

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

1 In the Matter of:
2 IE TMI INVESTIGATION INTERVIEW
3 of
4 Earl D. Showalter
5 Nuclear Engineer, Unit 2
6
7
8

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

13 May 2, 1979
14 (Date of Interview)

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21 NRC PERSONNEL:

22 Larry L. Jackson, Radiation Specialist
23 John R. Sinclair, Investigator
24 Mark E. Resner, Investigator
25 Owen C. Shackleton, Investigator

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1 SHACKLETON: This is an interview of Mr. Earl D. Showalter. The time is
2 now 12:30 a.m., May 2, 1979. This interview is being conducted at this
3 hour, inasmuch as Mr. Showalter came in to the NRC trailer after coming
4 off from a late duty shift. The interview is being conducted in Trailer
5 #203, which is parked just outside the south security gate at the Three
6 Mile Island Nuclear Power Plant. Present to conduct this interview is
7 Mr. Larry L. Jackson. Mr. Jackson is a Radiation Specialist from
8 Region II of the US Nuclear Regulatory Commission. Also present for
9 this interview is Mr. John R. Sinclair. Mr. Sinclair is an Investigator
10 in the Office of Inspector and Auditor, Headquarters, U.S. Nuclear
11 Regulatory Commission. In addition, Mr. Mark E. Resner, an Investigator
12 with the Office of Inspector and Auditor, Headquarters, US Nuclear
13 Regulatory Commission, is present. My name is Owen C. Shackleton. I
14 am an Investigator from Region V of the US Nuclear Regulatory Commission.
15 Just prior to going on tape, I presented to Mr. Showalter an advisement
16 document consisting of two pages, which outlines the scope and purpose
17 of this investigation and the authority granted by Congress so that the
18 United States Nuclear Regulatory Commission could conduct this type of
19 an investigation. It also sets forth Mr. Showalter's rights to refuse
20 to be interviewed or to give a signed statement. On the second and
21 last page of this document are three questions. Mr. Showalter, in
22 writing, affirmatively answered all three questions, and for the record
23 I am going to ask Mr. Showalter these questions orally. Mr. Showalter,
24 did you understand the document that I am referring to?
25

1 SHOWALTER: Yes I did.

2
3 SHACKLETON: And do we have your permission to tape this interview?

4
5 SHOWALTER: Yes, you do.

6
7 SHACKLETON: And would you like a copy of the tape or the transcript?

8
9 SHOWALTER: I would like a transcript of this tape.

10
11 SHACKLETON: All right sir, we will see that that's provided to you.
12 And now, Mr. Showalter, for the interest of those parties who will be
13 listening to this tape, could you please briefly give us an outline of
14 your experience in the nuclear industry?

15
16 SHOWALTER: I graduated from Penn State University at the Capital
17 Campus here at Middletown in 1974 with a Bachelor of Engineering Tech-
18 nology degree in Electrical Engineering. I came to work promptly then
19 at Met Ed in June of '74 and began work at TMI-Three Mile Island Nuclear
20 Power Plant-on about July 4th of that year. I took up duties in industrial
21 waste first, and within a month was assigned to the Unit 1 radioactive
22 waste treatment systems. I worked primarily in waste solidification
23 and evaporation of liquid waste and treatment of the liquid radioactive
24 waste there. I worked in that position for several years, I picked up

1 on-the-job training from Met Ed in basic nuclear physics and nuclear
2 reactor operations, spending one week at Penn State University on their
3 test reactor there, and also a week in Lynchburg, Virginia on the B&W
4 simulator. I worked during these previous approximately five years
5 with Met Ed in the Engineering Department, the Operations Department
6 and also in the Maintenance Department. I, just prior to the accident,
7 had been moved the the Maintenance Department and the job that I held
8 just prior to that was the Unit 2 radioactive waste treatment systems
9 and I had started up the Unit 2 evaporator and also finished some of
10 the startup work on the Unit 2 liquid radwaste systems. Now as I said,
11 I was working in the maintenance department just prior to the accident
12 and because of my background in radwaste, naturally, picked up there
13 after the accident.

