

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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GENERAL PUBLIC UTILITIES CORPORATION,
JERSEY CENTRAL POWER & LIGHT COMPANY,
METROPOLITAN EDISON COMPANY and
PENNSYLVANIA ELECTRIC COMPANY,

Plaintiffs,

80 CIV. 1683
(R.O.)

-against-

THE BABCOCK & WILCOX COMPANY and
J. RAY McDERMOTT & CO., INC.,

Defendants.

-----x

Continued deposition of METROPOLITAN
EDISON COMPANY by CRAIG C. FAUST, taken by
Defendants pursuant to adjournment, and
held at the offices of Davis Polk &
Wardwell, Esqs., One Chase Manhattan Plaza,
New York, N.Y. on Thursday, August 20, 1981
at 10:00 a.m., before Joseph R. Danyo, a
Shorthand Reporter and Notary Public within
and for the State of New York.

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JULIE JOHNSON

1
2 C R A I G C. F A U S T, having been
3 previously sworn, resumed and testified further
4 as follows:

5 MR. MacDONALD: I just want to note I am
6 handing Mr. Fiske a package of material of
7 documents that I represented yesterday
8 would be forthcoming today; some of Mr. Faust's
9 material that he turned over to counsel.

10 MR. FISKE: I would like to inquire as
11 to when we will receive the material relating
12 to Mr. Faust's training, which he testified
13 that he had at his home, which I believe Mr.
14 Benedict requested in a letter about ten days
15 ago.

16 MR. MacDONALD: As soon as possible. He
17 can't look for it when he is here.

18 EXAMINATION (Continued)

19 BY MR. FISKE:

20 Q You realize today you are still under oath.

21 A Yes.

22 Q When we left yesterday, you were taking
23 the control room diagram, which I believe is Exhibit
24 263, and marking with this red pen indications of
25 where various instrumentation appeared on the control
room panel on the day of the accident.

1
2 I would like to pick up from where we
3 left off yesterday. I believe you had indicated
4 yesterday the location of the T-avg. meter, primary
5 pressure, and the pressure for the steam generators.

6 A Yes. That is a digital readout of the T-avg.
7 meter.

8 Q I understand. Was there an indication
9 on the control room panel which would indicate the
10 automatic actuation of high pressure injection?

11 A Some indication of the pumps on the front
12 console over on the left of the pumps running, high
13 pressure injection running, and also an ES automatic
14 manual initiation panel to the left of that, that
15 would give you an indication of high pressure
16 injection actuation on the front panel.

17 Q Before you put the marks on there to
18 indicate where that instrumentation was located,
19 could you just describe it a little bit more. You can
20 put a 5 for the first one and then describe it to us.

21 A The pumps were located about here.

22 Q Did you make a 5?

23 A That is a 5, yes.

24 The automatic panel is located just over from
25 it.

2 Q And you put a 6 there?

3 A Yes.

4 Q When you described the pump control, what
5 does that show?

6 A That is a -- that has indication of pump amps.
7 They would be located just above it.

8 Shall I put 7 there?

9 Q Sure.

10 A Right around this area. Down here were indication
11 lights of the pump, closure of the pump breaker is
12 what it actually indicated. It would be an indication
13 of the pump running.

14 Q When you talk about the pumps, you are
15 talking of the high pressure injection pumps?

16 A Yes. They are also referred to as the makeup
17 pumps. The normal one is the B pump running.

18 Q There are three, A, B and C?

19 A Yes.

20 Q Under normal operations the B is running?

21 A Yes.

22 Q When HPI goes on, automatically A and C
23 go on and B shuts off?

24 A Right.

25 Q When you refer to that number 5 pump
control, the indication of pump control that you marked

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as number 5 on the chart, you are referring to those three pumps, A, B and C?

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A Yes.

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Q What would you see when you look at that instrumentation at any given point in time?

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A You see a set of lights. Three of the lights represented main, auxiliary, and pump speed changer, lube oil pumps for the pump. There are other indications on B, A and C for the breaker closure on the pumps and the B was dual-powered from two separate power supplies. A just had two switches with indicating lights. You also had a pump selector switch for the B pump.

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Q Could you look at that pump control indication that you have just described and tell by looking at it whether the HPI was on?

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19

A I could look at that and I could also look over at 6, indicating lights that HPI had actuated.

20

Are you just asking the front panel?

21

Q For the moment, yes.

22

23

The number 6 that you indicated is the automatic initiation panel?

24

A Yes.

25

Q What does that consist of?

1
2 A Manual or automatic. It consists of a set of
3 buttons that you can tell the status of the emergency
4 safeguards signal as far as actuating 1640 pounds,
5 or if you had both the HPI part of it as well as the
6 four-pound building signal, that section of it also
7 should be building cooling in isolation.

8 There is a series of lights associated with this
9 that I would rather refer to something than tell you
10 everything that is on it.

11 Q Maybe we should stay with the HPI for a
12 moment. All I am trying to do is find out whether by
13 looking at those ES automatic initiation lights that you
14 just referred to, you could tell whether or not high
15 pressure injection was on.

16 A I could tell that the pumps --

17 Q Were running?

18 A Were running. More correctly, it would be an
19 indication that the pumps should be running, let's
20 put it that way.

21 Q Could you tell by looking at that light
22 which pumps were running, which of the three?

23 A The make-up pumps, yes.

24 Q The number 6? The emergency safeguard
25 automatic initiation signal?

1
2 A Depending on which string you have got, you
3 should have an indication that -- there would be an
4 indication that the A or the C pump should be picked
5 up.

6 If you had a problem, say, with the A pump at
7 that time, that it didn't pick up on an initiating
8 event, the B pump would then restart.

9 If I had selected for the C, and the C had a
10 problem and didn't start, then the B pump would pick
11 up. That is what it was an indication of.

12 Q Could you tell that the two pumps were on
13 A and C or B and C?

14 MR. MacDONALD: You are talking of
15 instrumentation?

16 Q That is what the light was designed to
17 tell you, is that correct?

18 A Yes.

19 Q By looking at it, it was designed to tell
20 you --

21 A That is what I would look for to see if the
22 pumps were on, as well as if -- we are just talking of
23 the front panel, right?

24 Q Yes. So to put it in the terms of your
25 last answer, if you wanted to find out at any moment

2 in time whether the HPI pumps were running, what
3 instrumentation on the control panel would you look
4 to?

5 A Myself, I would look to see if the pumps were
6 running physically at point 5, and I also would
7 reference to the back panel.

