

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

1 In the Matter of:
2 IE TMI INVESTIGATION INTERVIEW
3 of
4 Patrick H. Shannon
5 A Operator
6
7
8

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

13 May 19, 1979
14 (Date of Interview)

15 July 9, 1979
16 (Date Transcript Typed)

17 227
18 (Tape Number(s))
19
20

21 NRC PERSONNEL:

22 Gregory P. Yuhas
23 James S. Creswell
24 William H. Foster
25 David Gambel

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1 FOSTER: The following interview is being conducted of Mr. Patrick H.
2 Shannon. Mr. Shannon is an A Operator at the TMI Nuclear Power Facility.
3 The present time is 3:07 p.m., today's date is May 19, 1979. The place
4 of the interview is trailer 203 located immediately outside of the
5 south gate to the TMI Site. Individuals present for the interview are
6 interviewers Gregory P. Yuhas, Radiation Specialists Region I, James S.
7 Creswell, Reactor Inspector, Region III. My name is William H. Foster
8 and I am a Senior Inspector Auditor, Office of Inspector and Auditor,
9 NRC. I'll be monitoring the interview. Also present is David Gambel,
10 Investigator, Inspector and Auditor. Prior to the interview being
11 recorded Mr. Shannon has provided a document explaining his rights
12 concerning information to be obtained regarding the incident at the
13 TMI. In addition Mr. Shannon was apprised the purpose of the in-
14 vestigation scope and the authority by which the congress authorities
15 NRC to conduct the investigation. On the second page of the advisement
16 document Mr. Shannon has answered three questions. The questions that
17 Mr. Shannon answered will now be recorded as part of the interview.
18 Mr. Shannon do you understand the document?

19
20 SHANNON: Yes I do.

21
22 FOSTER: Do we have your permission to tape the interview?
23
24
25

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1 FOSTER: Would you like a copy of the tape?
2

3 SHANNON: Yes.
4

5 FOSTER: At this time Mr. Shannon would you please provide us with a
6 brief summary of your academic background and your employment history
7 as it relate to the nuclear field.
8

9 SHANNON: I was enlisted in the Navy in 1970, November of 1970 as
10 electronics nuclear operator. I went through electronics school till
11 the end of 1971 then I went to a Nuclear Power School, Mare Island,
12 California. In the beginning of 1972 I went to S3G prototype in New
13 York also in 1972. Then I was sent to the USS John Marshall nuclear
14 submarine. I was there for 3 years serving in the nuclear field reactor
15 operator status. October, 1976 I started at Met Ed as a Auxiliary
16 Operator and I trained to be a A Operator. The training lasted ap-
17 proximately 6 weeks initial assistance status and stuff like that. Two
18 weeks of HP training at the end of that and then after one year we were
19 given our A Operator Status.
20

21 FOSTER: Thank you Mr. Shannon at this point I am now going to turn the
22 interview over to Mr. Yuhas and Mr. Creswell.
23
24
25

1 YUHAS: What we would like to do is have you described to us first how
2 you became aware of the incident, what you became aware of, when you
3 reported for duty and what actions you took in the period from 3/28
4 through midnight Friday 3/30. After you have in your own words described
5 what you done we will go back and ask you some specific questions to
6 try to bring out additional details. At the conclusion of that part of
7 the interview we will give you the opportunity to bring forth any
8 comments or criticisms complementary or otherwise related to the incident
9 and to Met Ed in general. So if you would please begin by telling us
10 how you heard of the incident and your involvement for the first three
11 days.

12
13 SHANNON: I received a phone call the morning of the 28th from a friend
14 asking me what was going on. I had no idea what was going on at the
15 time cause I was in bed. After they talked to me for awhile I then got
16 up and listened to the radio tried to here what I could hear and of
17 course the radio was making some announcements about a possible meltdown
18 at TMI and what not. And I sort of didn't get too upset about it. I
19 reported in as normal shift schedule at 3:00 in the afternoon on the
20 28th and found that I couldn't get the north gate. I was told to
21 proceed to the observation center, which I did. And from there I was
22 contacted by a shift foreman and he said that I should proceed to the
23 Island to get into a control room, which I did. I came into the Island
24 and everything was pretty well evacuated except for the control rooms.
25

1 I reported to Unit 2 control room and just stood by, we were respirators
2 at the time. I didn't get a job until maybe 9:00 or so and I was
3 instructed to go into the Auxiliary Building and put some nitrogen on
4 the core flood tanks, increase the pressure on the core flood tanks,
5 which I did. Increased it to about 600 pounds and I was then given
6 another job to go in and try and make some room in our neutralizing
7 tanks by pumping them over to Unit 1 for evaporation so we could pump
8 the water from the auxiliary building floor into our neutralizing
9 tanks. Once I got in we found out that the switch gear was deenergized
10 for the neutralizing tank pumps and it would not start so we started
11 investigating the problem there and thats about as far as we got. We
12 never did find out exactly what was wrong with switch gear and I left
13 the Auxiliary Building and told them that I wanted to get my TLD read
14 because I figured I had received quite a bit of radiation to the levels
15 in the Auxiliary Building and I did read it. And I had 3.2 Rem at that
16 time. That was about 11:00. And I was then instructed to leave the
17 Island proceed out to the observation center and get a whole body count
18 for that. At that time there was no whole body counter available yet,
19 and I didn't get a whole body count until the next day, the 29th. When
20 I came in at 3:00 I was not allowed on the Island again due to the
21 radiation I did receive and I did odd jobs around the observation
22 center and the 500 KV substation such as frisking the vehicles coming
23
24
25

1 off the island and frisking any possibly contaminated people coming off
2 the island. And if they were contaminated then proceeding to help them
3 decon. And I did that same job for approximately the 3 days.
4

