

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

1 In the Matter of:

2 IE TMI INVESTIGATION INTERVIEW

3 of Dale J. Laudermilch
4 Auxiliary Operator B

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7
8
9 Trailer #203
NRC Investigation Site
TMI Nuclear Power Plant
10 Middletown, Pennsylvania

11
12 May 18, 1979

(Date of Interview)

13 July 9, 1979

(Date Transcript Typed)

14 220 and 221

(Tape Number(s))

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19
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21 NRC PERSONNEL:

22 Tim Martin

23 William H. Foster

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1 FOSTER: My interview is being conducted with Mr. Dale J. Laudermilch. Mr.
2 Laudermilch is an Auxiliary Operator B at Three Mile Island Nuclear Facility.
3 The present time is 2:00 PM. Today's date is May 18, 1979. The place of
4 the interview is Trailer No. 203 located immediately outside the TMI site.
5 Individuals present for the interview are Tim Martin, Inspection Specialist,
6 I&E Performance Appraisal Branch. My name is William H. Foster. I am a
7 Senior Inspector and Auditor for the Office of Inspection and Auditor, NRC.
8 I will be monitoring the interview. Prior to the interview being recorded
9 Mr. Laudermilch was provided a document explaining his rights concerning
10 the information to be obtained regarding the incident at Three Mile Island.
11 In addition to Mr. Laudermilch was provided with the authority of the
12 investigation, the purpose of the investigation, the scope of the investiga-
13 tion, and the authority by which the Congress authorizes the NRC to conduct
14 this investigation. On the second page of the Advisory Document Mr. Lauder-
15 milch has answered three questions. The questions and Mr. Laudermilch's
16 answers will now be recorded as part of the interview.

17
18 FOSTER: Mr. Laudermilch, do you understand the document?

19
20 LAUDERMILCH: Yes, sir.

21
22 FOSTER: Do we have your permission to tape this interview?

23
24 LAUDERMILCH: Yes, sir.
25

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1 FOSTER: Do you want a copy of the taped transcript?

2
3 LAUDERMILCH: Yes sir, I do.

4
5 FOSTER: Mr. Laudermitlch, at this time, would you please provide a brief
6 summary of your academic background and employment history as it relates to
7 the nuclear field?

8
9 LAUDERMILCH: I was employed by Met Ed on the 9th (I believe) of July 1976.
10 I started as a site protection officer when Met Ed first started their own
11 security program. There we had extensive training in the security aspect
12 and of course firearms and the legal aspects in carrying a firearm. We had
13 basic HP training there. If I remember, I was awarded an RWP on my badge
14 for that training. I think that it was a 16-hour type session, we had some
15 brushup sessions after that. About June of let's see, it would have been
16 the next year, I guess 77, I left the security department and went to the
17 Health Physics Department where I received somewhere between 6 and 8 weeks
18 of health physics training to move into the job of a Rad Chem Tech, Jr.
19 Immediately upon completion of the training there was a layoff and I was
20 bumped out of my position. I was given the chance to take a test to become
21 an Auxiliary C Operator. I took the test and was awarded the position of
22 Auxiliary C Operator. I spent about three months on shifts, on the job
23 training, filling out some reports corresponding to that training. From
24 there, I believe it was in late October or November, we went to school for
25 nine weeks for Auxiliary C Operator school. I spent a year on shift, took

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1 a test in July of 78 and was awarded Auxiliary B Operator and at the end of
2 July of 78 I reentered school for another six weeks of primary side training
3 and some math and health physics training also. After that time I have
4 been on shift and have received the normal shift training OJT Training,
5 company training programs that they have, when we were on our training
6 week, when we have been on our relief week, we have had training sessions
7 and so forth. That's about it.

8
9 FOSTER: Thank you, Mr. Laudermilch, can I ask you to speak a little louder,
10 please? At this time, I will turn the interview over to Mr. Martin.

11
12 MARTIN: Tim Martin speaking. At what point did you become aware of the
13 event and what was your involvement?

14
15 LAUDERMILCH: Well, I was on shift the night of the trip, OK. I was on
16 Outbuilding 4 just finished adding hydrogen to the main generator. I was
17 coming in Unit 1 security building or just out of the Unit 1 security
18 building, the area of the Unit 1 service building. I heard the Unit 2
19 safeties lift. So that would have been my first my first time that I realized
20 that we had tripped and from there I went back to the Control Room via the
21 outside route to check some things on the way. That was the first indica-
22 tion I had that we had a trip.

23
24 MARTIN: Dale, you indicated that you heard the Unit 2 safeties lift.
25 Could it have been any other safeties that lifted that gave you that indica-
tion or how can we be sure that it was the Unit 2 safeties that lifted?

1 LAUDERMILCH: Well, like I said, I was right outside the Unit 1 service
2 building as I came in the door I heard it and I went back outside and from
3 that point, if it had been the Unit 1 safeties lifting, I could have seen
4 them and I looked and it wasn't Unit 1 so I knew it had to be Unit 2.
5

6 MARTIN: Dale, Martin speaking again. Could it have been safeties associated
7 with the Auxiliary boiler.
8

9 LAUDERMILCH: No, because there is no mistaking the difference in volume
10 you know of sound of the Unit 2 safeties and the Aux boilers. The Aux
11 boilers make noise but nothing like the type Unit 2 safeties do.
12

13 MARTIN: Martin, speaking again. Would you try to sequence us through what
14 you did from that point on, what you saw, and I'll interupt if I have some
15 specific questions.
16