8 Q What would you look for in the back panel?

9 A I would be looking to see if I had flow in my
10 legs. I would be trying to look on panel 8 over in
11 the most-right corner of it, where it meets up with
12 panel 12. Right about here.

13 Q You have been referring to panel numbers.
14 If you could take the black pen which I am handing
15 you now and just put in larger numbers, just the
16 numbers of the panels in the panels, so we know which
17 ones you are talking about.

18 You have just marked 8, 12, 13, 15 and 17,
19 is that correct?

20 A Yes.

21 Q The panel in the back where you would
22 look to see if there was high flow in the legs is
23 panel 8, did you say?

24 A Yes.

25 Q What would that show?

2 A That would show a flow rate in the individual
3 lags.

4 Q Do I understand from your testimony that
5 you would be able to tell by looking at that
6 instrumentation both whether the HPI pumps were
7 running and also whether they had come on
8 automatically?

9 A Yes. If I didn't start them, yes. If they
10 come on automatically, yes.

11 Q Was there instrumentation on the day of
12 the accident that would indicate the level in the steam
13 generators, water level?

14 A Yes.

15 Q Where was that instrumentation, if you
16 would take the pen and mark it whatever the next number
17 is in red pen.

18 A You just want the area of the level readouts
19 on the steam generator on the front panel?

20 Q Yes.

21 A Right around here.

22 Q You have just marked the chart with a red
23 S indicating where the steam generator level
24 instrumentation was, right?

25 A Yes.

2 Q What did that instrumentation consist of?

3 A It consisted of a wide range steam generator
4 level indicator, narrow range, and it also included
5 an operating range. Two operating range trend
6 recorders.

7 Q So that is four different instruments?

8 A At that point. Maybe I should have used 9 too
9 because we also had a trend recorder over on panel 4
10 here.

11 Q Mark that panel 4 with a black pen, if you
12 would.

13 Isn't panel 4 the front panel?

14 A That is what I was thinking.

15 Q You have just marked four panels, 3, 4, 5
16 and 6 with a black pen.

17 A It would be on panel 5, there was an additional
18 set of trend recorders on the steam generator level.
19 Right in that area.

20 Q Which you have just marked with a 9.

21 A They were installed at a later date.

22 Q I didn't understand that.

23 A 9. A set of steam generator level indicators.

24 Q Were they there on the day of the
25 accident?

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A Yes.

Q Just so I understand it, what was the difference between the indicators at the location you have marked 8 and the indicators at the location you have marked 9?

A At this moment, I don't recall. That is what I was trying to think of.

Q In any event, you could find out the level of the steam generators by looking at the instrumentation you just referred to at those locations you marked 8 and 9?

A Yes.

Q Now, you referred to an operating range trend recorder. What did that show?

A On the steam generator?

Q Yes.

A That showed, it was a trend recorder showing -- during normal operation you were up into the power range?

Q Yes.

A It showed percent level of the steam generators, whether it showed from 0 to 100 percent covering a range from, I believe it was 96 inches to 300 some inches.

2 Q Did you have any kind of a trend recorder
3 to show the absolute level in the steam generator?

4 A Yes, we had, I believe it was a 0 to 600 inch
5 level indicator. That wasn't a trend recorder. It
6 was just a Bailey meter reading out in inches.

7 Q When you looked at that, you would see
8 the then present level of the steam generator?

9 A In inches.

10 Q Was there instrumentation on the panel
11 which would show you what the level had been over some
12 period of time?

13 A That would have been the operating range.

14 Q Did that trend recorder function after a
15 trip?

16 A Down to 0 percent.

17 Q In other words, it continued to reflect
18 readings even though there had been a reactor trip?

19 A Yes.

20 Q Were there indications on the control
21 room panels with respect to the pressurizer level?

22 A Yes.

23 Q Where was that instrumentation?

24 A On panel 4 here on the laifhand corner.

25 Q Number 10, I think.

2 A You had temperature compensated; on panel 5,
3 they had installed meters. These two went together,
4 but they were in this area.

5 Q You are referring to the area --

6 A Panel 5 on the lefthand corner.

7 Q Would you mark that number 11. What was
8 the difference between those two different sets of
9 instruments in terms of showing pressurizer level?

10 A This gave pressurizer level without temperature
11 being applied to the readout of it, to compensate
12 for density changes in the pressurizer.

13 Q That is the instrument you marked as
14 number 11?

15 A Yes.

16 Q What did the one you have marked number 10
17 show?

18 A That showed readouts with temperature already
19 incorporated into it, depending on the channel you
20 selected.

21 Q Did you have instrumentation on the control
22 room panels that would show building pressure?

23 A Reactor building pressure?

24 Q Yes.

25 A Yes.

Q Where was that instrumentation located?

A Located on panel 3, about a third of the way over from the lefthand side of the panel, approximately.

Q Just mark it number 12. What would that show when you looked at it?

A It would show a -- there are two pressure indicators there. On each pressure indication, you have wide range channels and you also have narrow range channels for building pressure.

Q By looking at that particular instrument, could you determine what the building pressure had been over some period of time in the past as well as what the present building pressure was?

A Yes.

Q How far back did that reading go in time?

A From a point where it read out in the paper. Once again, I think it was like an inch represented about an hour, approximately. Maybe it might be a little more.

Q That was true for both the wide range and the narrow range indicator?

A Yes.

Q Was there instrumentation on the control

2 room panel that would show the reactor building
3 temperature?

4 A It was on the back panel.

5 Q Could you show us where that was located
6 by marking it with 13.

7 A I am going to call it 25. Panel 25, split up
8 into A, B, C and D.

9 Q What is split up into A, B, C and D?
10 You mean there are four sections for that panel that
11 you are marking A, B, C and D?

12 A Yes.

13 Q And the indication of building temperature
14 was located where, if you would mark that with a red
15 pen number 13. What did that show you when you
16 looked at it?

17 A It was a multiple-point pen recorder that
18 showed temperature readouts of different elevations
19 in the reactor building.

20 Q How many different temperatures would you
21 see when you looked at it?

22 A I don't recall how many different ones.

23 Q More than three?

24 A Yes.

25 Q Ten?

2 A I don't recall.

3 Q I am just trying to get --

4 A It was a multiple-point pen recorder. I am
5 not sure how many points were on it at that time.

6 Q When you looked at it, would you again be
7 able to tell what the temperatures had been at those
8 various elevations for some period of time in the past
9 as well as the moment you were looking at it?

10 A On that one, yes. That is a little bit of a
11 different recorder.

12 Q How did that work?

13 A That was a horizontal printout that you had a
14 display of several hours on it before it went around
15 in the chart.