5 YUHAS: Thank you, at this point we are going to go back now and ask
6 for more specific details. When you reported to the observation center
7 you stated that you were contacted by a shift foreman. Do you know who
8 that shift foreman was?
9

10 SHANNON: Yes, Conway, William Conway.
11

12 YUHAS: When you came to the north gate from the observation center did
13 you at that time have your TLD and pocket dosimeter?
14

15 SHANNON: Yes.
16

17 YUHAS: In other words your TLD and your pocket dosimeter you had taken
18 home the day before?
19

20 SHANNON: I had my TLD with me. I was given a pocket dosimeter to
21 bring in with me.
22
23
24
25

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1 YUHAS: Can you describe the environment around the north gate when you
2 were going in and this appears that you went in sometime in the afternoon,
3 late afternoon.
4

5 SHANNON: Yes, I believe I was around 4:00 to 4:30 somewhere around
6 there. I parked my vehicle at the north gate and I rode in with a
7 truck load of other people. I am not sure who they were and I believed
8 we had to wait for mask at the north gate,... respirators at the north
9 gate. They logged us in as they normally would by badge numbers and
10 names.
11

12 YUHAS: What sort of respirator did they provide you at the north gate?
13

14 SHANNON: A full face respirator.
15

16 YUHAS: What sort of cartridge on the respirator?
17

18 SHANNON: I don't believe they had iodine cartridges that I know of, I
19 can't really remember the exact cartridge that I did have on.
20

21 YUHAS: Prior to this incident did you have the MSA GMR combination
22 particulate iodine removal cartridge available on site? This would be
23 the one that looks like a purple little football.
24
25

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1 SHANNON: No, not that I know of.

2
3 YUHAS: Prior to this incident did you have the Scott combination
4 particulate iodine cartridge available on site? This would be the one
5 that looks like a small green peanut can.

6
7 SHANNON: Not that I know of.

8
9 YUHAS: The night that you came in on the 28th, the type of cartridge
10 you had was then solely a particulate cartridge.

11
12 SHANNON: Yes to the best of my knowledge it was a small one, I know
13 the cartridge was small, it wasn't large.

14
15 YUHAS: Can you describe the number of guards present at the north
16 gate?

17
18 SHANNON: Four or five including the sergeant.

19
20 YUHAS: Was anyone searched prior to coming in?

21
22 SHANNON: They were searching a vehicle that I was going to ride in
23 with b.t no one searched me.

24
25
685 262

1 YUHAS: When you arrived at the process center could describe the
2 condition of the process center?
3

4 SHANNON: There was no one in it, it was empty.
5

6 YUHAS: That means that there was no security person there, that the
7 normal gates, key gates were not activated, that there was no metal
8 detection equipment in function and that there was no chemical detection
9 equipment in function.
10

11 SHANNON: That's correct.
12

13 YUHAS: Can you describe the conditions in the service building with
14 respect to the security council being manned or doors being locked as
15 you came through?
16

17 SHANNON: They weren't manned, there was no one in the service building
18 that I know of.
19

20 YUHAS: You proceeded directly to Unit 2 control room?
21

22 SHANNON: Yes.
23
24
25

1 YUHAS: Can you describe the environment in the Unit 2 control room
2 when you arrived? As to who was there, what was the general activity
3 going on.
4

5 SHANNON: As far as people there, Joe Logan, Jim Seelinger, Mike Ross,
6 George Kunder, those were the upper management type people that I can
7 think of... then the normal shift CRO's. Theii was a supervisor, Bill
8 Zewe, Greg Hitz, Joe Chwastyk, Brian Mehler, those are the supervisors
9 that I can think of as being there. Operators, some were out in the
10 plant but I'am not really sure who all of the operators were. There
11 were at least 7 or 8 operators.
12

13 YUHAS: Was there representatives of the radiation protection and
14 chemistry staff in the Unit 2 control room at that time?
15

16 SHANNON: Yes, Tom Mulleavy and a few techs, I'am sure if Dick Dubiel
17 was there but I think he was.
18

19 YUHAS: When you came in door 11 to go up the stairway to the Unit 2
20 control room was there a guard posted at that door
21

22 SHANNON: No.
23
24
25

1 YUHAS: Did you observe a control point established in the hall way
2 between the Control Building and Auxiliary Building there?
3

4 SHANNON: I wouldn't consider it a control point. I think there was a
5 step off pad at the entrance of the service Building from the Control
6 Building. But there was a lot of Scott air pack boxes and coveralls
7 and other radiation type equipment laying in the hallway, but there was
8 no control point.
9

10 YUHAS: That means that there was not an individual man at that area.
11

12 SHANNON: That is correct.
13

14 YUHAS: Can you describe what you did from about... it must have been
15 about 16:30 by the time you got to the control room until your first
16 assignment at 2100?
17

18 SHANNON: I stood by and just tried to... well we were answering phones
19 a lot of phone calls, establishing communications with the observation
20 center, keeping people informed of anything that was happening. And in
21 particular I think of Jack Herbein was calling up all the time and was
22 giving out status reports on what was happening. And I was just trying
23 to stay out of peoples way so that they could get everything under
24 control.
25

1 YUHAS: Who was directing your activities?
2

3 SHANNON: Bill Conway, Shift Foreman, came on the island also.
4

5 YUHAS: Can you describe for us who specifically told you to make this
6 trip in the Auxiliary Building and the reason for making the trip?
7

8 SHANNON: The actual order came from Joe Chwastyk, reason being he
9 wanted to have more nitrogen pressure on the core flood tanks, they
10 were down about 400 pounds and he wanted to pressurize them in case we
11 needed them.
12

13 YUHAS: And how was this order conferred to you?
14

15 SHANNON: By word of mouth, he told me
16

17 YUHAS: Specifically Mr. Chwastyk told you to go do it.
18

19 SHANNON: Well, I was questioning the order the foreman, and I believe
20 it was Conway, was giving me and I went out into the front and the two
21 of us were standing there and he was telling me why don't you go in.
22