17 LAUDERMILCH: OK. If I may, I have a copy of an interview that I had right
18 after the trip. I may have to refer to this to try to remember some things.
19 As I said, I started back toward the Unit 2 control room. I took the
20 outside route around the Unit 2 Auxiliary Building by the main transformers,
21 condensate storage tanks, steam and water tanks and back in the Unit 2
22 turbine building on the West side. I was assigned to out buildings that
23 night, so I figured that it was as good a chance as any to make a quick
24 tour and just check things out to make sure everything was all right out
25 there that nothing abnormal was going on. I didn't see really anything

1 abnormal there. I came in the Unit 2 turbine building of course by the
2 sounds in the building I could tell that we had tripped. I don't remember
3 whether it was louder or quieter but I knew that it was different and knew
4 that we weren't on the line anymore so on the way back up I went via 305
5 level of the turbine building. One thing I did see were the gland steam
6 exhausters were blowing steam fairly bad.

7
8 MARTIN: This is Martin again. What would that indicate to you?

9
10 LAUDERMILCH: Well, apparently that the exhausters had tripped off and they
11 weren't removing the steam the way they should have been from the turbine
12 glands. That is about the only thing that I can think of right off the top
13 of my head.

14
15 MARTIN: Is that normal on a turbine trip?

16
17 LAUDERMILCH: No, I don't recall seeing that before. I looked at it quickly
18 on the way by, OK? They were blowing steam and I just made the judgement
19 at that time that it wasn't critical and the best thing I could do was go
20 to the control room and be dispatched where I was needed, OK. So that's
21 about all that I can tell you about that. I can't really make a judgement
22 on what sequence of events might have led up to the exhausters tripping,
23 you know some sort of electrical problem maybe or maybe some sort of pressure
24 spike that made the exhauster malfunction. But that's the problem as I saw
25 it on the way by.

1 MARTIN: Sorry, I interrupted your thought train here, would you continue
2 from that point on?

3
4 LAUDERMILCH: From there I went to the Control Room and waited to be dis-
5 patched on a job. I did a number of jobs that evening and I am not real
6 sure of the time frames and so forth, but I will try and remember the best
7 I can. Terry Dougherty and myself were in the control room. Don Miller
8 had been dispatched down to the turbine building or he had been working in
9 the turbine building earlier that night, he was on the polishers. I don't
10 know if he was down there at the time or what but apparently he called the
11 control room and said they had a leak on the suction of the A booster pump.
12 So Terry and I left and went down there to help him out. We got down there
13 and there was a leak it was just downstream of the suction valve so we
14 started to close the valve. They started calling me on the page for another
15 job so Terry said that he would get it. So he took the message and was
16 dispatched somewhere else and Don and myself and there was an engineer
17 standing by and we asked for help and isolated the leak. I think I reported
18 back up to the Control Room after that to the next so called job I would
19 have been dispatched to would have been trying to maintain hot well level.
20 Hot well level was high. The downstream isolation of the main reject valve
21 was throttled, OK. I was told to open it up, I think four turns, to try to
22 bring the hot well level down. I did that and I can't remember whether I
23 was running back and forth to the control room being dispatched on all of
24 these jobs. Some of them I know that I was down there and they called me
25 and so forth but I worked on that and they called me again and told me to

1 open it further and you know then stay down by the page and try to maintain
2 hot well level. By that time, Bill Zewe and Terry Dougherty and Don Miller
3 were down there was a problem Don had told me earlier that the polisher
4 outlet valves had isolated and they couldn't get COV 12 which is a bypass
5 round the polishers open OK? They were up there on top and the handwheel
6 was missing on the valve, OK. It's a limit torque valve, the thing never
7 did work right. We've always had problems with it. But they got up there
8 and the handwheel was apparently laying on top of the ventilation duct and
9 they had to mess around trying to get the handwheel on you know and then
10 they got it on and they were cranking on it. Then Bill was called down to
11 the page. Craig Faust called him and had some question about the turbine
12 bypass valves. Anyway, Bill left then and I was on the ground and Terry
13 and Don were up trying to get the valve open. I told them I was going to
14 go up and trip and reset the breaker for it and see if that might help us
15 out to get the thing open, you know. I told them to just keep cranking on
16 it. So I did that and came down and told Terry to listen for the page you
17 know if they wanted to do something on the hot well level, he would have to
18 come down and take over that job. But I got back down and I don't know if
19 it was the breaker or they finally got it off the seat far enough but
20 apparently we got travel out of the valve and got the valve open OK. We
21 were downstairs looking at things, I was looking at the leak and the booster
22 pump there was a leak in the outlet of one polisher I was looking at that.
23 There was a lot of confusion. Somebody had called and said that the circ
24 water flumes were starting to overflow. Terry was on the page and he told
25 me that and I said well, stand by the hot well level here and try to main-

1 tain that and I'll go out and try to take care of it. I had a radio with
2 me you know from being on the out buildings so I ran upstairs and called
3 the guards and they met me at the gate and I ran out to the circ water
4 house. The flumes hadn't yet overflowed, they were a few inches from the
5 top so I called Ed Frederick on the page and told him and he said OK, then
6 let's isolate makeup. So I isolated it and yelled it over the page that it
7 was isolated and he acknowledged it OK. So I ran back inside and the
8 guards were waiting for me and let me back inside the gate. I went back
9 downstairs and things had calmed down for a period of time. I remember
10 looking at the hot well level and the whole time it was out of the sight
11 glass and I couldn't understand this. We weren't getting the hot well
12 level down and the water was clear but then I think when I came back in
13 from securing and makeup to the flume and looked at it the water was dirty.
14 You know, it was just like from the water hammer downstairs. I heard a
15 pretty loud water hammer. I thought, well maybe it just shook some iron
16 loose and it finally wound up in the sight glass or I thought you know I
17 was thinking all kinds of things and I thought well maybe it was just or
18 maybe we could have a possible circ water tube rupture. I told Bill Zewe
19 about it and he acknowledged it. He didn't say what he thought about it
20 but he acknowledged that I had told him. So then we were downstairs and
21 Gingrich and Harold Farst were jacking the feedwater pump over by hand
22 because the B feed pump turning gear was shot. It hasn't worked for a
23 while. Terry was over looking at the main reject valve we were throttling
24 on downstream isolation. And here, the darn thing was shut the whole time
25 because when the trip initially happened, I guess, Don Miller was downstairs