16 Q So you could get several hours' historical
17 data on this one as you looked at it?

18 A Yes.

19 Q Was there instrumentation in the control
20 room that indicated reactor coolant pump flow?

21 A Yes.

22 Q Where was that located?

23 A Located on panel 4. Where they have flow
24 marked --

25 Q Just put a 14 there.

(Witness indicating)

Q What did that instrumentation consist of?

A Individual loop flows and also included readout of total flow.

Q So that is how many different readings?

A I think it was three.

Q How would the meter indicate what the flow was?

A Percent flow.

Q For example, what would 90 percent flow mean, if you see it reading 90 percent flow?

A 90 percent of 100 of maximum flow of the pumps.

Q Putting it another way, during normal operations when you look at that meter, what would you expect to see?

MR. MacDONALD: Under operations at full power?

MR. FISKE: Yes.

MR. MacDONALD: Ask him in terms of what he did see. Perhaps that might help.

MR. FISKE: Sure, that is fine.

A I am having a hard time recalling exactly.

Q All I am really asking is if you can tell us what was the normal flow as reflected on those

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meters.

3

A That is what I am trying to remember, the number.

4

I figured it out enough times. I just can't remember

5

the number. I can't recall the number.

6

Q Was it 95 percent, something like that?

7

A That is what I can't recall.

8

Q Was it in that range?

9

A It was in the upper range of the gauge. I don't

10

really recall the number.

11

Q How many reactor coolant pumps were there

12

all together?

13

A Four.

14

Q Two for each loop?

15

A Yes.

16

Q So what you would read on the meter for

17

loop A would be the combined flow of the two reactor

18

coolant pumps for that loop, is that correct?

19

A Total readout, yes.

20

Q You said there were three meters, one for

21

each loop and then one for total?

22

A No. I just said --

23

Q That is what you said earlier.

24

A Repeat your question.

25

Q You have four reactor coolant pumps,

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isn't that correct?

A Yes.

Q Two for each loop?

A Yes.

Q And when you looked at the meter for a particular loop, what you were seeing, if I understand you correctly, was the combined flow produced by both reactor coolant pumps for that loop?

A For that loop, yes.

Q Was there any other instrumentation on the control room panel that reflected the performance of the reactor coolant pumps?

A A set of amp meters.

Q Those were the same sort of meters as you had for the HPI pumps?

A A little bit different.

Q But they registered the same information, same kind of information?

A Amp range that the pump was drawing.

Q Where were those amp meters, if you mark it 15.

A The lower part of panel 4.

Q Was there any instrumentation in any of the control room panels that reflected the level of

2 radiation in the reactor building?

3 A There was on panel 12.

4 Q What was that?

5 A An atmospheric monitor and also a dome monitor,
6 227 and 214, I believe it was.

7 Q Those are two different monitors, 227
8 and 214?

9 A One samples the atmosphere itself. The other
10 one is an ion chamber instrument that sets up on top
11 of the elevator shaft in the reactor building.

12 Q Let's take them one at a time. Were they
13 both -- would you put a 16 where those monitors were
14 located.

15 A On panel 12, 16 would be one of them and 17 would
16 be the other one over to this top. When you are looking
17 at the front of this panel, 16 would be the reactor
18 building dome monitor, and it is located in a series
19 of monitors horizontally on this panel. They are
20 mounted vertically on this panel. 227 --

21 Q Is the reactor dome building monitor 214?

22 A Yes. HPR 227, if you are looking vertical at
23 this panel, you have to look down at the panel, down
24 under that number.

25 Q On 17?

2 A Yes. Panel 12. 17 is in that area.

3 Q What did radiation monitor 227 reflect
4 again?

5 A 227 was an atmospheric monitor and had readouts
6 for particular iodine and gas.

7 Q How were those readouts displayed?

8 A They were displayed on not only an instantaneous
9 readout but also you could pick them up off a multi-
10 point trend recorder at the bottom of that panel.

11 Q What was measured precisely by this
12 monitor?

13 A Radiation in the particular form, gaseous form
14 or the particular isotope. I believe 131 was what we
15 were looking at.

16 Q In other words, what did it show on the
17 meter when you looked at it that would enable you
18 to determine what the level of radiation was?

19 A What did it show?

20 Q Yes.

21 A It showed readout in counts per minute and
22 millirem per hour on the 227, and on 214 it was a
23 several-ranged meter on the one, so that you could
24 select various ranges of readout on the meter. MR per
25 hour, I believe.

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Q If I understand you correctly, by looking at this instrumentation, you could tell, again on a historical basis, what the readings were for some period of time in the past as well as what they were at the moment you looked at it?

A If you looked down at the bottom on the trend recorders, there would be a time history reading off those trend recorders.

Q Was there instrumentation in the control room that indicated the temperature and pressure in the reactor coolant drain tank?

A It is on panel 8A.

Q The panel you just marked with a black pen 8a?

A Yes.

Q What did that show?

A That showed reactor coolant drain tank over-pressure, pressure of the tank. It showed pressure of the tank. These were instantaneous readouts, temperature and level of the tank.

Q Those are three separate instruments?

A Yes.

Q What I would like to do, just so we have this complete, would you mark with the red pen a

2

number 18 where the instrumentation was for the
reactor coolant drain tank.

3

4

A It is on the vertical part of the panel.

5

Q By vertical, that means --

6

A Upright.

7

Q I would like to ask you a few questions

8

about the alarm system as it existed in the control

9

room on March 28, 1979. First of all, what alarms were

10

there that would indicate a decrease in pressure in the

11

reactor coolant system?

12

A There was an alarm -- a low pressure alarm.

13

Q What was that set at?

14

A I believe it was 2155. There was an alarm for

15

ES actuation at 1640. It should be in that.

16

I don't recall the other ones right now.

17

Q Were there other ones?

18

A I don't recall other ones right now. I just

19

don't recall them.

20

Q The ES actuation alarm, where was that?

21

A It is located on panel 15.

22

Q Could you just mark that with an A.

23

A One for each loop. It is over in that area

24

where the low pressure alarm comes in at.

25

Q The 2055 alarm?

2 A Yes.

3 Q You are referring to panel 8?

4 A I don't know where it is at.

5 Q Somewhere on panel 8?

6 A Yes.

7 Q What did the ES actuation alarm consist of?

8 What happened when that alarm was activated?

9 A High pressure injection should have initiated
10 at 1640 with those alarms.

11 Q What did the alarm itself consist of?

12 MR. SELTZER: What did the signal look
13 like?

14 Q Yes, what did the alarm itself consist of?

15 A What did it read?

16 Q What was it? Was it a bell, a light, a
17 whistle?

18 A A tone, a horn.

19 Q How long would the horn keep going?

20 A Until you acknowledge the alarm.

21 Q How did you acknowledge the alarm?

22 A How would I acknowledge the alarm? By one of
23 the buttons located on panel 6 -- not 6 -- 5, 3 or 4.

24 There are also buttons located on the back
25 panels that you could acknowledge specific alarm

2 buttons.