23 YUHAS: Did either foreman indicate to you that this action was necessary
24 for the protection of vital equipment?
25

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1 SHANNON: Yes, I believe it was. At the day? Just that they were
2 giving me the order I understood it to be necessary. They did not say
3 that it was vital that I can remember.
4

5 YUHAS: Did anyone tell you specifically how much exposure you would be
6 permitted to do this task?
7

8 SHANNON: No.
9

10 YUHAS: Did anyone ask you if you were a volunteer to perform this
11 task?
12

13 SHANNON: No one asked if I was a volunteer but I would have volunteered
14 if they had asked.
15

16 YUHAS: Can you describe from the point that you received the order,
17 how you got dressed, who helped you out, etc. who went with you to go
18 accomplish this repressurization?
19

20 SHANNON: No one went with me. I was alone, I put on coveralls, Scott
21 air pack, hood, boots, rubber gloves and there was a teletector there,
22 I took that in with me and proceeded to do the job.
23
24
25

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1 YUHAS: Did someone brief you as to the expected dose rates prior to
2 going in?
3

4 SHANNON: They did tell me certain levels in the Aux Building were
5 reading 100R, maybe 150R at some points, but there was no surveys at
6 that time yet that I know of.
7

8 YUHAS: Who told you that the dose rates were over 100 R/hr?
9

10 SHANNON: A HP tech.
11

12 YUHAS: Specifically do you know who that was?
13

14 SHANNON: I'm not quite sure I think, it was Kuhn's was talking to one
15 of the supervisors and I was trying to get some information on what the
16 levels were like in the Auxiliary Building and that was the... answers
17 I was getting.
18

19 YUHAS: Was the HP technicians or HP department aware that you were
20 going to make this entry?
21

22 SHANNON: I can't say that for sure but I believe that they where. I
23 don't know for positive.
24
25

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1 YUHAS: Your saying that you are not sure because you didn't specifically
2 tell them?
3

4 SHANNON: No.
5

6 YUHAS: Or because they didn't specifically ask you?
7

8 SHANNON: I did not tell them and no one asked.
9

10 YUHAS: Prior to leaving Unit 2 control room did you sign out the book
11 indicating that you were going to be going into the Auxiliary Building
12 or log out or take a RWP out or anything like that?
13

14 SHANNON: No as far as I know there was nobody processing RWP's and as
15 far as a book... there was no book that I know of either.
16

17 YUHAS: Did you wear a Scott air pack?
18

19 SHANNON: Yes.
20

21 YUHAS: When was the last time you were trained in the use of the Scott
22 air pack?
23
24
25

1 SHANNON: Last year, I'm not sure of the month probably around July.

2
3 YUHAS: At this point I envision you down, going to the step off pad
4 and you have already dressed yourself up. You got a teletector from
5 someplace and you are wearing a Scott air pack and you are ready to go
6 across the step off pad. Is that correct?

7
8 SHANNON: Yes.

9
10 CRESWELL: Was there plenty of noncontaminated clothing available for
11 your use?

12
13 SHANNON: No, there was not a whole lot. There was scattered clothing
14 around the hall way. There was nothing... no water, it was just some
15 coveralls laying here, clothes laying here, boots laying here.

16
17 YUHAS: Where these... had they been used before?

18
19 SHANNON: No, not the ones that I put on. There may have been some used
20 ones laying in the hall way, but I didn't use any of those.

21
22 YUHAS: Where did you get the Scott air pack?

1 SHANNON: It was in a box. Scott air pack yeah, carrying case.

2
3 YUHAS: Now where did you get the teletector?

4
5 SHANNON: It was laying right at the control point.

6
7 YUHAS: Did you check the calibration date on it?

8
9 SHANNON: Yes, and I checked the batteries also.

10
11 YUHAS: Now did you go across the step off pad, did you need a key or
12 did someone challenge you prior to going in the Auxiliary Building?

13
14 SHANNON: No, there was no one there.

15
16 YUHAS: So to make it clear, no one was there at the control point to
17 log you in.

18
19 SHANNON: No.

20
21 YUHAS: Was there a stand by person there, anywhere around, knowing
22 that you were going in on a 30 minute bottle.

1 SHANNON: No.

2
3 YUHAS: When you entered the Auxiliary Building, in which position was
4 the Scott air pack regulator?

5
6 SHANNON: I always put it in pressure demand so that I, if I do have a
7 leak pass my mask, it, wouldn't let anything in.

8
9 YUHAS: At this point I would like you to describe as you proceeded
10 down 305 hallway, the type of dose rates that you measured as you went
11 in?

12
13 SHANNON: Immediately inside the Auxiliary Building doors, reading 20
14 rem and I didn't go down to 305 hallway, I went right up stairs from
15 there, and as soon as I get upstairs there were different readings as I
16 walked where I had to do the job 70 rem, 100 rem, 30 rem, most of them
17 were quite high. At, it was probably 10 rem.

18
19 YUHAS: Can you give a little better description of where the valve is
20 on 328 elevation, which you had to operate operate?

1 SHANNON: It's actually in the Fuel Handling Building right before you
2 go through a door for the access area around the Reactor Building. If
3 I had a map I could show you. You have to through the reactor purge
4 fan area and back in towards the hallways. The only thing thats back
5 there is these core flood nitrogen valves.

6
7 CRESWELL: Is that close to the makeup tank area did you go by the
8 makeup tank area?

9
10 SHANNON: No, makeup tank is on the 305 about midway.

11
12 YUHAS: About how long did it take you to go up and operate this valve
13 and get back out of the aux building?

14
15 SHANNON: Approximately 5 to 10 minutes, probably a little bit less
16 than ten.

17
18 YUHAS: Did you see anyone else in the Auxiliary Building while you
19 were doing this?