1 and he said the water hammer was just horrendous. Where we saw the leak we
2 saw that line move two or three feet horizontally. Apparently what happened
3 during that part of the transient, the lines moved such that the air to the
4 main reject line had severed the air line and the valve had never opened.
5 We knew that we had lost the feed pumps and all this and we knew that the
6 reject valve was supposed to be open and we were throttling on the outlet
7 isolation on the downstream isolation and we figured we were doing good
8 all this time and we weren't. Then they got the instrument guys down and I
9 remember them working on it and I guess they finally got it open. I went
10 back upstairs and I saw Steve Mull ... Don Miller and myself went back
11 upstairs and we saw Steve Mull he was shutting the isolations to the reheaters
12 and Don said he was going to give him a hand and I said well I am going to
13 grab a sandwich. I hadn't eaten yet that night I figured I would grab a
14 sandwich and go back into the control room and stand by there and see if
15 they need anything else. During that course I went well I left for the
16 control room and I was eating my sandwich and Ed Frederick told me that
17 there was a breaker, two valves that he needed open and he needed them open
18 real quick. They were the four flood valves, CFE 1A and 1B. I have that
19 in here somewhere I am sure that those are the numbers. The breakers are
20 normally locked open on those, OK. So I took off and ran down the primary
21 side of the auxiliary building and closed the breakers and yelled over the
22 page that the breakers were closed and Ed acknowledged. You know, he had
23 gotten the power light upstairs and he knew that the breakers were closed.
24 So I just stayed down on the primary side because Terry was primary earlier
25 and he had gotten pulled over to help on secondary side so I ... Ed told me

1 to stay over there so we could have some coverage on that side of the plant
2 also. Let's see, let me look through my papers here. I don't think that I
3 have left anything out so far. I stayed over there on the primary side for
4 the rest of the evening. Terry, I remember him telling me that they were
5 trying to maintain the temperature on the letdown or not the letdown but
6 the intermediate closed coolers, OK. So I went downstairs and I went over
7 to the coolers, checked the temperatures on them. They were running a
8 little hot so I went downstairs and throtled a little bit on the cooling
9 water a little bit. I went and made a tour of the basement. At that time
10 there wasn't any water on the floor or anything. I went back upstairs and
11 walked around a little bit. I looked at the vent head pressure on the rad
12 waste panel that was pretty normal. I went over to the SFAS cabinet and
13 looked at the reactor building pressure and that was high, it was about 2-
14 1/2 pounds. I knew there was a problem in the reactor building because I
15 was up in the control room earlier when Ed came around the panel and said
16 that they had lost a little water RC drain tank and they got the reactor
17 building fire alarm. They looked at the building pressure and they said
18 that building pressure was going up, OK. So I was just ... I was trying to
19 think of things that I could check in the Auxiliary Building, things that
20 might indicate any problems anywhere else. So the coolers then cooled down
21 a little bit too far, so I went back downstairs and reopened or reclosed on
22 one of the coolers a little bit, OK. Now this is something that I think is
23 pretty important at the time. I'm sorry that I'm jumping around a little
24 bit here. At the time when I was in the control room, ok and they made the
25 comment about the water, losing water in the RC drain tank and the RB

1 building pressure going up. Shortly after that Terry Dougherty had been on
2 the primary side, ok, he called up and told them that the reactor building
3 sump was pegged high and both pumps were pumping. Both sump pumps were on,
4 OK. I heard the phone conversation and as soon as they got off the phone,
5 I said, "Look, I said I don't think that there is another overflow on that
6 tank, but the thing has been into the vent header, that tank's been running
7 fairly high all week, if you let those pumps running you're going to run a
8 possibility of pumping water into the vent header. They immediately discussed
9 this and called Terry back and Terry shut off the pumps. That was before I
10 went over to close those breakers and everything else. So those pumps were
11 shut off at that time and those pumps remained shut off for the rest of the
12 time, OK. Because we were over, Terry and myself were over in the Aux
13 building later on, getting back to where I was. Ed Frederick had called me
14 and asked me to check for a boric acid injection lineup, he gave me the
15 valves and I went up by the boric acid mix tank and was checking the boric
16 acid lineup he gave me over the phone and there was one valve downstairs
17 that I was in the process of getting checked when I heard him start those
18 pumps, OK. Apparently what he had done was dispatch Terry over to help me
19 out and Terry had checked the valve downstairs, OK. So I confirmed with
20 Terry that yeah he had told Ed the valve was open so the whole line was
21 complete and apparently it was getting water where it was needed or he
22 would have called me back, OK. We were down at the panel after that and we
23 had an Auxiliary Building fire alarm and Don Miller came over and we all
24 three went up through the auxiliary building looking for any possible fire
25 and we didn't see any and Don had gone back and Terry and myself went back