3 Q You press a button and the alarm would go
4 off?

5 A It would stop sounding. The alarm would stay in
6 and the horn would go off.

7 Q In addition with the horn going off, what
8 would be reflected on the control room panel?

9 A A module on whatever created that alarm would be
10 in solid.

11 Q Would you see anything when you looked
12 at the control room panel? Was there a light?

13 A Yes, an alarm light on the back panel for that
14 particular alarm that initiated the alarm would stay
15 on for that alarming event.

16 Q So if I understand you correctly, if the
17 HPI was automatically activated, a horn would sound
18 and the light would go on at the place you have
19 indicated on panel 15.

20 When someone acknowledged the alarm, the
21 horn, the noise would stop, but the light would stay
22 on?

23 A Yes.

24 Q And the light would stay on as long as
25 HPI stayed on, is that correct?

2 A The alarming event, yes. I have a correction to
3 that. 1640 pounds is where the alarm came on.

4 Like I said, it is an indication that high
5 pressure injection should have been on, but that
6 1640 pounds isn't tied to the pumps specifically.
7 It is off a pressure switch in the primary.

8 Q So what you are saying is the horn sounds
9 when HPI is supposed to come on?

10 A That is when a signal is generated to initiate
11 HPI, yes.

12 Q And then the alarm light would stay on as
13 long as pressure stayed below 1640?

14 A It should, yes.

15 Q Was there any kind of a printout at that
16 particular alarm, written material that was produced
17 when the alarm went off?

18 A On the computer.

19 Q On the alarm printer, you mean?

20 A Yes, off the computer.

21 Q Did the low pressure alarm that you just
22 described earlier, the one that went off when the
23 pressure reached 2055, was there also a light for that?

24 A On the alarm board, I believe there was, yes.
25 I am trying to remember the designations of these

2

alarms.

3

Q And that light would stay on as long as pressure was below 2055?

4

5

A Yes.

6

Q Was there a horn for the low pressure alarm?

7

8

A The same horn.

9

Q You mean the same on that would go off when the pressure reads 1640?

10

11

A Maybe I should clear that up. It will save a lot of individual selection here.

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13

There was an alarm for the vertical mounted alarms across the top of the back panels as you are standing in the control room looking. There was an alarm for those panels, all of them. That alarm also included panel alarms from panels 25, 18, and the back section, the alarms up on top there. That alarm sounded for those.

19

20

The computer had a separate alarm of its own, and the diesel generators had bells for each individual generator panel on that.

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23

Panel 12 had its own alarm sound. It had its own alarm. On any of the lights on panel 12, the RMS monitors on panel 12, there was a different tone from

24

25

2 the horn on the back panels, and panel 8, 13, 15 and
3 17 were those panels.

4 Q You say the horn for panel 12 --

5 A Was a different generation of tone.

6 Q Than the ones for panels --

7 A 8, 13, 15, 17 -- I forget the number designations
8 on some of these. Panels 18, 19.

9 What I am saying is I am trying to identify
10 different alarms with the specific panels.

11 Q Does that mean that all the horns on panels
12 8, 13, 15, 17, 18 and 19 sounded the same?

13 A And panel 25 and 8A, yes.

14 Q If you had your head down and heard a horn
15 sound, you wouldn't have any idea just from the sound
16 which of these panels it would come from?

17 A I would look up to acknowledge the alarm.

18 Q What would you look to?

19 A I would look to the panels to see where the
20 alarm was flashing.

21 Q To see which light was flashing?

22 A Yes.

23 Q Was there an alarm for pressure or
24 temperature in the drain tank?

25 A There were alarms for them.

1
2 Q Let's take the pressure first. What alarms
3 were there for the drain tank pressure?

4 A What alarms?

5 Q Yes.

6 A I don't recall the alarm. I just recall
7 pressure alarm. The high pressure alarm is what I
8 would --

9 Q Where was that alarm?

10 A Located on panel 8A, at the top of the panel.

11 Q At what pressure would that alarm go off?

12 A I don't recall the alarm set point of it any
13 more.

14 Q Do you recall that there was a relief
15 valve on the drain tank?

16 A Yes.

17 Q Was the alarm designed to go off before
18 the pressure reached a level that would open the
19 relief valve?

20 A Yes.

21 MR. MacDONALD: Objection. What it was
22 designed to do. I don't think Mr. Faust has
23 that kind of expertise.

24 He can tell you what his understanding
25 is.

2 A I understood it went off before the relief
3 lifted, yes.

4 Q Was there any other alarm that was geared
5 to pressure in the drain tank?

6 A I don't remember at this time.

7 Q Was there an alarm that was geared to
8 temperature in the drain tank?

9 A Yes.

10 Q Where was that alarm?

11 A That was located on panel 8A.

12 Q Next to the alarm that reflected high
13 pressure?

14 A I don't know if it was next to it. It was on
15 panel 8A, on the top of the panel.

16 Q Could you take the pen and, to the best
17 of your present recollection, mark with the letter B
18 and C where the pressure alarm and the temperature
19 alarm were for the drain tank.

20 MR. MacDONALD: I think he marked with

21 A and B --

22 Q Just mark these C and D.

23 A Specifically on the array of alarms on that
24 panel, I don't know.

25 Q Just the general indication. You are

1

2

familiar with the fact that there was a rupture
disc on the drain tank?

3

4

A Yes.

5

6

Q Was there an alarm that would go off if
the rupture disc blew?

7

A Not that I remember, no.

8

Q Was there a high level sump alarm?

9

MR. MacDONALD: Reactor building sump?

10

MR. FISKE: Yes.

11

12

A I don't remember if that was on the computer or
on the panel. It is a little blurred to remember these
1200 some alarms and where they are located.

13

14

15

Q Was there an alarm or alarms that would
reflect vibration in the reactor coolant pumps?

16

A Yes.

17

Q Where was that alarm located?

18

19

A I don't remember the panel designation but
we have got it marked there RC pump vibration. It
is up in that panel.

20

21

22

Q You mean it is already printed on that
chart?

23

A Yes.

24

Q What did that alarm consist of?

25

A It consisted of vibration indicators that

2 showed eccentricity for each pump and the shaft
3 vibration. I don't know how it was stated on each
4 of the pumps which you had an alert and a high alarm.