20
21 SHANNON: No.

22
23 YUHAS: When you came out of the Auxiliary Building and you removed
24 your Scott air pack, what did your pencil dosimeter indicate?

1 SHANNON: It was off scale.

2
3 YUHAS: What scale was this?

4
5 SHANNON: 200 mR scale.

6
7 YUHAS: Is that the only pocket dosimeter you had on when you went in?

8
9 SHANNON: Yes.

10
11 YUHAS: Where did you go from there?

12
13 SHANNON: I proceeded back into the control room where the nearest
14 frisker was and I frisk, ... I didn't get near the frisker and pegged I
15 the frisker, ... I guess it was gas into my clothing. And then I... you
16 know, while I'm at it I might as well... any other things, cause I knew
17 they were probably talking to me about the job of pumping water over to
18 Unit 1 and I was fairly familiar... I'm familiar with the panel, rad
19 waste panel and we figured we wanted to send somebody in that could do
20 it as quick as possible. So I said I'm ready for that and we proceeded
21 to do that, then.

22
23 YUHAS: Did you frisk yourself or did someone frisk you in the detailed
24 fashion?

1 SHANNON: There was no need, it pegged it.
2

3 YUHAS: When you pegged it, you are talking about an RM14 with a HP210
4 probe on the times one vs. scale.
5

6 SHANNON: Yes.
7

8 YUHAS: Did the health physics technician survey you?
9

10 SHANNON: A health physics technician was there.
11

12 YUHAS: What did he do?
13

14 SHANNON: He said you have to go get washed up. And I asked where, and
15 he said Unit 1. And since we didn't have any wet suits that I knew or
16 at least I could not find any wet suits, and I knew that I was going to
17 be going back into the Auxiliary Building again, I figured that I would
18 get that job done before I would go and try to get decontaminated.
19

20 YUHAS: Do the HP technicians ask you how much exposure you have picked
21 up on that trip in?
22

23 SHANNON: No.
24
25

1 YUHAS: Did the HP foreman Dubiel or Mulleavy ask you how much exposure
2 you had picked up?
3

4 SHANNON: They weren't at the immediate area when I came in... the desk
5 that had the RM14 was right inside the door of the control room and
6 they weren't at that point when I came in.
7

8 YUHAS: Did you tell anybody that your pocket dosimeter had gone off
9 scale?
10

11 SHANNON: Yes I told one of the foreman, I can't remember which one. I
12 believe there were two foremen there and I can't remember both of the
13 foreman that where there. I know Conway was one. And he ask me how
14 much I got and I said my dosimeter had pegged. I said I probably got
15 about an R and I asked Mulleavy about that do they feel I should go on
16 through.
17

18 YUHAS: Was this same individual aware or was he a party to planning to
19 sending you back in?
20

21 SHANNON: No.
22

23 YUHAS: Which foreman made the decision for you to go ahead back in and
24 do the rad waste operation?
25

1 SHANNON: I can't remember the other foreman. I was talking the job
2 through with Brian Mehler and he was sort of in charge of that operation.
3

4 YUHAS: Did the man, the foreman that authorized you make the entry for
5 the rad waste operation? Was he first aware that your 0-200 mR dosimeter
6 had gone off scale?
7

8 SHANNON: No.
9

10 YUHAS: You did not tell him?
11

12 SHANNON: No, I did not. I told him the second time when I came out...
13 it went off scale a second time also. And I went in, I told him this
14 time, I said... I had gone off scale and at that time Brian Mehler
15 said, go over and get deconned and get your TLD read. Which I did.
16

17 YUHAS: We are still back to the control room after the first entry.
18

19 CRESWELL: Did you remove your protective clothing at the step off pad?
20

21 SHANNON: Yes.
22

23 CRESWELL: So you had just crept across the hallway and you went into
24 the control room?
25

1 SHANNON: Yes.

2
3 YUHAS: I'd like you to try to give us as much detail in terms of names
4 of the individuals in the decision making process to send you back into
5 the Auxiliary Building to use radwaste operation.
6

7 SHANNON: Ok as far as I can remember the amount of foreman, not foreman
8 but supervisors, shift supervisors in the control room, they had all
9 had there own little jobs they were working on and as I said, Joe
10 Chwastyk had sent me in for the core flood and Brian Mehler is when I
11 was talking with about the rad waste panel job and Brian Mehler was
12 about the only one that I really talked to about the other job.
13

14 YUHAS: Mr. Mehler, was Mr. Mehler aware that your 0200 mR pocket
15 dosimeter had gone off scale in the first entry?
16

17 SHANNON: No.
18

19 YUHAS: Did Mr. Mehler set an upper exposure limit for this next job he
20 was sending you in to do?
21
22
23
24
25

1 SHANNON: No, but he was concerned about the exposures that I was
2 likely to get, he was,... we were trying to figure out any area that I
3 could go to if there was some problem... I could go to wait for say a
4 phone call or whatever. And we discussed certain areas that we had
5 thought would be a lower level of radiation than other certain areas.
6

7 YUHAS: Did this discussion involve a representative of the Health
8 Physics or Radiation Protection Group?
9

10 SHANNON: No.
11

12 YUHAS: After discussing this, was this based on your survey or were
13 there written surveys that you were reviewing with Mr. Mehler as to
14 where to hide or was it based on your previous experience of what
15 might likely be the lowest dose rate areas?
16

17 SHANNON: Experience of what would probably be a lower level of exposure.
18

19 YUHAS: After you discussed this evolution with Mr. Mehler, about what
20 time did you actually prepare to make this entry into the Auxiliary
21 Building?
22

23 SHANNON: Right after the other entry, maybe 10:00.
24
25

1 YUHAS: Can you describe how you dressed yourself this time for the
2 entry?

3
4 SHANNON: It was a little harder finding clean clothes this time, there
5 where still some scatter around here and there in the hall way and at
6 305 outside the service building and again I got dressed and there was
7 still no one there.