14
15 SHACKLETON: Thank you very much. I'll turn the questioning over now to
16 Mr. Jackson.

17
18 JACKSON: Earl, could we start out with how you were notified and where
19 you went on the morning of 3/28?

20
21 SHOWALTER: Okay, I wasn't notified at all of the incident until I
22 drove into the north gate at approximately 8:00 a.m. and was stopped
23 there by the security guard and told that there had been, I guess at
24 that time, a general emergency declared and that I should go back to
25

1 the Observation Center. I told the guard that I usually, during the
2 drills, had worked in the ECS-I guess it stands for Emergency Control
3 Station-and they said, okay, to go to the guard shack and call in and
4 get permission to enter the Island. I did that, received permission
5 and entered the Island, parked in the north parking Lot and went im-
6 mediately to the ECS and began taking small duties from Tom Mulleavy
7 who was in charge at the ECS.

8
9 JACKSON: Okay, do you remember specifically any of the first things
10 you did, what these small duties were?

11
12 SHOWALTER: I remember at, once or twice, standing in at the radio that
13 was giving directions out to the off site monitoring teams, while the
14 fellow had to run and do some other duties, carrying a few messages
15 back and forth, and answering some general questions, answering phones,
16 etc.

17
18 JACKSON: Can you state what the radwaste conditions were that morning,
19 or lead into that in some way when you picked up the responsibility for
20 monitoring radwaste and what you found.

21
22 SHOWALTER: Okay, I didn't actually get into the radwaste angle of
23 things, in general, until the second day, so I am not really familiar
24 with the exact conditions. I know there was a certain amount of water
25

1 inventory in both units at that time, that was of low level-low level
2 meaning sort of pre-accident activity levels-and by the time I came to
3 work I reckon there was already some of the hotter water on the Unit 2
4 auxiliary building floor. But I didn't get deeply involved until the
5 second day.

6
7 JACKSON: Okay, did you, in any of the first three days, did you make
8 any entries into the auxiliary building?

9
10 SHOWALTER: Yes I did, and as I recall, the entry that I made was at
11 the end, I believe, of the second day, that I went in with Ed Fuhrer to
12 scope out the auxiliary building to try to get into what cubicles we
13 could and try to find out if there was any leaks, gross leaks let's
14 say, from the reactor coolant that could be secured or of this nature,
15 to try to cut down on the radwaste coming into the aux building and to
16 cut down on the iodine being released from the aux building.

17
18 JACKSON: Did you have a feel for what the accumulation rate was in the
19 aux building at this time, from the liquid radwaste?

20
21 SHOWALTER: You're talking about the leakage into the Aux Building.

22
23 JACKSON: Yes.

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1 SHOWALTER: No, I don't think we had a good handle on leakage rates at
2 that time. We knew that obviously, there was water on the floor by the
3 time I went in there--that was a well known fact. We were at that time
4 in the process transferring as much pre-accident waste out of Unit 2
5 towards Unit 1 to make room to get this water off the floor and into
6 tanks.

7
8 JACKSON: Do you recall what waste was transferred over there by tank?
9

10 SHOWALTER: The first tanks that I know that they transferred were the
11 primary neutralizer waste storage tank--by tag number, that's WDL-T-8A
12 and B. Those had pre-accident waste and was transferred over to Unit 1
13 and they then became free to bring the aux building sump waste over
14 into those tanks. As part of our entry there on the evening of the
15 second day, we determined that the radiation level on the miscellaneous
16 waste storage tank was approximately 300 mR, which indicate that it
17 contained pretty much pre-accident waste in it and it therefore could
18 be transferred to Unit 2. And on a later day we transferred miscellaneous
19 waste storage tank--that's tag number WDL-T-2 to Unit 1.
20