1 down to the rad waste panel. I remember looking at the misc. waste holdup
2 tank and it hadn't overflowed. The reactor building sump pumps were off
3 and that's where the sump pumps were lined up to, the waste holdup tank,
4 OK. Ed gave us a call and said he was having trouble that it seemed like he
5 was getting demin water injection somewhere into the RCS, he was having
6 trouble bringing like reactor power counts down. So, he told us to see if
7 we could check things out to see if we could come up with anything. So we
8 got the printout and we were looking at the prints and in the meantime Adam
9 Miller called up and told us to check there was three demin water valves
10 down by the makeup pumps and another demin water valve, I can't remember
11 the valve numbers, OK. So we were getting ready to do that and we were
12 walking over to the elevator and you have to walk right by there is like a
13 service pit in the floor where you can see right down into the basement.
14 At that time, we noticed the water coming out of the Auxiliary Building
15 sump, ok, out of the floor drain. And right then we just stopped what we
16 were doing and we looked at the water and said where is all that darn water
17 coming from and we went back to the panel. We were there trying to figure
18 out where we were getting all the water. By that time we had HP technicians
19 were coming over and starting to take surveys and they were telling us to
20 stay out of the makeup tank room it's like 10R there its 5 R back in the
21 valve valley and so forth. The one foreman had used ... had picked up our
22 instrument to do to do some survey so I told Terry I am going to run down-
23 stairs and get us an instrument so I got us an instrument and I brought it
24 back, OK? We were back at the panel trying to figure out again where the
25 water was coming from, we didn't have any idea, we were kind of lost, we

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1 were still looking at the prints and so forth and Mike Janouski the HP tech
2 came running down the hall and he said, "Get the hell out." He said evacuate
3 the building.

4
5 FOSTER: Excuse me, Dale. We have to take a break to change the tape. The
6 time I have is 2:30 PM.

7
8 FOSTER: We're now going to continue with the interview with Mr. Laudermilch,
9 The time is now 2:31 PM.

10
11 LAUDERMILCH: Where were we? We were back in the auxiliary building being
12 evacuated, OK. This in my mind is another very critical point. At that
13 time Terry and I were both at the panel. The last thing we looked at was
14 the level in the misc waste holdup tank and the reactor building sump
15 pumps. I don't remember the exact level in the holdup tank. I know the
16 needle wasn't pegged and I know that the reactor building sump pumps were
17 still off, they were never turned back on, OK. Terry was working with the
18 aux building sump, we were trying to pump the aux sump into the sump tank
19 trying to get some of that water off the floor because we were concerned
20 about contamination problem. He turned the sump pumps off and we left. We
21 went to Unit 1 HP they had the ECS set up over there. The ECS or emergency
22 center over there they had people on the pages and so forth. Now there was
23 people there waiting to be dispatched on HP type jobs and so forth and
24 Terry and I decided that we had better get back over to Unit 2 and see if
25 we could help out. So we went back over to Unit 2 they told us to go down

1 to HP and get checked out to make sure that we weren't crapped up. So I
2 went down and we both went down I was ... a little my clothing was crapped
3 up because I kind of took off in a hurry for that fire alarm that time and
4 I flopped on my backside and rolled around on the floor a little bit so my
5 clothing was crapped up so I got out. At that time the Unit 2 HP area was
6 becoming contaminated airborne wise and they had to get respirators on and
7 they told me to just to strip all my clothing off, get on paper coveralls
8 and get out. So that's what I did. From there we just went back up to the
9 control room and we didn't do much more because it was like 7:30 in the
10 morning and later on we were sent over to the Unit 1 control room area and
11 we waited there for a while and then they told us to go home and we out
12 through all the check out points ... the 500 KV. It was like 1:00 in the
13 afternoon by the time we got out. That is pretty much it in a nutshell the
14 things I did during that night. Like I say, there might be other things in
15 here, but nothing that I ...

16
17 MARTIN: Dale, Tim Martin speaking. What I'd like to do now is focus in on
18 some areas that are of specific interest to me and try to glean some addi-
19 tional information.

20
21 LAUDERMILCH: OK.

22
23 MARTIN: Where are the condensate pumps located?
24
25

1 LAUDERMILCH: 280 of the turbine building. They are almost dead center in
2 the south, excuse me, the east end.

3
4 MARTIN: OK.

5
6 LAUDERMILCH: Right next to the condensate booster pumps, the polisher
7 panel, the polisher vessels, and so forth.

8
9 MARTIN: Martin, speaking. Did you see the pumps being in a tripped status
10 when you got down to the polisher area. Were they tripped off the line at
11 that time?

12
13 LAUDERMILCH: No. When I went down we had at least one condensate pump on.
14 I don't know about the other one, OK because when we were trying to get
15 that COV 12 open, that polisher bypass valve, we were going to call them up
16 and have them knock off the pump so we could get the darn thing open, OK.
17 That never came about. Bill came down because Craig had a question about
18 something else. In the meantime I ran over and said well I'm going to get
19 the breaker, keep cranking but so I know there was at least one pump running
20 while I was there. Personally, I myself don't recall seeing all three
21 pumps tripped at any one time while I was down.

22
23 MARTIN: Dale, Tim Martin again. Was the booster pump operating when you
24 got down by the polishers?
25

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1 LAUDERMILCH: Geeze, I can't ... I don't think so, no. No because I'm
2 sure it couldn't have been. At least I know the A wasn't and I'm sure the
3 others weren't because one of the first things we did was to isolate the
4 suction valve for the A booster pump because of the leak we had down there.
5 So I am sure that the booster pumps were probably tripped at that time.

6
7 MARTIN: Dale, you were in the control room several times.