8
9 YUHAS: This time when you dressed, did you wear a high range pocket
10 dosimeter or did you just rezero your 200?

11
12 SHANNON: I rezeroed my 200, there were no high range... that could be
13 found.

14
15 YUHAS: Can you describe your efforts to locate a high range pocket
16 dosimeter? Who did you ask?

17
18 SHANNON: I asked HP technician that was there at the time, Tom Thompson,
19 where to get a high range dosimeter. And he didn't know of any and I
20 then went over to Unit 1 HP and was trying to find a high range over
21 there and there were none over there either.

22
23 YUHAS: When you asked these rad chem techs for a high range pocket
24 dosimeter, did they inquire why you needed it?

1 SHANNON: I told them I was going to go in the Aux Buidling.
2

3 YUHAS: Did they ask you any questions about what you where going to do
4 in the Aux Building, and what exposures you had available or anything
5 like that?
6

7 SHANNON: They didn't ask me any exposure I belive one of them did ask
8 me what was I going to do. Like in Unit 1... HP there was no one in
9 the Unit 1 HP either except maybe the technican drifting in and out on
10 certain jobs that they were on. Most of the HP people where monitoring
11 different levels around the plant.
12

13 YUHAS: In this particular phase where you acting as part of the repair
14 party function in the emergency organization? Is that how you preceived
15 your responsibilities in this organization, you are part of the repair
16 party.
17

18 SHANNON: Yes.
19

20 YUHAS: We've got you back down now in the Control Building dressing
21 up. You got your 200 mR pocket dosimeter. Where are you wearing your
22 TLD?
23
24
25

1 SHANNON: It's in my shirt.

2
3 YUHAS: In your personnel clothing?

4
5 SHANNON: Yes.

6
7 YUHAS: Ok, fine, do you have any extremity monitoring on at this
8 point?

9
10 SHANNON: No.

11
12 YUHAS: What instrument do you have with you?

13
14 SHANNON: A teletector unit.

15
16 YUHAS: (Unintelligible) Scott air pack?

17
18 SHANNON: Yes.

19
20 YUHAS: What instrument do have?

21
22 SHANNON: The teletector.

1 YUHAS: Is this the same teletector?
2

3 SHANNON: Yes, the same one.
4

5 YUHAS: The batteries are still good?
6

7 SHANNON: Yes.
8

9 YUHAS: Your regulators are in what position?
10

11 SHANNON: Pressure demand.
12

13 YUHAS: Would you describe the dose rates you see this time as you go
14 in through the 305?
15

16 SHANNON: Ok this time I walked down through the switch gear on the 305
17 which, we had thought would be a lower level and walking down past the
18 makeup tank area and inside the switch gear rooms it was reading 30
19 rem. Proceeded right down to the rad waste panel where it was 10 rem
20 and discovered that the pumps I needed to pump the tank with were
21 deenergized. Called the control room and informed them that, and
22 talked to Brian Mehler and he said find a spot of low level, as low as
23 you can find. Try the model room if you know where the model room is
24
25

1 and so I proceeded to the model room and there it was 3 rem, where I
2 waited for the phone call back, they were going to call me back as soon
3 as they, we thought it was two different things we had thought it was
4 the 1311 radiation monitor on our discharge to the river. We figured
5 since that was such a high background that was restricting our pumps
6 from starting. So they overrode that so we could get the pumps started
7 and that's when we realize that the switch gear was deenergized.
8

9 YUHAS: Again where you alone this time?
10

11 SHANNON: Yes.
12

13 YUHAS: Did anyone log you in the Aux Building this time?
14

15 SHANNON: No.
16

17 YUHAS: Was the Aux Building still open for access.
18

19 SHANNON: Yes.
20

21 YUHAS: Did you run into anybody in the Auxiliary Building?
22

23 SHANNON: No.
24
25

1 YUHAS: You went in you found the breakers to the pumps would not start
2 from the switch gear panel.
3

4 SHANNON: Right.
5

6 YUHAS: You must have called Mehler. Did you call him over the load
7 speaker system?
8

9 SHANNON: I tried but... with all the commotion in the control room I
10 guess they couldn't hear, so I had to use the dial phone.
11

12 YUHAS: Did any one in the control room know the specific time that you
13 entered the Auxiliary Building?
14

15 SHANNON: As far as logging I don't know of anybody logging in in.
16

17 YUHAS: Independent of logs, what I'am getting at is that there was not
18 a back up safety man. You were entering a very high dose rate area,
19 did you tell,... ok I'm going in in one minute, type of thing.
20

21 SHANNON: I told them as I was leaving the Control Room now that I
22 would be entering...
23
24

1 YUHAS: How long a period of time was it from the time you left the
2 Control Room to the time you entered the Auxiliary Building?
3

4 SHANNON: I would say 5 minutes or less, that's when I entered.
5

6 YUHAS: What time did it take you to get from the doors of the Auxiliary
7 Building to discern that the pump would not start and to make the phone
8 call?
9

10 SHANNON: Immediately, as soon as I got to the panel, I saw the problem
11 and I called immediately.
12

13 YUHAS: How long did you after you called them, did you wait before you
14 were called back?
15

16 SHANNON: Probably about 2 minutes, 2 or 3 minutes. I waited in the
17 model room.
18

19 YUHAS: What was their response when they called you back?
20
21
22
23
24
25

1 SHANNON: They said that they overrode 1311 and I told them the pumps
2 still weren't energized and I would go and check the breakers to see if
3 they were tripped. And that's the time I went up to the breakers and
4 checked and found out they were not tripped and decided that it had to
5 be the switchgear problem, and I proceeded out of the building.
6