5 Q You mean for each of the four pumps,
6 there was an alert and a high alarm?

7 A Yes.

8 Q Going back for a moment to the drain
9 tank pressure and temperature alarms, did they
10 consist of a light that would go on when the pressure
11 reached the designated level and the temperature
12 reached the designated level?

13 A Yes.

14 Q Was there also a horn for those?

15 A It was the same horn common to panel 25, 8A,
16 13, 15, 17, 18, 19.

17 Q Just so we can speed this up, do I
18 understand correctly that if any alarm was triggered
19 on a particular panel, the horn would go off for that
20 panel?

21 A There are different alarm horns for some
22 panels in the control room. That is what I was
23 trying to designate.

24 Q I think you said before that panel 12
25 horn sounded a little different than the horn for

2 panels 8, 13, 15 and 17.

3 A Panel 12 was a tone alarm. The other one was
4 a continuous alarm.

5 You want me to go over it?

6 Q Yes, I think that would be helpful.

7 MR. MacDONALD: Is there a question?

8 Q I am asking if he can explain how the
9 horn part of the alarm system worked. Specifically,
10 I guess what I am asking is if you heard a sound,
11 how would you know which panel that particular sound
12 was indicating an alarm for?

13 A If it was panel 12, I would hear a tone alarm
14 which would direct me to panel 12. Then I would also
15 look at a specific alarm light, alarming function,
16 the lights for the individual meters on panel 12, to
17 pick out which module was alarming.

18 Q When you say a tone alarm, could you
19 explain for the benefit of someone that may not know
20 what a tone alarm is?

21 A A two-step frequency with cycles between.

22 Q Just again so I understand you, if any
23 alarm on panel 12 went off, that would trigger that
24 two-tone signal?

25 A Yes.

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Q Then you would look to the panel board to see which lights were on, is that correct?

A Yes.

Q With respect to -- I think you answered this, but do I understand that for every alarm there was a light, and that at the time that light went on, some sound would also be emitted?

MR. MacDONALD: You are talking of for every alarm that he has spoken about now?

MR. FISKE: I am asking more broadly now.

A If an alarm came in, there was a light for that specific alarm, and there was also a horn sounded. That is general, yes.

Q And you referred a moment ago --

A Yes.

Q Was there a differentiation in sound between the alarms for the panels other than panel 12?

A The computer console had a constant tone alarm of its own. The diesel generator panels each had a bell alarm of their own that when you got an alarm up on that panel, that bell would go off associated with the alarm that came in. It was the same bell for all the alarms on that particular panel.

2 The remaining panels in the control room were
3 then, you have a tone alarm again or a horn that
4 sounds like a solid tone, or it is a solid tone that
5 would come on in response to an alarming condition
6 on any of the remaining panels then.

7 Q So if I understand you correctly, there
8 were four different alarm sounds. There was the
9 two-tone sound for panel 12, there was the constant
10 tone alarm for the computer console, there was the
11 bell alarm for the diesel panel, and for the rest
12 of the panels there was this solid tone horn; is
13 that correct?

14 A Yes.

15 Q How many panels all together were
16 there with a solid tone horn? How many panels were
17 there other than the panel 12, computer console, and
18 the diesel?

19 A If you eliminate panel 12, the computer, and
20 the two diesel panels, the remaining panels with
21 alarm lights on them were the ones that had that
22 common overall alarm horn.

23 Q Just to the best of your recollection,
24 how many different alarms were there on those panels
25 that had the common horn sound?

2

MR. MacDONALD: The number of alarms

3

on each panel?

4

MR. FISKE: No, total. On all of the

5

panels that had the common horn sound. I am

6

not asking for a precise number.

7

A The number I remember, I don't know if it

8

includes the rest of them or not. You want that

9

number?

10

Q Yes.

11

A I don't know if it includes all of them but

12

the number I remember is 1200.

13

Q It is fair to say then, is it not,

14

that the panels other than the two diesel panels,

15

the computer console and panel 12, at the very least

16

included several hundred alarms?

17

MR. MacDONALD: I object to the form

18

of that.

19

Q Is that your best recollection?

20

MR. MacDONALD: Ask him for his

21

recollection.

22

A My recollection would be along the lines

23

like I feel I have answered that the way I stated

24

it before.

25

Q Do you remember how many alarms there

2 were on panel 12?

3 A Specifically, no.

4 (Recess taken.)

5 BY MR. FISKE:

6 Q Just so I understand something you said
7 just before the recess, I think you said your best
8 recollection is that there were 1200 alarms. Is that
9 correct, all told?

10 A That is a number I heard. I didn't count them
11 up.

12 Q Would that mean 1200 lights?

13 MR. MacDONALD: You are asking what his
14 recollection was?

15 MR. FISKE: Yes.

16 A I just heard -- 1200 stuck in my mind with
17 reference to alarms. I don't know if it was -- how
18 it was broken down. I didn't count them up to find
19 out.

20 Q But for each alarm, there would be a
21 light, correct?

22 A Yes.

23 Q And for each alarm, there would also
24 be a sound?

25 A Yes.

2 Q Do you recall after the April 23
3 cool-down transient that we discussed yesterday,
4 that Mr. Frederick wrote a letter to Mr. Seelinger?

5 MR. MacDONALD: This is the 1978
6 transient, April, we were discussing?

7 MR. FISKE: Yes.

8 A I remember he wrote a letter, yes.

9 Q In which he made several suggestions
10 to Mr. Seelinger?

11 A I remember he had made suggestions to him, yes.

12 MR. FISKE: Could we mark as Exhibit
13 264 a copy of a letter from Mr. Frederick
14 to Mr. Seelinger dated May 3, 1978, handwritten.
15 (Copy of handwritten letter dated May 3,
16 1978, to Mr. Seelinger from Mr. Frederick,
17 marked B&W Exhibit 264 for identification,
18 as of this date.)

19 Q Who is Mr. Seelinger? Who was Mr.
20 Seelinger in May of 1978?

21 A I believe at that time he was in the training
22 department. I think he was the head of it at that
23 time.

24 Q TMI Unit 2?

25 A I don't know.

2 Q Mr. Seelinger had written a report,
3 had he not, following the April 23, 1978 transient
4 that we discussed yesterday?

5 A He wrote a report on it, yes.

6 Q I believe this document has been
7 marked previously as Exhibit 246, but let me show
8 you a copy of this document which has been marked
9 Exhibit 246 and ask you if you recognize that as a
10 copy of the report which Mr. Seelinger wrote
11 concerning the April 23, 1978 transient.