21 JACKSON: Okay. When you and Ed Fuhrer went into the auxiliary building,
22 you said you were just making a kind of general survey. What areas did
23 you actually go into?
24
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1 SHOWALTER: Okay, we entered on the 305 and came down the, I guess the
2 western north-south corridor towards the radwaste panel, radioactive
3 treatment control panel, and we checked some levels on that panel. We
4 went into the miscellaneous waste storage tank room. We were trying to
5 check--one thing that we wanted to check was whether the rupture disk
6 for that tank had been blown and would have been, therefore, a release
7 point for waste gas. As much as we could tell, the rupture disk had
8 not blown, it was not blown at that time. We went from there to the
9 make-up valve alley on the 305 level, and one of the things that the
10 control room asked me to check there was the position of MUV105. I
11 checked that position and found it to be at least partially closed, and
12 I opened it the rest of the way. Ed Fuhrer was checking some radiation
13 levels also in the hallway with the meter. I might point out that we,
14 each of us was carrying a meter. I was carrying a meter similar to a
15 teletector, which is a very high range instrument, and Ed Fuhrer was
16 carrying a somewhat lower range instrument that had, 2R was its maximum,
17 two rem per hour was its maximum reading. And as I was coming into the
18 aux building, was about halfway into the aux building, my meter went
19 dead, meaning the battery was exhausted. And perhaps at that point, in
20 retrospect, I should have turned around and left and went back and got
21 another meter, but we continued on. So he had the low level meter and
22 I believe it was at that point that he stepped in front of the doorway
23 leading into that make-up valve alley, his meter pegged out. He immediately
24
25

1 stepped back and I believe he received a pretty good dose at that
2 doorway. From there, we come out of that room and went to the basement
3 of the auxiliary building and noticed, of course, that there was a good
4 bit of water on the floor and there was plastic spread out over this
5 water to try to prevent the degassing of iodine. - We checked also
6 closed, the valves--we checked that the valves were closed for the
7 reactor coolant evaporator. These are the valves that tie direct from
8 the evaporator to the waste gas vent header. We wanted to make sure
9 that if there were any gas leaks out of the evaporator that that wouldn't
10 be a source of gas going into the evaporator and escaping out of it.
11 Since we weren't using the evaporator there was no need for the valves
12 to be open. I checked out the area back in the aux sump itself to see
13 if there was any abnormal things back in that area and then we continued
14 down the hallway in a south direction, went into the room where the
15 reactor coolant bleed tank waste transfer pumps--that WDL-P-5A and B--to
16 look and see if there was any gross leakage in there. I think Ed stuck
17 his head in the door and verified that there wasn't. We went from
18 there out past the decay heat vaults, determined that the water was
19 very close to overflowing into the decay heat vaults. We continued on
20 around the corner then and into the entrance way to the B and C Reactor
21 Coolant Bleed Tanks. There again, at that doorway the meter that Ed
22 was carrying, pegged out 2R and we retreated back out of that area
23 since the water level was approaching a point of overflowing into the
24 decay heat vaults, we went back to the radwaste panel--pardon me, I
25

1 went back to the radwaste panel, Ed Fuhrer continued on a different
2 route. At the radwaste panel, I turned on the aux sump pumps to pump
3 more water off the floor and into some of the tanks that we had available
4 to try to prevent any flooding into the decay heat vaults. Ed Fuhrer
5 continued on the 281 level and went back past the decay closed coolers,
6 and I am not sure whether or not he went into the room just south of
7 the decay closed coolers. He was again looking for any gross leakages
8 of water. I might mention that one of the things that we noticed, of
9 course, was that near the decay heat vaults the RR pumps, which are a
10 booster pump that is used to help cool the reactor building, had bad
11 packing leaks and we reported that, of course, when we left. Ed Fuhrer
12 then left the aux building after he had been back from the decay closed
13 area and called me from the HP control point and told me that he was
14 out of the building and I should come out too. I immediately left the
15 building, and as I was leaving the bell from my Scott air pack was
16 ringing, indicating that I was down to less than five minutes of air.
17 And so we exited the area and returned to the control room to report on
18 our activities.

19
20 JACKSON: Do you recall what exposure you had for your stay in there?