7 YUHAS: So what was your total time in the building?
8

9 SHANNON: Some where around 10 minutes, the second time.
10

11 YUHAS: When you came out what did you find on your pocket dosimeter?
12

13 SHANNON: It was off scale.
14

15 YUHAS: In your opinion did you receive the majority of your dose in
16 the first trip or in the second trip?
17

18 SHANNON: First trip.
19

20 YUHAS: Can you now describe to us after you've come out of the control
21 point, and you take off your Scott air pack and your clothing. Did you
22 go back up to Unit 2 Control to be surveyed?
23
24
25

685 287

1 SHANNON: Yes, again I... the frisker pegged and they told me I ought
2 to go decon, and Brian Mehler asked me how much I received. I told him
3 that my dosimeter was pegged. He said well we can't use you anymore,
4 at that time and he said go over to Unit I and get deconed and report
5 to the Control Room, Unit 1 Control Room, which I did.
6

7 YUHAS: Did you tell either the rad chem techs or Mulleavy or Dubiel
8 that you had gone off scale on your dosimeter at that point?
9

10 SHANNON: No, I told Mehler.
11

12 YUHAS: At that point did you tell Mehler that you had gone off your
13 frisk... that your dosimeter had gone off scale the first trip in?
14

15 SHANNON: No, I'm not sure he was even aware of the first trip in.
16

17 YUHAS: Can you describe for us the decon techniques that where necessary?
18

19 SHANNON: There was no one in Unit 1 HP. HP Tech did come by and I
20 asked him how we were proceeding to shower up and he said you have to
21 take a shower with a mask on as far as he knew due to the background in
22 the Unit 1 HP,... very high. So I took a shower.
23
24
25

1 YUHAS: Did you take a shower with a mask on?
2

3 SHANNON: No.
4

5 YUHAS: Did you survey yourself when you got done that?
6

7 SHANNON: I proceeded to Unit 1 Control Room and then I surveyed myself...
8 after I washed my clothing also.
9

10 YUHAS: What did they find at that point?
11

12 SHANNON: Nothing there was nothing on me anymore.
13

14 YUHAS: Who surveyed you up there?
15

16 SHANNON: I surveyed myself.
17

18 YUHAS: At that point did you hand carry your TLD some place to be
19 read?
20

21 SHANNON: Yes, I carried it to the Control Room and gave it to Fred
22 Huwe.
23
24
25

1 YUHAS: Did you tell Fred Huwe you had gone off scale twice on your
2 pocket dosimeter?

3
4 SHANNON: Yes.

5
6 YUHAS: What was Mr. Huwe's reaction?

7
8 SHANNON: He sent the TLD to get it read right away.

9
10 YUHAS: Did you know where he sent it to get it read.

11
12 SHANNON: As far as I know they were sending it to the regular TLD
13 reading area because it came back quite quick. It came back within 20
14 minutes I'd say.

15
16 YUHAS: And you stayed in the Unit 1 Control in that interim period.

17
18 SHANNON: Yes.

19
20 YUHAS: Did someone reissue you another pocket dosimeter or TLD badge?

21
22 SHANNON: No, I just waited in the Control Room.
23
24
25

1 YUHAS: What happened when they found out that you had gone over 3 rem?
2

3 SHANNON: They told me to go out to the observation center and get a
4 whole body count.
5

6 YUHAS: When you went out can you describe what happened at the north
7 gate?
8

9 SHANNON: I was logged out. I gave them the mask back and refrisked
10 the car and ourselves.
11

12 YUHAS: You frisked yourself again at the north gate?
13

14 SHANNON: Yes.
15

16 YUHAS: You said earlier that there was no whole body counter available
17 at that time.
18

19 SHANNON: No, I waited at the observation center until about 2:00. I
20 guessed they finally figured out it wasn't going to arrive. I think
21 they were waiting for it. And decided it wasn't going to arrive they
22 sent me home and told me to get it tomorrow.
23
24
25

1 YUHAS: When you came in the next day did you get a whole body count?
2

3 SHANNON: Yes.
4

5 YUHAS: Can you describe the results of that count?
6

7 SHANNON: I went into the whole body counter, it was located at the 500
8 KV substation and that was the first thing I did and there were no
9 spikes at all on the count, and the guy said everything was fine.
10

11 YUHAS: Mr. Shannon would you describe for me the health physics training
12 titled Advance HP Requal Recertification that apparently was 8 hours
13 long that you received in January 1979.
14

15 SHANNON: Yes, they showed us the tapes. We went over instruments that
16 we have on the island, how to use the SAM II Unit for emergency radiation
17 monitoring teams. I believe that's all.
18

19 YUHAS: We are going to break the tape at this time.
20

21 FOSTER: The time now is 3:40 p.m.
22
23
24
25

685 292

1 FOSTER: We are going to continue with the interview with Mr. Shannon.
2 The time is still 3:40 p.m.
3

4 YUHAS: We were just talking about the Advanced HP Requalifications and
5 you said that this included tapes. About how many hours and what was
6 the content of the tapes?
7

8 SHANNON: (No Response)...
9

10 YUHAS: Would these had been the NUS tapes that are given to everyone
11 every year called General Employee Training.
12

13 SHANNON: Yes that's what they were, I couldn't remember what they
14 were.
15

16 YUHAS: Did this training include a test?
17

18 SHANNON: Yes.
19

20 YUHAS: And you passed the test?
21

22 SHANNON: Yes.
23
24
25

1 YUHAS: When you went through your A operator training it indicates
2 that you received the advanced HP training 80 hours. Was that entire
3 program for Unit 2. You were hired on as a Unit 2 A operator.
4

5 SHANNON: Yes, I was hired on as a Unit 2 operator.
6

7 YUHAS: I'm curious why you entered the Auxiliary Building after your
8 pocket dosimeter had gone off scale the first time.
9