8
9 LAUDERMILCH: Yes.

10
11 MARTIN: Can you address what things were going on in the control room, the
12 number of people in the control room, the general noise level, confusion in
13 the control room, the time you were in there?

14
15 LAUDERMILCH: From what I remember in the initial stages there were four
16 people, there was Bill Zewe, shift supervisor, Fred Sheimann shift foreman,
17 Craig Faust and Ed Frederick were the CROs. OK. They were all four working
18 together at the panel. At no time, did I see them have any sort of panic
19 on their face, they were all calm. I saw that they were concerned. I saw
20 there was a time when they weren't, when it looked like they didn't under-
21 stand what was happening at one point, when we got the reactor building
22 fire alarm in and the building pressure was going up, they didn't have a
23 level in the RC drain tank you know. Those were basically the four people
24 that were in there and they seemed to me that they had everything under
25 control. When I went in there I knew that it wasn't a normal trip after we

1 had the fire alarm and that sort of thing. I've been there when we've
2 done power trip testing and we've done other trips and so forth and I never
3 felt ... I mean when I went out in the plant when they sent me out in the
4 plant on the job, I felt confident because I felt they knew what they were
5 doing. That's the impression that they gave me and that's the impression
6 they always gave me. I can't say enough good things about those people. I
7 feel that if it hadn't been those people we might have been in a whole lot
8 worse shape than we are now. I think those people are to be commended, OK.

9
10 MARTIN: Dale, Tim Martin again. Would you address the subsequent time you
11 were in the control room and how many people ultimately accumulated there
12 and the general noise level.

13
14 LAUDERMILCH: The noise level wasn't too bad. I'm going to talk say between
15 the time of the trip and when I got in there OK, it might have been half an
16 hour after the initial trip or maybe 15 or 20 minutes after the initial
17 trip maybe up to about 7:00 o'clock in the morning and so forth. There was
18 basically those four people. Now when I came back from Unit 1 HP area
19 after we were evacuated. There was a lot of people there. I can't remember
20 how many. The commotion was greater at that time, there was more congestion,
21 but up until that time, noise level, the alarms, there was a lot of alarms,
22 you know, the alarms were going off but other than that, it was just those
23 people in the control room. We were there and discussed things among
24 ourselves about what we were doing and trying to ... we tried to let each
25 other know where we were going so if I was watching one thing and had to go

1 on something else for another quick job that somebody else would know that
2 hey, this parameter over here needs a little attention, OK, and they could
3 take care of it. We've always tried to work that way. So we could overlap.
4 Of course, now after 7:00 o'clock there were people everywhere, it was just
5 polluted with people in the control room. It was very congested and I
6 couldn't tell who was running what show where. There were an awful lot of
7 people there.

8
9 MARTIN: Dale, Tim Martin again. You indicated you were following some
10 parameters during the period you might have been in the control room. Can
11 you remember what parameters those were?

12
13 LAUDERMILCH: There's only really two that I can remember and one of those
14 was the reactor building sump, OK. And when I discussed it with Ed about
15 the vent header and so forth, I remember Craig Faust working on the feed-
16 water side and I remember him making a statement like it looks like we're
17 maintaining pretty well, I'm going to knock one of the emergency feedwater
18 pumps off. Now apparently that was after they had already established
19 their flow and everything, OK. Other than that, in the control room itself
20 there wasn't a whole lot of time for me to be in there and try to follow
21 things. I stayed away from the panel and I stayed out of people's way, OK.
22 I didn't have that much time while I was in the control room to try and
23 study what was going on. To begin with I don't normally work out of the
24 control room. There is a lot of things that I would see in there that I
25 wouldn't necessarily recognize as to what were going on. But those were
about the only two things that I can remember that morning.

1 MARTIN: Martin, again. At one time you were dispatched to the reject
2 valve to attempt to reestablish normal hot well level? Can you place a
3 time on this, or maybe associate it with an event?
4

5 LAUDERMILCH: That was I'm going to say that I came to the control room
6 initially I was there about 10 or 15 minutes after I heard the safeties go
7 the first time. We went down on the booster pump job. That took maybe
8 another 20 minutes. I came back upstairs maybe another 15 minutes, so
9 we're talking maybe an hour or an hour and a half after I heard the safeties
10 go. I don't know whether anybody else was dispatched on that job earlier
11 to try to help out on that and then had to do something else or not, OK.
12 But that was ... other than the leak, that was my first operational type
13 job that I went down on was the reject valve.
14

15 MARTIN: Martin, again. What were you using to give you indication of
16 level in the hot well?
17

18 LAUDERMILCH: There is a local sight glass on the side of the condenser.
19

20 MARTIN: Martin again. This was the sight glass that you later found muddy
21 water in?
22

23 LAUDERMILCH: Right.
24
25

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1 MARTIN: Martin again. When you were attempting to reestablish the reject
2 to the condensate storage tank, were they steaming to the condenser?

3
4 LAUDERMILCH: Steaming, you mean the turbine bypass valve.

5
6 MARTIN: yes sir.

7
8 LAUDERMILCH: I don't know for sure ... I don't think so, OK. I can't give
9 a definite answer on that but the one time we were trying to open that
10 bypass valve, Craig had called down and had a question for Bill about
11 opening one of the turbine bypass valves or doing something with it. I
12 know at this time that the safeties were still burping. Of course the
13 bypass valves show automatically open on a high header pressure you know ...
14 that to relieve pressure also. So I don't know if steaming to the condenser
15 per se was actually a controlled function at that time or just something
16 that happened as an after effect of the trip and the high header pressure
17 and so forth. So I can't give a definite answer on that because it's
18 something that I wasn't really involved with.