21
22 SHOWALTER: My low range dosimeter was pegged offscale, indicating
23 greater than 200 millirem. My high range dosimeter showed less than
24 1R--I don't recall the exact thing that it read. Subsequent to that, I
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1 mean after that, the next day when I got the reading of the TLD, I
2 understood I received, as I recall, 170 mR. On exiting the area and
3 coming up, both Ed and myself read his high range dosimeter and it
4 showed approximately 3R, and of course that was immediate reason for
5 alarm and we immediately reported that to our supervisor, Jim Seelinger,
6 and he sat down and debriefed us and, of course--how should I say,
7 reprimanded us for not coming out of the building when my high range
8 meter failed its battery. He immediately told Ed Fuhrer that he would
9 need to leave the Island with me and take our TLDs to the Observation
10 Center and have them counted to see what exposure both of us had received.
11 The thing that puzzled most of us, I guess, for a day or so was how Ed
12 and I had been so close together for at least 80% of the time that we
13 were in the aux building and yet he had received 3.1R on that entry and
14 I had received only 170 mR. The only thing that I can correlate that
15 to was that he had stepped in front of the doorway at the make-up valve
16 alley on the 305 level, and that later was proven to be around a 1000R
17 per hour, and he had also stepped a little closer to the entrance to
18 the bleed tank room than I had.

19
20 JACKSON: Okay, were either one of you contaminated?

21
22 SHOWALTER: No.

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1 JACKSON: Okay. Did you, during your tour, find out which tanks were
2 overflowing?
3

4 SHOWALTER: At the point I was in there, we were found no tanks that
5 were overflowing. At that point, when I first had entered into the
6 building, the aux sump pumps had been turned off so therefore the
7 auxiliary building sump tank was not overflowing at that time. As a
8 matter of fact, I think it read something like 3 foot, and everything
9 else, from what we could see, was normal other than the leakage from
10 the RR pumps near the decay heat vault.
11

12 JACKSON: Okay, do you have any idea now, did you have at that time or
13 in retrospect, do you have any idea what the flow path was for this
14 water, which obviously coming out of the reactor coolant system somewhere
15 and getting into the auxiliary building. Do you have any idea what
16 flow path that might have been taking getting over there?
17

18 SHOWALTER: At that time, I guess we all felt that the water had come
19 out by way of the reactor building sump pumps and had been pumped out
20 to the aux building sump tank, overfilled that tank, and its overflow
21 had run into the aux sump and filled the aux sump, and then the aux
22 sump had sort of backed up into the floor drains in the 281 level of
23 the auxiliary building. In retrospect, in the recent days several
24 other paths have been established as possible paths and I guess we have
25

1 sort of discounted the RB sump pump as being the source of the major
2 amount of activity, and the reason we have discounted that is that,
3 from the computer it was verified that the reactor building sump pumps
4 run for a short period after 4:00 o'clock and then were secured and
5 that, as far as we know, they didn't run again. However, there is a
6 possibility, as determined by some other fellows doing research in
7 this, that we could have had the line filled with water and then at a
8 later period, say after the fuel begin to fail, along about 7:00 to
9 8:00 o'clock, that a siphon was previously established, that the siphon
10 begin to flow through this same line from the RB sump pumps, and that
11 siphon wasn't stopped until we got reactor building isolation, at I
12 think about 9:30. So that's one possibility, and I guess a very creditable
13 one at this point. Another possibility would be that water came over
14 out of the--the reactor coolant drain tank overfilled and blew its
15 rupture disk and there had been a lot of water and pressure in there
16 and that it might have come over by way of the waste disposal gas vent
17 header tie line out of the building and dumped into the vent header in
18 the aux building, and that the various liquid drainers would have
19 drained it to the floor and it would also have been drained to the aux
20 building sump tank by way of the compressor, waste gas compressor air
21 water separator high level dump valve.