10 SHANNON: I had an idea of... even after I entered the second time and
11 I still had an idea... about the radiation I had... due to the time
12 that I was in and the levels I had gone through. I was moving as
13 quickly as I could and I didn't expect, I expected about 3 rem when I
14 came out the second time... I expected I would have received and I
15 think... well someone had to get due to the water on the floor, we had
16 to get rid of it and the levels weren't going to go down unless we got
17 rid of that. That's why I felt... and had to get stated.
18

19 YUHAS: You stated both trips you used the teller?
20

21 SHANNON: Yes.
22

23 YUHAS: The majority of the dose was probably due to what isotope, do
24 you know?
25

1 SHANNON: I thought it was probably gas, Xenon gas, whatever the gases
2 they had at the time.

3
4 YUHAS: Do you know what the major gamma to be..., isotope and major
5 energy of the gamma emissions from Xenon gas is?
6

7 SHANNON: What the level is?
8

9 YUHAS: The energy of the gas.
10

11 SHANNON: I would guess some around 2 MEV somewhere around there I'm
12 not sure.
13

14 YUHAS: Do you have any idea how the teletector responds to a cloud of
15 Xenon gas from fresh fuel?
16

17 SHANNON: No.
18

19 CRESWELL: Fresh fuel?
20

21 YUHAS: I'm thinking of the isotopic gas mixtures likely to be released
22 from a core with less than a long full power history.
23
24
25

1 YUHAS: Were you permitted to go back on the island after the night of
2 the 29th?

3
4 SHANNON: No, I was not allowed on the island for approximately two
5 weeks.

6
7 YUHAS: How long before the computer printout for your dose tracking
8 did your dose show up?

9
10 SHANNON: I'm not sure what you mean on the computer printout or what.

11
12 YUHAS: Yes on your printout form, your daily dose track form as you're
13 used to seeing.

14
15 SHANNON: As far as I know, as soon as they read your TLD, it's printed
16 up right away.

17
18 YUHAS: You didn't check it then. They just told you about the amount.

19
20 SHANNON: One of the days over at the Observation Center I did check it
21 and it was on.

22
23 YUHAS: Did you receive a formal report filed to you pursuant to 10 CFR
24 20.409 of your exposure in excess of 3. or 3 rem per quarter?
25

1 SHANNON: Yes I did.
2

3 CRESWELL: I have a copy of Mr. Shannon's training record here that has
4 been furnished to us by the Met Ed's Training Department. I would like
5 to discuss a few of these items with you. As of February 13, 1979 it
6 is mentioned here that you had some condensate polisher training four
7 hours. What did that consist of?
8

9 SHANNON: Mostly discussing resin... types of resin and how they react
10 and chemistry of resin.
11

12 CRESWELL: Was that taught in the training department?
13

14 SHANNON: It was a NUS film, I believe also, and then we had a lecture
15 by one of our chemists after the film.
16

17 CRESWELL: There's also a two hour lecture on about the 4th of January
18 1979 related to the security system modifications. What does that
19 consist of?
20

21 SHANNON: Telling us about the new key cards... the computer that was
22 involving the motor operating gates. How we would have to come in and
23 out of the island. In and out of the protected area after they went
24 into operation.
25

1 CRESWELL: In around July 12, 1978 there were 2 hours related to abnormal
2 emergency procedures review GET. Can you briefly describe what was
3 covered in that training.
4

5 SHANNON: When was it... January?
6

7 CRESWELL: July of 1978.
8

9 SHANNON: I got to have some refreshing, I don't really remember.
10

11 CRESWELL: There is a listing here in August 30, 1977, 200 hours,
12 auxiliary operator A training program Unit 2. What's included in the
13 training program like that?
14

15 SHANNON: Lectures on various systems in the plant, secondary and
16 primary systems, tests, making drawings and walking around the plant...,
17 that sort of thing.
18

19 CRESWELL: Did you receive a test after you finished that program?
20

21 SHANNON: Yes, we received a weekly test and then a final test at the
22 end.
23
24
25

1 CRESWELL: Did you ever have a licensed operator accompany you out in
2 the plant for testing purposes?
3

4 SHANNON: Yes.
5

6 CRESWELL: What was the nature of that, that kind of test?
7

8 SHANNON: Walk around for my,... I received two walk arounds from
9 licensed operators, foreman and supervisor, part of the A operator
10 training.
11

12 CRESWELL: How did they conduct the test?
13

14 SHANNON: Walked around and pointed something out, asked you what it
15 was and what it did and you had to explain it to them.
16

17 CRESWELL: I'd like to go back to the time that you went down to the
18 rad waste panel and you noted that the transfer pumps were deenergized.
19

20 SHANNON: Yes.
21

22 CRESWELL: Did you notice anything else, any other conditions as indicated
23 by the radwaste panel?
24
25

685 299

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1 SHANNON: I noticed that there were... specific pumps that had been
2 turned off were all the pumps that were effected by the WDL 1311.
3 That's what led me to the conclusion that it was the 1311 that was
4 preventing us from using the pumps. That's about all I noticed really.
5

6 CRESWELL: You didn't notice any tank levels or any...
7

8 SHANNON: Oh I did look at (unintelligible) tank levels and they were
9 both somewhere around 10 feet and the Auxiliary Building sump level
10 was... sump and sump tank were both full. I did notice those all in
11 the same area.
12

13 CRESWELL: You mentioned before, that the nitrogen pressure before you
14 went into the Aux Building to increase the pressure, was around 600
15 pounds.
16

17 SHANNON: No it was around 400.
18

19 CRESWELL: ...400 pounds, I'm sorry, how did you come about that information?
20

21 SHANNON: Indication in the Control Room, the Unit 2 Control Room.
22

23 CRESWELL: You looked at the pressure gage and then how did you know
24 whenever you got the pressure up to 600 pounds?
25