12 A I don't recall the specific document, no. I
13 know that he wrote a document. I know I read a
14 document. I don't remember if this is the exact
15 document.

16 Q Look at the cover page, if you would,
17 for one minute. Do you see where it is signed by Mr.
18 Seelinger?

19 A Yes.

20 Q Do you see his title underneath that?

21 A Yes.

22 Q Does that indicate that he was unit
23 superintendent for TMI-2?

24 MR. MacDONALD: You are asking for his
25 recollection or what the words on the page

say?

The words on the page say "Unit Superintendent Technical Support." You are asking for Mr. Faust's recollection of what he thinks Seelinger was at that time?

A He had changed positions. I don't remember when he changed.

Q Does looking at Exhibit 246 refresh your recollection that in May of 1978 Mr. Seelinger was unit superintendent for TMI-2?

A It says that there, or it is printed there.

Q Under his signature, right?

A Yes.

Q Going back to Exhibit 264, which is the handwritten letter from Mr. Frederick to Mr. Seelinger, it is a fact, is it not, that you reviewed that letter before Mr. Frederick sent it to Mr. Seelinger?

MR. MacDONALD: You are asking whether he read it or discussed it?

MR. FISKE: Read it back.

(Record read.)

A I reviewed a letter he had sent to Mr. Seelinger. I don't remember what was in the letter

1
2 totally. I reviewed one though that he sent to him.

3 MR. MacDONALD: If you ask him did he
4 ever recall seeing this document, I think that
5 would help.

6 MR. FISKE: I was trying to save a
7 little time.

8 Q You testified before the Kemeny
9 Commission, did you not? You gave a deposition to
10 the Kemeny Commission?

11 A Yes.

12 Q Were you shown a copy of that letter
13 during your Kemeny Commission deposition?

14 A Is that in there?

15 Q Yes.

16 MR. MacDONALD: If you are going to
17 refer to testimony or what he was shown in the
18 deposition, give him the testimony.

19 A I don't recall everything I said in the
20 Kemeny Commission.

21 Q Turn to Page 222 of your deposition.

22 MR. MacDONALD: July 25, 1979?

23 MR. FISKE: Yes.

24 Q Start with Page 221.

25 MR. MacDONALD: You want him to read?

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Q Just turn to Page 221. Down at the bottom it says, "I would like you to look at a memo marked as Frederick Deposition Exhibit 17, please. Would you read it, please, to yourself."

I will represent to you that the exhibit that I have just put in front of you, Exhibit 264, is a copy of what is Frederick Deposition Exhibit 17.

Then I would ask you to turn to Page 222. At the bottom --

A At the time, I don't think I can remember --

Q Let me just read a question and answer to you, and then you can answer.

The question at the bottom of Page 222, Line 21: "Did he discuss with you what he was going to write in this memo?"

"A I looked it over, I read what he was writing, and I agreed with it."

Were you asked that question and did you give that answer?

MR. MacDONALD: You are asking if he recalls giving that answer to that particular question?

Q I go on to read, "After he had written

1
2 a memo, he showed it to you and you agreed with what
3 he said?

4 "A Yes."

5 Were you asked those two questions and did you
6 give those two answers?

7 A I read before what he had showed me and I agreed
8 with what he said.

9 Q Did you give those answers to those
10 questions under oath before the Kemeny Commission
11 with reference to the document that is Exhibit 264?

12 MR. MacDONALD: You are asking if he
13 recalls those questions and those answers?

14 MR. FISKE: It is a very simple question.
15 Was he asked those questions and did he give
16 those answers?

17 MR. MacDONALD: You are asking for his
18 recollection whether he gave those answers?

19 MR. FISKE: Let's start with that.

20 MR. MacDONALD: It is a good place to
21 start because we are here to get his
22 recollection.

23 A I don't remember the specifics of the Kemeny
24 Commission. I have to be reading it like we're
25 doing it now today.

2

As far as recalling everything I said then, no, I don't remember. I recall vaguely asking me to review a letter he had wrote at that time. That is what he was referring to then. I said I reviewed the letter with him, and I agreed with it.

6

7

Q You remember saying that to the Kemeny Commission?

8

9

A I remember saying something along those lines, yes.

10

11

Q Directing your attention to --

12

13

A What I just said still bothers me, because I get the feeling that it means I remember everything that he had wrote in the letter.

14

15

MR. MacDONALD: Are you saying that is not what you understood when you said that?

16

17

MR. FISKE: Let him testify.

18

MR. MacDONALD: I am trying to clarify.

19

20

A The best I recall of Ed's letter, I agreed with him. That is what I was saying. The best I can recall of what I said at that time, I agreed with Ed when I read the letter.

21

22

23

Q That is your recollection today?

24

A Yes.

25

Q Directing your attention to

1
2 Paragraph 3 of the letter, that letter says, "The
3 alarm system in the control room is so poorly designed
4 that it contributes little in analysis of a casualty.
5 The other operators and myself have several
6 suggestions on how to improve our alarm system.
7 Perhaps we can discuss them sometime, preferably
8 before this system, as it is, causes severe problems."

9 If you could tell me just yes or no,
10 was anything ever done about that concern?

11 MR. MacDONALD: He can answer the
12 question the way he feels that he has to in
13 order to answer the question. We went
14 through this all yesterday. I am not going
15 to have you telling the witness that he has
16 to answer yes or no. You ask him the question
17 and he will give the answer.

18 Q Can you answer it yes or no?

19 A No, I can't answer it yes or no.

20 Q Were you asked this question and did
21 you give this answer before the Kemeny Commission,
22 reading from Page 225:

23 "On Page 2 of Deposition Exhibit 18
24 in his Comment 3, he indicates concern with the
25 alarm system. Do you see that?

1
2 "A Yes.

3 "Q Was anything done about this
4 concern?

5 "A No."

6 MR. MacDONALD: Will you let him read
7 some of the surrounding questions and answers?
8 The witness is entitled to know what the
9 circumstances are around those two questions
10 and answers. If he wants to have an
11 opportunity to do that, I don't think you
12 are going to deny that to him, are you?

13 MR. FISKE: All I want him to do is
14 answer my question.

15 MR. MacDONALD: Will you give him an
16 opportunity to read the testimony?

17 MR. FISKE: Certainly.

18 A You are talking about --

19 Q Just answer my question.

20 A Let me get this clear in my mind.

21 Q I am talking about the two questions
22 and answers that I just read to you. The question
23 is on Page 225, Lines 16 through 21. I am asking
24 whether you were asked those questions and gave those
25 answers to the Kemeny Commission under oath.