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1 JACKSON: I don't remember the valve numbers specifically, but on the
2 dischar. side of the reactor coolant drain tank pumps, there is a
3 valve that operates off the level...
4

5 SHOWALTER: Yes.
6

7 JACKSON: In the reactor coolant drain tank. Could that valve have, as
8 the level went up in the tank, would that valve have gone full open,
9 allowing those pumps to be pumping to the reactor coolant bleed hold-up
10 tanks or...?
11

12 SHOWALTER: I am not sure at this point in my mind, I don't think that
13 is an automatic valve. It is a valve that you jog open manually when
14 the level comes up in the tank, as I recall. Now, I may be wrong on
15 that. I would have to check the electrical prints that determine how
16 that valve is controlled.
17

18 JACKSON: The piping and instrument diagram I looked at shows it getting
19 a signal from the level switch. I believe the system description says
20 it operates automatically. What wasn't clear to me, from the system
21 description, was whether or not that valve opened full open, or it
22 throttled, or what.
23
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1 SHOWALTER: I am a little rusty too on that. I would just guess, and
2 let me state that as a guess, that that type of a level switch to the
3 valve is like a low level interlock, and when the level drops too low
4 in the tank, it closes the valve.
5

6 JACKSON: True.
7

8 SHOWALTER: And the reason for this would be that you don't want too
9 small of an inventory of water in the tank, otherwise you won't have
10 adequate cooling for quenching the steam when it comes into the tank.
11

12 JACKSON: Okay, you mentioned the possibility of getting water into the
13 waste gas vent header from the line off the reactor coolant drain tank.
14 To your knowledge, was there any water collected in the waste gas
15 system during this time frame?
16

17 SHOWALTER: It would be a little hard for me to prove or to say either
18 way as to whether there was or wasn't, in that if it had come in to the
19 waste gas header, there would have been no indication whether it was or
20 not, and the waste gas compressor air water separator dump valve would
21 have just automatically opened, and maintain a level there and so
22 effectively dump the water to the aux building sump tank and you would
23 have had no indication anywhere of that.
24
25

894 155

1 JACKSON: Okay. Skipping over to the industrial waste treatment system,
2 do you know when it was first discovered that contaminated water was
3 going to the industrial waste treatment system?
4

5 SHOWALTER: No I don't.
6

7 JACKSON: Okay. Do you know where the industrial waste treatment system
8 overflows to when the sump fills up out there?
9

10 SHOWALTER: There is no provision for overflow of that sump, other than
11 to simply flow out onto the ground and flow into various yard drainage
12 system that collects storm water.
13

14 JACKSON: Does that yard drainage system, does all of that go over to
15 what they call the East Dike?
16

17 SHOWALTER: Yes it does, the yard drainage and the roof drains lead to
18 the East Dike and exit the Island on the east side.
19

20 JACKSON: Okay I am going to jump back on the waste gas system here for
21 just a second. Are there any problems that you can recall that you had
22 with the waste gas system those first three days?
23
24
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1 SHOWALTER: Well, from the instrumentation and so forth, it seemed that
2 during this first three days there was some problems with the gas
3 compressors adequately handling the gas that was vented from the make-up
4 tank into the vent header. In other words, the make-up tank would get
5 up high in pressure and we would open the vent valve into the waste gas
6 vent header and the pressure in the vent header would go up and the
7 compressors just didn't seem to be handling the pressure that was
8 coming into the waste gas vent header. In respect in looking back to
9 that now, I am wondering whether this wasn't due to a lot of water in
10 the header or something, that the compressor was not properly able to
11 handle both the gas and the water that was coming in. And then all of a
12 sudden, and I don't know the exact time of this, all of a sudden it
13 appeared that the gas compressors began to work and actually handle
14 this venting of the make-up tank a little bit better.

15
16 JACKSON: Okay. Do you recall what the pressures were in the waste gas
17 decay tanks on any of these first three days?

18
19 SHOWALTER: No I don't, and I guess we would just have to simply refer
20 to some of the paper work that might have been generated at various
21 times and to verify the pressure from that. I don't have the exact
22 pressures.