19
20 MARTIN: Martin again. You indicated that at one point you were attempting
21 to open the COB 12 valve the bypass around the polisher. Was this before
22 or after your efforts on establishing auto reject?

23
24 LAUDERMILCH: That was during. I had gone down opened it four turns and
25 either went back up to the control room, I think I did go back up to the

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1 control room and they said go back down and open it more. I went down and
2 opened it more and then I got involved in the bypass valve around the
3 polisher aspect. Then I turned it over to Terry when I went out to secure
4 the flume and then came back in. When I came back in, we or rather Terry
5 had discovered that airline had severed and the valve was not open. And
6 then I saw that they had an instrument man down there working to get the
7 valve open.

8
9 MARTIN: Martin again. What was your understanding of the purpose of
10 establishing the path around the polisher?

11
12 LAUDERMILCH: Well, my information was that the polishers went to pcc. All
13 the outlet isolation valves isolated. So apparently the condensate pumps
14 had to be dead headed so we had to get the valve open. So anytime we come
15 down, the first thing we want to do is drop polisher off, OK, and if we
16 can't get them off ... if we got have a guy there and establish the right
17 amount of flow like say two vessels for the flow we're putting out. Say we
18 trip a feed and booster pump and we're on quick flow for the condensate
19 pumps so for that given flow you want to put so many polishers on for
20 whatever flow you have, OK. But we didn't have that case, we lost all the
21 polishers so the condensate pumps were dead headed. So we had to get a
22 flow path around the polishers in order to be able to feed it or we wouldn't
23 have had any feed at all.
24
25

1 MARTIN: Martin again. Then your understanding is they were trying to
2 establish the normal feed path for the steam generators?

3
4 LAUDERMILCH: I would assume so. I know, Yeah I would think so, it would
5 have to be because, I don't know what to tell you. Well, that's the only
6 think I could think of that it could be for.

7
8 MARTIN: Martin again. Dale, we're trying to understand what ultimately
9 tripped the main feed pumps together. The computer printout indicates that
10 we lost the condensate pump one second before we lost the feedpump.

11
12 LAUDERMILCH: Right.

13
14 MARTIN: We didn't lose the booster pumps for almost 7 minutes. Now our
15 understanding is that one condensate pump did continue to operate and that
16 we can't see a sequential relationship between the loss of the condensate
17 pump and the loss of the feed pump that would allow the booster pumps to
18 remain on the line given the fact that they operate very close to their low
19 suction limit.

20
21 LAUDERMILCH: Right.

22
23 MARTIN: Like within 50 pounds if I remember correctly. Do you have any
24 opinions on how they're connected and are they?
25

1 LAUDERMILCH: I've been thinking about that myself and I've been drawing a
2 lot of blanks. Feed pumps don't trip on low suction pressure. My opinion
3 is as soon as you loose one condensate pump you are going to trip the feed
4 pump. As soon as you loose a booster pump you are going to trip the feed
5 pump because your flow is going to go just like that. Why the booster pump
6 didn't go, I can't tell you. I don't know. Because a lot of time even in
7 startup and testing in the last couple of years, tripping the secondary
8 side off a number of times has come from low suction on the booster pump so
9 I don't know what to tell you on why the booster pump kept on running. I
10 don't know why the condensate pump tripped other than from what I understand
11 it was an electrical relay problem that tripped the pump. Which to me,
12 isn't too hard to understand because I don't have a very high opinion of a
13 lot of the electrical relays. A lot of them are very sensitive a bump here
14 a bump there they can trip just like that. I don't have any answers on the
15 booster pump problem. If I pooled with some of the other operators maybe
16 we could figure it out. We've been talking about it and we haven't really
17 come up with anything yet that is real logical on it from past experience.

18 MARTIN: Dale, I would like to explore and get your feel for this. Looking
19 into the alarm procedure and also the condensate pump, I find that if the
20 condensate booster pumps were in auto a trip of the impaired booster pump
21 would cause the condensate pump to trip. Well, that's not the normal way
22 of operation, is it?
23
24
25

1 LAUDERMILCH: Gee. If you lose a condensate pump and booster pump paired,
2 it should trip. It's automatically going to trip the feed pump right?

3
4 MARTIN: That's affirmative.

5
6 LAUDERMILCH: So I'm not picking up your question here.

7
8 MARTIN: The question is there are two things that will trip the condensate
9 pumps one is an electrical fault the other is with the AMS switch being in
10 auto. That switch which is associated with the condensate booster pump
11 that is paired with a condensate pump.

12
13 LAUDERMILCH: So you are saying that maybe we lost a booster pump to begin
14 with that took the other condensate pump out with it initially, instead of
15 an electrical relay.

16
17 MARTIN: That happens to be the only other trip that we can identify and

18
19 LAUDERMILCH: That's very possible. I don't know how those pumps are run,
20 in other words it would be my understanding that they would be running.
21 It's not my responsibility ... those controls are in the control room, I
22 don't have any idea what position the switch was in or how they were being
23 run.
24
25

1 MARTIN: Tim Martin again. Given that the booster pump did stay on the
2 line for 7 minutes, does that imply to you that the polishers had to stay
3 on that long or the pump would have tripped on a low suction pressure,
4 wouldn't it?

5
6 LAUDERMILCH: Yeah, I would think so.

7
8 MARTIN: So doesn't this throw out the theory that possibly the booster or
9 the polisher outlet valves going shut caused the trip?

