

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

1 In the Matter of:

2 IE TMI INVESTIGATION INTERVIEW

3 of Jim Floyd  
4 Supervisor of Operations, Unit 2

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

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11  
12 April 20, 1979  
(Date of Interview)

13 July 4, 1979  
14 (Date Transcript Typed)

15 274  
(Tape Number(s))

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21 NRC PERSONNEL:

22 Ed O'Connor  
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1 This is Ed O'Connor. I'll be interviewing Jim Floyd. The date is April 20,  
2 1979. The time, 12:15 p.m.

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4 O'CONNOR: Jim, how about telling us your position at the station and where  
5 you were on the day, on March 28th when the accident occurred.

6  
7 FLOYD: Okay. I'm the supervisor of operations in Unit 2. I was in Lynch-  
8 burg, Virginia, at the simulator training when the transient took place.  
9 About 7:00 in the morning when we met for breakfast in the restaurant at  
10 the Sheraton, Dick Cloit told us that he had been in contact with one of  
11 the guards that he's dating or something near the plant, and she said that  
12 the Unit 2 relief valves had been blowing for two hours. So we finished up  
13 breakfast and went over to B&W's office and I got a line into the control  
14 room at about 7:30 to 7:40 in the morning". They told me the reactor had  
15 tripped at 4:00 a.m.; at 6:30 radiation monitors were going off. I got a  
16 number on the reactor building gas which I remembered as being something  
17 like  $2 \times 10^{-9}$ . But based on that number alone I was sure that at least 1/8  
18 of the cladding had failed. The other pertinent piece of information I got  
19 was that the emergency feed was about 10 minutes late coming on; it had  
20 been blocked up until that time. So we went to work on the simulator,  
21 tripping the two feed pumps, trying to simulate what they saw here at the  
22 unit and each time we delayed the feed, emergency feed, coming in til about  
23 10 minutes into the trip. Uh, later in the morning I got through once again  
24 and I got the piece of information that the electromatic relief was stuck  
25 open, or had been stuck open. So I introduced that variable into the

1 simulator and what we saw basically was that immediately on tripping the  
2 two feed pumps, reactor coolant system pressure pegged high at 2500 pounds,  
3 greater than 2500 pounds. And in fact it went up above 2545 for about two  
4 seconds before it came back down on scale; 2545 (we don't know how high it went  
5 in the interim). Uh, we were not able to reduce RCS pressure as rapidly as  
6 the actual plant did. Initially, it was because we didn't have the electro-  
7 matic open at all and then in later transients we still weren't able to  
8 pull it down as quickly as it came down in the plant. We could not get  
9 down to 1,000 pounds so when we started the emergency feed system, then  
10 wide open, with a  $T_{avg}$  up in the 65 to 615 range, we still couldn't suck  
11 the bottom out of the plant the way it went here. At no time did we go  
12 past about 15 minutes of simulation (15 or 20 minutes). I'm sure the  
13 reactor, the simulator wouldn't show a second bubble; nor would it show  
14 pumps cavitating, or any of the other things I saw in the real transient  
15 here. But when I got back to the site, one of the first things I wanted  
16 was the pressure trace, and in fact our reactor coolant system pressure  
17 stayed on scale, which was marvelous. We had to do a lot less NDT; it  
18 proved that the system's still good if we had gone offscale. We apparently  
19 had some problems with some safety valves in the main steam system to help  
20 cool us down as quickly as we cooled down; I wouldn't say they were stuck  
21 open, but they were possibly slow to reseal. I think that's how we got the  
22 reactor coolant system pressure so low so fast. Again, that was something  
23 that I couldn't simulate very well. So, Bernie Spess and I had a fair  
24 understanding of the start of the transient, and we knew we had failed  
25 fuel; but we had no idea what HPI was doing during the course of the day.