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24 894 157
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1 SHACKLETON: Gentlemen, we'll have to change the tape. The time is now
2 12:59 a.m., May 2, 1979, and we'll come back on in just a few minutes.
3

4 SHACKLETON: This is a continuation of the interview of Mr. Earl D.
5 Showalter. Mr. Showalter is an Engineer II-Nuclear for the Metropolitan
6 Edison Company at the Three Mile Island Nuclear Power facility. Gentlemen,
7 the date is still May 2, 1979, and please continue with the interview.
8

9 JACKSON: Okay, Earl, I am going to pick up where I left off. I am
10 going to pursue this waste gas decay tank just a second here to make
11 sure I am clear on that. What I was looking for on that previous
12 question is, it seems to me there was a peak pressure in the waste gas
13 decay tanks sometime during the first three days, and there was a
14 release, maybe the reliefs lifted or something, and the pressure came
15 down. I think I came on site on the 30th and those tanks were running
16 about 80 pounds, roughly in that range, in the two tanks. Are you
17 familiar with this, the pressure going up in those tanks and then, for
18 some reason, it came down to about 80--I say, when it went up, it went
19 to maybe a 100 pounds or so.
20

21 SHOWALTER: I am not familiar that it was actually up to 100 pounds.
22 Again, I guess I just have to look at some data that was gathered from
23 the decay tank pressures and so forth, from the various entries that
24 were made realizing, of course, that they were not the entries that
25

1 were made, were not necessarily at a periodic time and you don't have a
2 continuous flow of good data. But...my mind is a little rusty, I guess,
3 about a month ago.
4

5 JACKSON: Okay do you know where any records like that are kept, or
6 what format- were they in a log?
7

8 SHOWALTER: No, they were--we had prior to the accident, we had a
9 rather well defined log sheet that contained an awful lot of data. It
10 would have taken ten, fifteen minutes to collect all the data on the
11 typewritten pages of the log sheet. And in order to reduce the exposure,
12 we come out with a hand written type log sheet that included only what
13 we considered to be vital information at the time, and this was a one
14 page type thing. Often times people going into the building, we requested
15 they stop by the panel and get those readings on that log sheet.
16 Those, I would have, I guess, some of those in our possession up at the
17 radwaste operations group, I am not sure I'd have all of them, though.
18 The radwaste log book that we started, didn't get started until I think
19 the 30th or slightly thereafter.
20

21 JACKSON: Okay. All right, we'll go on then. Were there any intentional
22 releases made from the Unit 2 waste gas system during those first three
23 days?
24
25

894 159

1 SHOWALTER: Intentional? Not that I know of.
2

3 JACKSON: Okay. I am going jump on to the filtration system here a
4 little bit. Were there any concerns, during the early stages, over the
5 adequacy of the filtration system? Was that in your area there?
6

7 SHOWALTER: No, I didn't get involved too much. If you're referring to
8 the filtration of the heating and ventilation systems--
9

10 JACKSON: Right, right, excuse me for not being clear, but I am talking
11 about aux building filtration system this time.
12

13 SHOWALTER: No, I was not involved in that at all.
14

15 JACKSON: Okay, now you were in the building though, looking for water
16 overflowing on the floor. Were you concerned with iodine releases then
17 or--?
18

19 SHOWALTER: Yes, we were concerned about the amount that was actually
20 going out of the plant and being released to the environment. Obviously,
21 if we could have found a leak that we could have isolated, we would
22 have isolated it. What I mean by, "could have", that it would have
23 been in a radiation level we could have safely, quickly entered, secured
24 and exited that area and not accumulated more than one or two rem.
25

1 This was the main purpose of the entry-to try to find any gross leakage
2 that we could identify to the control rooms as, "hey this is where the
3 leak's coming from."
4

5 JACKSON: Are you familiar with the isolation of the ventilation system
6 that isolates off the monitors...you know like HPR-219 would shut down
7 the auxiliary building system.
8