10
11 LAUDERMILCH: Yeah. It would seem to. But the thing of it is I don't
12 know? When you say the booster pump, there's two booster pumps running,
13 which one tripped when and which condensate pump tripped when, I don't
14 know. I'm not associated with ... I don't think if you're saying dead
15 heading the condensate pumps tripped the plant, while the polishers failed
16 shut ... I don't see that.

17
18 MARTIN: Neither do I. I was pursuing that thought to see if it were
19 possible. All right, let's continue. We talked about the potential relay
20 problem on the condensate pumps. Have we had condensate pumps trip spuriously
21 in the past?

22
23 LAUDERMILCH: No. I ... we might have had condensate pump trip before but
24 I don't remember it. Booster pumps have been the biggest problems running
25 the polishers too high delta P on the polishers.

1 MARTIN: Isn't the sensitivity of the booster pumps to a suction pressure
2 limit shown in the fact that the auto reject valve has a series valve that
3 is normally throttled to prevent
4

5 LAUDERMULCH: Right, exactly when we want to reject to Unit 1 or reject to
6 the storage tanks, we've got to be very careful on how much flow we take in
7 the reject process because you will trip them off. Normal reject procedures
8 were that we take a little bit at a time, maybe a quarter or a half of a
9 turn at the most a turn at a time.

10
11 MARTIN: Tim Martin again. New area. At one time in the event you were
12 dispatched to close the breakers for the core floor tank isolation valves.

13
14 LAUDERMILCH: Right.

15
16 MARTIN: Can you place this timewise or relative to some event that we
17 might be able to tie it up with.

18
19 LAUDERMILCH: Timewise, I am lost. It was after I did the secondary jobs,
20 I went up to the control room. I am going ... to guess and that's exactly
21 what it is, guessing, maybe two hours after I heard the safeties go.

22
23 MARTIN: It would be before you were evacuated from the primary plant side.
24
25

1 LAUDERMILCH: Oh yeah.

2
3 MARTIN: ... of the auxiliary building.

4
5 LAUDERMILCH: That was the first job I did on the primary side. I did that
6 and while I was over there. I was checking other problems and then we had
7 the fire alarm then I lined up the boric acid injection, you know, well the
8 lineup came before the fire alarm and then we had the water on the floor
9 and it was immediately after we had the water on the floor I would say a
10 period of 10 to 15 minutes after we discovered that we were evacuated out
11 of the building.

12
13 MARTIN: Would this be before the reactor building sump pumps were secured?

14
15 LAUDERMILCH: Oh no. The reactor building sump pumps were secured before I
16 took any primary job. They were secured back when I was running back and
17 forth from the control room on the reject valves and some of the other
18 things. Because Terry was on the phone, I overheard the conversation,
19 discussed it and they immediately the decision to knock off the pump.
20 Those pumps were knocked off and I am going to say that was a good hour and
21 a half before we were evacuated out of the building. Those pumps were off
22 and they remained off nobody turned them back on, OK, because Terry, Don,
23 and myself were the only ones on that primary side after those pumps were
24 turned off. Don didn't do it because the only thing he came over for that
25 I knew of, in that time period ... he came over to help out on something

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1 and then he helped us look for the fire and then he left. Terry and I were
2 there the whole time. Those pumps were turned off for about an hour and a
3 half before we saw any water coming out of the floor drains.

4
5 FOSTER: We are going to have to take a break to change the tapes. The
6 time is 3:00 PM.

7 FOSTER: We're still continuing with the interview with Mr. Laudermilch.
8 The time is now is 3:01 PM.

9
10 MARTIN: Dale, Tim Martin again. I'd like to explore a little further when
11 the core flood tank isolation valve breakers were shut. It sounds to me
12 like they were sometime before you started the emergency borate lineup or
13 before the pump was actually let off that might be on the computer printout.

14
15 LAUDERMILCH: OK. Well definitely I cut the breakers before I lined up for
16 the emergency boration. I'm going to say make it 20 minutes to a half an
17 hour before that, maybe shorter, but I'm going to say definitely before
18 I performed that lineup or checked that lineup it was already lined up. As
19 far as the valves I checked, there wasn't any valves that I had to open
20 that I remember.

21
22 MARTIN: Martin speaking again. I'd like to explore now the status of the
23 sumps in the auxiliary building and the condition that you found them in.
24 One of the first things that I'm going to ask you is about the auxiliary
25 building sump tank. Did it not have a ruptured diaphragm?

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1 LAUDERMILCH: At what time?
2

3 MARTIN: Several weeks before, I think. At the time of the event, it was
4 already an open tank.
5

6 LAUDERMILCH: I can't answer that, I don't recall any discussion about
7 that, unless I missed it somewhere along the line. I don't recall that
8 problem.
9

10 MARTIN: When the reactor building sump pumps were shut down, was their
11 lineup to the auxiliary building changed at all?
12

13 LAUDERMILCH: No, not to my knowledge. In other words, the reactor building
14 sump pumps were in normal line up. They were both in auto and they pumped
15 to the misc waste holdup tank. They both came on at high level. Terry
16 turned them off and that's exactly what I'm saying. That tank never over-
17 flowed because the next day somebody went in there and was jockeying water
18 with that tank. I don't know what they were doing with it. But I discussed
19 this with Terry and he discussed it with whoever was jockeying the water
20 and if that level indication worked. Had that tank overflowed, that level
21 indication or that level instrument would have been flooded out, and would
22 have had to be blown down and drained out and put back in service to
23 jockey that water using the level indicator on the panel. So that tank
24 never overflowed. It wasn't that the level I was seeing was an erroneous
25 level because it overflowed and flooded out the level indication and came

1 back down. To the best of my knowledge and Terry's and we were there, and
2 discussed all this and that was a true level indication I believe Terry
3 said it was 7.4. He remembers the figure on that, but all I remember was
4 that that tank was not overflowed and it wasn't lined up ... and the reactor
5 building wasn't lined up anywhere other than that and those pumps were
6 turned off and stayed off.

