that out, you know, once you, I had to sit and
10 think about that. If it would have been a reportable occurrence--and
11 you're got to understand again when I say reportable occurrence that
12 means I'm in the appropriate mode and, hey, I'm in direct violation of
13 tech specs--if you close both 12 valves, you won't have any speed to
14 the steam generators, okay? And that's, you know, you're directly
15 violating tech specs; that's a reportable occurrence.
16

17 HUNTER: No question.
18

19 HITZ: Okay, and I would have made out a report. You know, if I'm
20 below 800 pounds, it is not a reportable occurrence. And I tend to be
21 emotional, and if somebody comes to me and says "look at this," I don't
22 know if I did or not, but I'd bet \$100 that I went through the overhead
23 when a guy told me that. I would probably blow up and chewed on my
24
25

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1 control room operator for something he didn't even do. But I know that
2 I would have gone to the Shift Supervisor and Shift Foreman or the guy
3 who I relieved, and talked to him and I do do that.
4

5 FOSTER: Greg, thanks a lot. We are going to conclude here at 5:15
6 p.m.
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