685 300

1 SHANNON: Again, the indication in the Control Room and also the pressure
2 regulator, I set it to about 600 pounds before I went in.
3

4 CRESWELL: You set the regulator for 500 pounds. Now where is the
5 regulator located?
6

7 SHANNON: Out in the hallway in the corridor between Unit 2 and Unit 1.
8

9 CRESWELL: So what you did was go in the Auxiliary Building and open a
10 manual valve?
11

12 SHANNON: Yes, well I opened the regulator first to pressurize the line
13 to 600 pounds and I then went in and I opened the valves up. I knew it
14 would take a while. We just isolated at the manifold.
15

16 CRESWELL: What was the regulator set at?
17

18 SHANNON: Normally the regulators is isolated.
19

20 CRESWELL: Was it isolated?
21

22 SHANNON: Yes.
23
24
25

685 303

1 CRESWELL: When you walked to the Auxiliary Building did you notice any
2 abnormal conditions any fumes, vapors, anything like that?
3

4 SHANNON: No.
5

6 CRESWELL: Smoke, no smoke?
7

8 SHANNON: No.
9

10 CRESWELL: That's all I have and I'll turn it back over to Mr. Foster if
11 Mr. Yuhas doesn't have anything.
12

13 YUHAS: After you came out of the Aux Building did you go back and read
14 the regulators to see what it read pressure wise?
15

16 SHANNON: No I went up to the control room cause I knew it would take a
17 while and we were watching the pressure from up there.
18

19 YUHAS: Did the pressure come up to 600 pounds?
20

21 SHANNON: Yes and then the regulator was reisolated, not by me, but by
22 one of the other operators.
23
24
25

685 302

1 YUHAS: At this point do you have any comments, criticisms, anything
2 you want to bring up?
3

4 SHANNON: I guess the lack of HP support at the time we really needed
5 them. That did upset me a little bit but I don't want to say, but the
6 people that we have in the HP department as far as technicians, I
7 didn't have a whole lot faith in before and I imagine they were busy I
8 don't really know. I hate to put them down without knowing the whole
9 story but we should have had some support. I had thought of it.
10

11 CRESWELL: How was your relationship with the health physics general
12 station operation?
13

14 SHANNON: I always thought there was no adverse reactions between HP or
15 Operations at all, that I know of. We get along fine, I get along with
16 almost anybody any how.
17

18 CRESWELL: Well I didn't want to make or characterize it being a personal
19 thing, but did you feel like you were getting support, proper support
20 here at all?
21

22 SHANNON: Not at the time, no not at the time of the incident.
23
24
25

1 CRESWELL: But doing the normal operations do you think that the Health
2 Physics Department and the Operations Department worked well together?
3

4 SHANNON: Yes, normally I feel secure with the HP support we get.
5

6 YUHAS: Under normal conditions is there enough health physics instrumenta-
7 tion at the right time, available for you to use?
8

9 SHANNON: Yes, normally there is a lot of instruments available to us
10 and that's way I was real surprised the night of the incident that all
11 of a sudden everything had vanished.
12

13 YUHAS: Did you have a great deal of trouble trying to communicate with
14 that Scott air pack on as far as using the PA system or telephone?
15

16 SHANNON: No I'm aware of how to use the phone communication systems
17 with a respirator on. I had no problem at all communicating.
18

19 YUHAS: I have one additional question if you don't have any comments
20 you want to bring up.
21

22 SHANNON: No.
23
24
25

1 YUHAS: That additional question is, do you have any reason to believe
2 that any individual may have either precipitated it or have aggravated
3 the incident that occurred on March 28th?
4

5 SHANNON: I don't think anybody would have been smart enough, to tell
6 you the truth.
7

8 YUHAS: Is there to the best of your knowledge any previous indications
9 or reasons why emergency feed valves might have been closed, say... due
10 to pump leakage or some damn problem like that?
11

12 SHANNON: I didn't get the whole question, what was that again?
13

14 YUHAS: What we were talking about is the emergency feed system. I am
15 sure you are aware that...
16

17 SHANNON: I'm aware now, but at the time I didn't know anything about
18 it.
19

20 YUHAS: Okay. Do you know of any previous instances where those valves
21 were closed for one reason or another?
22
23
24
25

1 SHANNON: The only time I know those valves are closed was during the
2 emergency feed pump testing, cause that's how I know they were closed,
3 during the surveillance that we do, once a month.
4

5 YUHAS: Are the auxiliary operators involved on the surveillance?
6

7 SHANNON: Yes.
8

9 YUHAS: Specifically, what do you do during that surveillance?
10

11 SHANNON: We take the vibration readings on the pump, bearings, monitor
12 the pump, be sure the all the oil levels are fine, are satisfactory,
13 get pressures, discharge pressures, suction pressures, things like
14 that.
15

16 CRESWELL: Have you personally been involved in doing surveillance on
17 the emergency feedwater system?
18

19 SHANNON: Yes, I have.
20

21 CRESWELL: Was it monthly or how often do they do this?
22

23 SHANNON: Monthly.
24
25

1 CRESWELL: When is the last time you did it or were directly involved
2 in it.

3
4 SHANNON: The actual surveillance that I was last involved in was maybe
5 a year or a year and a half ago. Due to our stations rotating, you
6 know, we don't catch all the available all the time.

7
8 CRESWELL: Are you normally on the shift with Bill Zewe, Mr. Faust, Mr.
9 Scheimann?

10
11 SHANNON: No. I'm not on that shift.

12
13 YUHAS: If there are no further questions at this time I'd like to
14 thank you for coming in and giving us some candid responses to our
15 questions.

16
17 FOSTER: Thanks a lot. Let me make a correction. Side 2 of this tape
18 began at 3:50 p.m., not 3:40 p.m. The interview is concluded at 4:06
19 p.m.

20
21
22
23
24
25
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