1
2 MR. MacDONALD: You are asking whether
3 he recalls those questions and answers, giving
4 them? That is the question, isn't it?

5 MR. FISKE: The question is was he
6 asked those questions and did he give those
7 answers. It is a question that is asked
8 in every courtroom in the country about
9 twenty-five times a day.

10 MR. MacDONALD: I want to be sure the
11 witness understands he is testifying to his
12 recollection. So the record is clear, you
13 indicated back when you were asking questions
14 about 222, you made a representation that
15 this letter which you have marked as B&W 264
16 was Exhibit 17 before the Kemeny Commission,
17 and you are referencing the same letter on
18 Page 225, and it is referenced as Exhibit 18,
19 the same letter, or you just have another
20 exhibit in mind?

21 MR. FISKE: I just read the question
22 and answer.

23 MR. MacDONALD: You are representing--

24 MR. FISKE: I represented that this
25 document, 264, was a copy of the Kemeny

1
2 Deposition Exhibit 17.

3 MR. MacDONALD: Then you pointed him
4 to Page 2, Paragraph 3, read it, went to
5 Page 225 and moved on to Page 2 of
6 Deposition Exhibit 18, comment 3, as if this
7 was the same document as Deposition Exhibit
8 17 before Kemeny.

9 Do you have Deposition Exhibit 18 so
10 we know what you are referencing?

11 MR. FISKE: We will get them for you.

12 MR. MacDONALD: Until you do, he won't
13 answer that question. I think your
14 representation was that this was Exhibit 17,
15 and now we have a reference to Exhibit 18.
16 I think it will totally confuse the witness
17 if you go on to talk about this as a
18 representation that this is 17.

19 MR. FISKE: It is very clear from the
20 context that we are talking about this letter
21 exhibit. You can argue later which exhibit
22 it was.

23 MR. MacDONALD: Your representation
24 was this was 17. I will let you make that
25 representation, but when we are dealing

1
2 with the deposition testimony and your
3 reference is to 17, and you are still
4 talking about this, and the transcript says
5 Exhibit 18 --

6 MR. FISKE: In Exhibit 264 on Page 2 of
7 that exhibit, there is a Paragraph 3 that I
8 read. On Page 225, it says, "Q On
9 Page 2 of Deposition Exhibit 18 in his
10 comment 3," so we are talking of Page 2, and
11 we are talking of comment 3.

12 MR. MacDONALD: Of Exhibit 18 or
13 Exhibit 17? Are you sure we are talking
14 about that?

15 MR. FISKE: Yes.

16 MR. MacDONALD: You are going to
17 represent this is Deposition Exhibit 17 and
18 Deposition Exhibit 18?

19 MR. FISKE: It is perfectly clear to
20 me there was a misreference to this document
21 264 by the questioner as Exhibit 18, and
22 I think all we have to do at some point is
23 look at Exhibits 17 and 18, and that will be
24 clear.

25 MR. MacDONALD: That may be clear to

1
2 you, but until we clarify it, I won' have
3 the witness answer the question.

4 MR. FISKE: You instruct him not to
5 answer whether he gave that testimony before
6 the Kemeny Commission?

7 MR. MacDONALD: Yes, because of the
8 confusion that exists as to this exhibit.

9 BY MR. FISKE:

10 Q Continuing on Page 225:

11 "Q Were you ever consulted as to
12 what your discussions were as to improving that
13 system?

14 "A No, not that I remember. I
15 wasn't -- I don't remember anybody asking me how to
16 improve the alarm system."

17 Were you asked that question and did
18 you give that answer?

19 A I don't remember the questions. That is all.

20 Q Do you have any basis for saying that
21 you didn't give that testimony?

22 A No. I am saying I don't remember. I was
23 asked a lot of testimony.

24 Q You wouldn't disagree with that
25 testimony?

2

MR. MacDONALD: I object to the form
and instruct him not to answer.

3

4

You are talking of today? Let's talk
about his recollection.

5

6

MR. FISKE: We will stand on what was
said before the Kemeny Commission under oath.
If Mr. Faust wants to say he doesn't remember
it, he can say that.

7

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MR. MacDONALD: What he just told you
is his truthful, honest answer. Don't
insinuate on the record.

11

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MR. FISKE: I think the rules are
very clear.

14

15

BY MR. FISKE:

16

Q Did you also testify before the full
Kemeny Commission at some point?

17

18

MR. MacDONALD: You asked him that about
two days ago.

19

20

A My answer is the same. I recall testifying
before the Kemeny Commission, yes.

21

22

Q I would like to direct your attention
to Page 167 and 168 of that testimony. I am
trying to direct him to what I am directing him to.

23

24

25

The question at the bottom of Page 167

1
2 by Commissioner McPherson and the questions by
3 Commissioner McPherson on Page 168 -- have you had
4 a chance now to read that one page that I asked
5 you to read?

6 MR. FISKE: I would like to go back
7 before proceeding with the questions based
8 on Mr. Faust's testimony before the full
9 Kemeny Commission to the question and answer
10 on Page 225 of his deposition testimony, and
11 I will now show you, Mr. MacDonald, what has
12 been marked Exhibit 18 to the Frederick
13 deposition, and it will be perfectly apparent
14 to you that on Page 2 of that exhibit, there
15 is no comment 3, and indeed, there is no
16 reference to the alarm system at all, whereas
17 on Deposition Exhibit 17, which is Exhibit
18 264, there is a comment 3 on Page 2 regarding
19 the alarm system, and on that basis I will
20 ask Mr. Faust to answer the questions that I
21 put to him before.

22 MR. MacDONALD: I don't think this
23 necessarily clears it up. I will let you ask
24 the question. My objection still stands.

25 Q The question is, were you asked these

1
2 questions before the Kemeny Commission and did you
3 give these answers:

4 "Q On Page 2 of Deposition
5 Exhibit 18, in his comment 3 he indicates concern
6 with the alarm system. Do you see that?

7 "A Yes.

8 "Q Was anything done about this
9 concern?

10 "A No."

11 MR. MacDONALD: You are asking if he
12 recalls giving that testimony?

13 Q Were you asked those questions and did
14 you give those answers under oath to the Kemeny
15 Commission?

16 MR. MacDONALD: Your recollection.

17 MR. FISKE: You don't have to keep
18 interjecting that to every single question.

19 MR. MacDONALD: If you look at the
20 record, it is not specifically to every
21 single question.

22 A What I am getting at is that you are asking
23 me specific questions that I recall out of individual
24 testimony here. Even if it is the Kemeny Commission,
25 I don't recall the exact testimony and answers I

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gave.