9 SHOWALTER: Only vaguely familiar with this. 219 does trip most everything.
10

11 JACKSON: Okay, am I getting a little bit out of your area on the
12 ventilation system here?
13

14 SHOWALTER: I would say that there are probably people that would be
15 better qualified to answer the questions than I am.
16

17 JACKSON: Okay, well there is one other thing that I would like you to
18 just hit briefly. If you would, just for the record, would you make a
19 statement about what were some of the actions you all were taking with
20 regards to getting in temporary tankage, considering temporary filtration
21 systems, this type thing.
22

23 894 161
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1 SHOWALTER: Well, when we began to move the Unit 1, I mean Unit 2
2 pre-accident water inventory to Unit 1, we quickly filled up the Unit
3 1 inventory space, and of course, we had to immediately begin to run
4 water into the Unit 1 reactor coolant bleed tank room cubicle floor.
5 The way we did that is we plugged the floor drains, and since that sort
6 of a bathtub shaped room in itself with those tanks in it, once the
7 drains are plugged you can fill into the room several feet of water.
8 We've done that before. And once I realized we were doing that I im-
9 mediately began to think in my mind, "hey, well, we've got to be able
10 to treat that water," and after some calls to our Reading staff, I
11 decided that the proper method for at least treating that water and
12 keeping Unit 1 from being involved any deeper in the problem of Unit
13 2, was to get in a system for demineralization and treatment of this
14 lower level water that we knew how to treat. This pre-accident waste
15 water, although huge in volume, was not something that we were unfamiliar
16 with. So I talked to Mike Buring at our Reading staff and after a few
17 minutes of conversing with him on the phone, I made a list of a couple
18 of things and told him, "Here, I want you to call the Purchasing Department,
19 call these various vendors and have them get in here with equipment to
20 handle the Unit 1 water that we've sent them," the pre-accident water,
21 essentially. The vendors that I requested to get in was Capolupo and
22 Gunda Inc. with their portable demineralization systems--now that
23 actually is a company that is subcontracted by Epicore, so Met Ed
24
25

1 actually makes a contract with and Epicore and Epicore specifies the
2 type of resin to be used and gives instructions to Capolupo and Gundal,
3 who built the equipment, set up the equipment, operate the equipment,
4 and treat the water for us. That has many advantages in that we can be
5 free and our men can be free to concentrate on other things while they
6 treat our water for us. Also, I ordered in a certain amount of tankage
7 to take the water that they treated and hold it until Unit 1 would be
8 able to release it, because I knew that we probably be able to treat it
9 much faster than we could release it. So I ordered in some tankage to
10 take the effluent of their demineralization system. Also, I figured
11 that we would probably need to have room in the concentrated waste
12 storage tank--the concentrated waste storage tank, by the way, receives
13 concentrates from the evaporators. And so in order to rid both units of
14 pre-accident concentrated waste forms, I requested Mike Buring to get
15 Chemnuclear from South Carolina in here with their portable solidification
16 system to solidify all the evaporators bottoms that we had and he did
17 pretty well in scrambling together quite a group of vendors to support
18 us in those areas. At the same time, I guess I made some comments, and
19 this would have been maybe as late as the 30th, some comments to Rick
20 McGoey about tankage, and he, of course, saw the problem and so did
21 many other people. At the same time, GPU essentially gave some blanket
22 statements to some outside agencies to get us all the tanks he could
23 get us. And it wasn't long until, I guess, late on the day of the 30th
24 or something, we had more tankage than we knew what to do with.