7
8 MARTIN: Martin speaking again. Is there any automatic level control on
9 that tank which would transfer water in that tank to other tanks in the
10 building?

11
12 LAUDERMILCH: No, not to my knowledge.

13
14 MARTIN: Was the depth header aligned from the reactor coolant drain tank
15 to this same tank or would it have gone other places? I'm trying to under-
16 stand potential flowpath out of the containment.

17
18 LAUDERMILCH: I ... just out of my memory, I can't say. I would have to
19 look at a print. It seems to me that there was something about their
20 lineup to the bleed tank. But then I remember talking about that before
21 and I remember somebody saying that it wasn't lined up to the vent air, but
22 I don't know. I would have to look at a print to say for sure.

23
24 MARTIN: Martin speaking again. When you first got over on the primary
25 side, there was no water on the floor in the basement.

1 LAUDERMILCH: That is correct.

2
3 MARTIN: When you were aligning for the emergency boration, there was no
4 water on the floor?

5
6 LAUDERMILCH: That is correct.

7
8 MARTIN: Sometime shortly after this you were walking by the makeup tank
9 room and you first noted water coming

10
11 LAUDERMILCH: Well, this was a ... Terry and I were at the panel, we were
12 to go down and check some heat and water valves, they thought they were
13 having a problem with water injection. When you go from the panel to the
14 elevator, there is a service hole in the floor and you can look down through.
15 There's floor drains just directly below. That is the time we noticed it.
16 And I'm going to say that was in the area of 6:15 or 6:20, somewhere in
17 that area. I believe it was around 6:30 when we were evacuated out of the
18 building. That was when we first noticed it and I am going to say the
19 amount of water that we saw on the floor might have been 5 or 10 feet in
20 diameter around the drains It wasn't a huge volume, but we knew that the
21 water was coming out of the sump.

22
23 MARTIN: At what time were the auxiliary building sump pumps turned on to
24 try to remove some of this water from the floor, shortly thereafter?

25
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1 LAUDERMILCH: Shortly thereafter. We had to ... I'm sure Terry called up
2 for permission to do something. From what I remember, we were ... Terry
3 was working on that. I was still looking at the print and trying to figure
4 out where it was coming from and I remember turning around and seeing Terry
5 marking the level gauge and trying to pump the sump into the sump tank to
6 try to get rid of some of the water. And shortly thereafter, as a matter
7 of fact, that is probably the process we were in when it was evacuated.
8 Because when the HP technicians said "Evacuate." I turned around, Terry
9 shut off the pumps, and I remember him looking at the sump tank, and the
10 thing that I looked at was misc waste tank and the reactor building sump
11 pumps and those were off.

12
13 MARTIN: Martin, speaking again. We talked about level indication in the
14 reactor building sump. Do you actually have a meter which indicates feet
15 of level?

16
17 LAUDERMILCH: Right, that's on the rad waste panel in the auxiliary building.
18 It's got sump level, gives a mock diagram of the flow path, and the level
19 in the misc waste tank, and a mock diagram of the tank and so forth and the
20 controls for the sump pump are there also.

21
22 MARTIN: Is there a duplicate meter in the control room anywhere?

23
24 LAUDERMILCH: I don't know. I don't know that.
25

1 MARTIN: Dale, at this point I have no more specific questions, I would
2 like to request that if you have any comments about the event or subsequent
3 actions by Met Ed, NRC, or others if you would like to put on record, I
4 would like for you to do so now.

5
6 LAUDERMILCH: Well, it's like anything else, we could probably go on talking
7 about this thing forever, I could give you a lot of opinions. I have
8 already said how I felt about the guys in the control room. I want that to
9 be a part of the record more than anything. They are a great group of guys
10 and they know I'd work for them anytime. Through the event, the HP coverage
11 was bad, I don't know if we just didn't have enough people or they were
12 busy doing other things. Those guys were making entries in the aux building,
13 we were dressing and undressing them, there wasn't any real control point
14 that ... you know things of that nature that went on. It's an opinion, but
15 I have on how things were run before the trip, there are things that are
16 hurting us now that were bad before the trip, OK, and they're hurting us
17 right now. For instance, the makeup tank, everyday we had to add hydrogen
18 to that thing. Apparently, there was a leak somewhere, well everytime they
19 work the makeup tank now, all the levels in the aux building go up. Now
20 if somebody would have bothered to worry about where in the devil that leak
21 was before this thing happened, it might not plague us so much now. There
22 is things that I and other guys might have thought to shutdown or maybe
23 getting a little harder look at things at getting things fixed before we
24 went up or stayed up Again, it's a matter of a lot of opinions. The opera-
25 tors would do the job the best that we knew how. We would go out and we

1 were told what to do, we'd go up and we'd tell them what we'd see. It's
2 not our job to make decisions on hey shutdown now to fix this because if
3 you don't its going to bite you in the butt here. We just do what we can
4 to let them know what's going on out in the plant. My opinion might not be
5 worth a whole lot in a lot of those respects, it's just the way I feel.
6 Again, the basic thing I really want to express how I feel about the guys
7 in the control room. That is about it.

8
9 MARTIN: Dale, thank you very much.

10
11 FOSTER: Dale, I also thank you. This concludes this interview at 3:12 PM.
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