1 I had briefed some B&W people, oh, it must have been 9:00-ish in the morning,  
2 a whole heap of 'em came down, picked my brain as to what happened because  
3 I had better information that B&W was able to obtain from the site. I  
4 speculated a lot, and told them what I knew and what I thought had happened.  
5 They went off, and it wasn't until about 3:00-ish in the afternoon I guess,  
6 2:00 or 3:00, I was summoned up to the board room and they assembled a  
7 whole lot of high-level people from B&W. And their concern was that we  
8 didn't have enough HPI going into the plant, and they thought I had some  
9 secret telephone numbers to the Unit 2 control room and they wanted me to  
10 try to get the information into the plant to increase the HPI flow to at  
11 least 400 gallons per minute, 500 would be better. The time might be in  
12 error-- it could have been as early as 2:00 in the afternoon. At any rate,  
13 I dialed all my magic numbers and I couldn't get in to the Unit 2 control  
14 room--the lines were all tied up. I was, however, successful in getting  
15 into the Unit 1 control room and getting ahold of Rich Hutchison, who is  
16 the Shift Supervisor. I relayed my message to Rich and said "send a runner  
17 over and get ahold of Ross' arm and tell him he's got to keep the HPI about  
18 400 gallons a minute to remove the decay heat." About that time, Greg  
19 Shidell called into the board room with some information that B&W had  
20 gathered here at the site; he was actually over in the Visitors' Center,  
21 but he had had a line into the control room. He told us that they thought  
22 they had collapsed the steam bubble in the hot legs, and he proceeded to  
23 give us some temperatures and pressures around the loop which were obviously  
24 not liquid. They were still superheated in the hot leg. As soon as he  
25 read the numbers off I said "no way is that liquid." I didn't have the

1 steam tables with me, but I knew better. Fortunately, one of the engineers  
2 from B&W down near the end of the table agreed with me, and between us we  
3 convinced Shidell right there in front of the vice presidents and all that  
4 in fact the plant hadn't collapsed the bubble in the hot leg yet with those  
5 numbers that he was calling to us; and they damn well ought to look at  
6 their steam tables. When Greg rang off the line, I called back in to  
7 Rich Hutchinson again, reconfirmed my message on HPI flow, and also told  
8 him that, in fact, the hot leg bubbles hadn't collapsed as long as those  
9 hot leg thermocouples were above saturation temperature for the pressure  
10 they were at. That's about the extent of my communication with the site  
11 during the course of that day. Bernie and I left that evening and came  
12 home; we arrived here at the site about 2:30 in the morning I didn't get  
13 deeply into where the plant was at the time. About 5:00 I went home and  
14 slept for an hour, came back in at 6:00, and then from then on I was very  
15 much aware of where the plant was and where it was going and how it was  
16 responding.

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18 O'CONNER: By that time the plant was essentially stabilized...

19  
20 FLOYD: Everything except the gas bubble; that came up Friday morning.  
21 Thursday night... Friday morning.... We had some difficulty getting the gas  
22 out of the system, but through the spraying the pressurizer and venting it  
23 and the letdown line, why, we were able to get control of the bubble.

1 O'CONNER: In your conversations with the people at the site or at the  
2 Visitors' Center, did you have the impression that... could you tell what  
3 the plant was ... how they were trying to recover?  
4

5 FLOYD: No, uh, when I talked to them first thing in the morning, 7:30-ish,  
6 I talked with Kenny Bryan, and I only talked for several minutes because he  
7 was very busy with the unit at the time, so I couldn't pick his brain in  
8 detail as to what they had and what was going on. I just wanted to try to  
9 simulate the beginning of the transient to see why they got so low on  
10 pressure so quickly. I don't know that they really had a game plan at that  
11 point in time at that hour of the morning. Later in the morning they must  
12 have decided to come down on the core flood system, and I don't know how  
13 they were planning, who was in on the planning, who was helping make these  
14 decisions, what recommendations were made, but I certainly did have the  
15 communications path to get in on it.  
16

17 O'CONNER: Are there any other things you'd like to mention, to get on the  
18 record?  
19

20 FLOYD: I don't believe. I haven't really studied the transient in detail  
21 yet; I've looked at the traces a couple of times, but I don't fully under-  
22 stand what all went on yet. I'm sort of waiting for the output of your  
23 committee, Ed, to tell me, you know, at least ... I started to go through  
24 it and see what it looks like happened when.  
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1 O'CONNER: Well fine, Jim. Thank you very much. I appreciate you giving  
2 us your time.

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4 END OF INTERVIEW.

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