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1 JACKSON: Yes, I was here when they started convoying in.
2

3 SHACKLETON: Earl, to assist the young ladies that have to transcribe
4 this, if you can, can you spell the names of those vendors: Capolupo
5 and Gundal and Epicore. It will save some of our girls from going a
6 little bit hysteric trying to figure it out.
7

8 SHOWALTER: Okay, I have a business card here from Capolupo and Gundal,
9 Inc., and they are located in Salisbury, Massachusetts. Mr. Richard
10 Capolupo, Vice President of the company, personally came to the site
11 here and has been involved ever since that time in helping to set up
12 equipment and to help us with our waste problems here. Epicore-I don't
13 know the exact spelling but I think that is Epicore.
14

15 SHACKLETON: Thank you very much.
16

17 JACKSON: Okay, I've got one other question that came to mind while you
18 were talking about processing waste. Was there, at any time, any of
19 the Unit 2 waste processed that might have been generated during the
20 incident?
21

22 SHOWALTER: We did our best effort to maintain separations of those
23 pre-accident waste with post-accident waste. Now, you are referring to
24 the period up to the 31st.
25

1 JACKSON: Right.

2
3 SHOWALTER: As I recall, the water inventory situation in Unit 2, and I
4 don't know the exact day of this--probably along about the 30th or 31st
5 was in rather bad situation, and so I think there was some water from
6 the Unit 2 miscellaneous waste holdup tank transferred to the Unit 1
7 miscellaneous waste holdup tank. And some of this was also drained
8 into the reactor coolant bleed tank floor. And so some of that, yes,
9 would have been treated by Capolupo and Gundal. Also, some of it was
10 evaporated by the Unit 1 reactor coolant evaporator, and those evaporator
11 bottoms were dumped, and I don't have the exact time of that, to one of
12 the concentrated waste storage tanks and that showed up a little bit as
13 higher than normal iodine levels, and that resulted in, I think about
14 the sixth and seventh cask that Chemnuclear was solidifying, having
15 higher than normal iodine levels. And of course, that resulted in those
16 two casks, when they were shipped towards South Carolina and we realized
17 that they had higher than normal iodine levels, those two casks had to
18 be returned to the site because of the Governor of South Carolina's
19 agreement that no Unit 2 waste would be buried in South Carolina.

20
21 JACKSON: Okay, I think I am about out of questions right now. Is
22 there anything else, any general information--you don't have to restrict
23 yourself to just radwaste here, emergency organization, how well they
24
25

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1 functioned, or health physics, was it adequate--any general area that
2 you might want to comment on for the record, that we might use later
3 on, we'd appreciate it.
4

5 SHOWALTER: In general, I guess reflecting back over it, I think the
6 emergency plan run very well. I think most every department cooperated
7 and performed very well, considering the circumstances. There were
8 times in the control room during the first days that I wish there had
9 been more standard telephones between the control room and the Observation
10 Center, where many trailers and many consultants were coming in. I
11 didn't have as good a communications with Burns & Roe, who was beginning
12 to design some of the radwaste systems which are just now being installed.
13 So there was times when I would like to have had a little better communi-
14 cations with some of the people off of the Island. But in general, I
15 think things were handled very well.
16

17 JACKSON: Okay.
18

19 SHACKLETON: Earl, just to clarify the record so no one has any questions
20 in their mind, earlier in the interview when Larry asked you regarding
21 your experiences in going through the auxiliary building and used the
22 achronym aux, and you are referring to the auxiliary building, correct?
23
24
25

1 SHOWALTER: That is correct.
2

3 SHACKLETON: And for the transcribers the abbreviation is Aux for
4 Auxiliary. You referred to some of the radiation levels that you and
5 your colleague were picking up by your detection equipment, and the
6 different measurements that you gave us all relate to radiation releases
7 per hour, is that correct?
8

9 SHOWALTER: Yes.
10

11 SHACKLETON: Okay, I just want to make that clear. I know that in your
12 terminology you leave that out, but those listening may question whether
13 or not the releases were higher and I want to clarify that point. I
14 wish to thank you very much, on the part of the Commission, for coming
15 here and giving your time at this late hour. And I would ask of you
16 that if you think of anything further that could be helpful for the
17 safety of the industry, please give us a call, whether it's exactly in
18 your field or somewhere else.
19

20 SHOWALTER: Okay.
21
22
23
24
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1 SHACKLETON: I would greatly appreciate it. And with no further questions
2 then, Larry, we will terminate this interview. The time is now 1:19
3 a.m. May 2, 1979.
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