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Q Is it your testimony you don't recall whether you gave that testimony or not?

5

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A I don't recall the questions I was asked and my answers to the questions.

7

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Q Do you have any reason to believe as you sit here now that the court reporter did not record your answer properly?

10

11

MR. SELTZER: Apparently the court reporter recorded Exhibit 18 incorrectly.

12

MR. FISKE: I am asking Mr. Faust --

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MR. SELTZER: It looks as if this court reporter is fallible. The very record you are submitting is fallible.

16

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Q What is your answer?

MR. MacDONALD: I object to the question.

19

20

A The same one I gave before. I don't recall the answer.

21

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MR. FISKE: This is very simple. We will just get the court reporter's notes and read them in. If that is the way we have to do it, we will do it. I am sure it will eliminate any doubt.

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Q Let's go back to your appearance before the full Kemeny Commission, and I would like to ask you whether you were asked a question by Mr. McPherson, two questions by Mr. McPherson and gave two answers, and I will be happy, Mr. MacDonald, if you would like me to, to start reading Mr. McPherson's first question with the part that starts "I will ask you to describe in your own mind..."

If you want me to start at the bottom of Page 167 and read the whole question, I will do that. I will be happy to start Commissioner McPherson's question with the sentence that starts "I will ask you to describe" when I read the question and answer to Mr. Faust. If you would prefer me to read the whole --

MR. MacDONALD: I don't think you have to read it all into the record. I just note there is another part of the question that precedes where you are reading.

MR. FISKE: I don't want to read part of the question unless you agree that is a proper procedure. Otherwise, I will read it all.

1
2 MR. MacDONALD: Read it all.

3 BY MR. FISKE:

4 Q Were you asked this question and did
5 you give this answer to Commissioner McPherson and
6 the other Commissioners of the Kemeny Commission.
7 Let's start at the top of Page 168.

8 MR. MacDONALD: I would like to read
9 the whole sentence.

10 Q As I read it, it says, "Fifth night
11 from 11 to" and it goes on, "We earlier asked some
12 earlier -- some of your colleagues to show us what they
13 looked at on that control panel, what were the most
14 important areas that you were looking at, where
15 the really hot areas -- and they did show it and
16 they said, among other things, as I recall, that
17 the two -- that the lights that show that the valve
18 on the emergency feedwater pump water are not areas
19 that you ordinarily look at. I found that when I
20 was up in that room a couple of weeks ago with my
21 colleagues and with the press and with the loudspeaker
22 system going on, that even without anything blinking,
23 it was an intimidating dazzling experience.

24 "I would ask you to describe, in your
25 own mind, what the state of your emotions were and

1
2 the state of your competence to control this event
3 were at, say, 4 o'clock or 5 o'clock on the morning
4 of March 28, while these 200 alarms were flashing and
5 other lights were on?

6 "Mr. Faust: I would have liked to have
7 thrown away the alarm panel.

8 "Commissioner McPherson: You would have
9 liked to have thrown away the alarm panel.

10 "Mr. Faust: It wasn't giving us any
11 useful information."

12 Were you asked these questions and did
13 you give those answers to the full Kemeny Commission
14 under oath?

15 A You want to know what I remember?

16 MR. MacDONALD: Your recollection.

17 A I do not recollect the statement of the
18 questioner. I don't recall that, but I remember some
19 time making a comment I would like to have thrown
20 away the alarm panel. I don't remember the next part
21 I said; I remember that one statement.

22 Q Your testimony now is that you don't
23 remember telling the full Kemeny Commission that
24 the alarm panel wasn't giving you any useful
25 information?

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2 MR. MacDONALD: I think that is what he
3 just told you.

4 A I recall the one statement there. What I am
5 saying is I didn't recall the question that led up
6 to it. I just don't recall everything I said.

7 Q Going back to the information that was
8 available to you on the day of the accident, I would
9 like to try to find out from you what kind of
10 information was available from the computer printouts
11 that could have been generated on that day.

12 Let me ask you first, you referred in
13 your earlier testimony to something called an alarm
14 printer?

15 A Yes.

16 Q What was that?

17 A That prints out alarms that are being
18 generated from various points in the plant on a
19 typewriter or printout of a computer.

20 Q Is that done automatically, as an
21 alarm is activated it is printed out on the
22 computer?

23 A Not all the alarms but -- in fact, I couldn't
24 even come close to telling you which ones out of
25 all the alarms, which ones are printed out on that

1
2 alarm printer.

3 Q It is a fact, is it not, on the day
4 of the accident, there were so many alarms that
5 were printed on the computer that the computer
6 fell behind?

7 MR. MacDONALD: You are asking for
8 his recollection?

9 MR. FISKE: Yes.

10 A That is my recollection of that, yes.

11 MR. FISKE: I will agree right
12 now that in every question I am asking Mr.
13 Faust for his recollection.

14 MR. MacDONALD: Sometimes it doesn't
15 seem clear the way you are asking the
16 questions.

17 MR. FISKE: Let's make it clear from
18 now on, if it hasn't been clear for the last
19 two and a half days, that every question I
20 ask, I am asking for his recollection, and I
21 don't think we need you to insert every third
22 question, on selected questions, that he is
23 only supposed to testify if he can recall
24 it. I will build that implicitly in every
25 question I ask.

1
2 MR. MacDONALD: We have also built it
3 implicitly into every question we have
4 asked where you have been on the other side
5 of the table, and you have repeatedly told
6 the witness "Only to the best of your
7 recollection."

8 Don't tell me how to conduct my
9 defense of the witness.

10 MR. FISKE: When I ask a simple
11 question did something happen, I am only
12 asking for the best of his recollection.

13 BY MR. FISKE:

14 Q What other type of computer information
15 was available on the day of the accident?

16 A You have the utility typewriter.

17 Q Where was that located in the control
18 room?

19 A It is located when you are facing the
20 computer itself in the control room, it is located
21 on the lefthand side of the computer.

22 Q Could you indicate that with the red
23 pen, just print UT.

24 Is that sometimes also referred to as
25 the utility printer?

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A I didn't know the difference. It could be
called the utility printer.

3

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Q You don't know of a different printout
that is produced by something called a utility
printer than what you just described as the utility
typewriter?

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A I always referenced to it as the utility
typewriter or the alarm typewriter.

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Q There are two typewriters, is that
correct?

12

A On that panel, yes.

13

14

Q One is the alarm typewriter and the
other is the utility typewriter, right?

15

A Yes.

16

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Q What kind of printouts were available
from the utility typewriter?

18

A Things that the operator called up on.

19

20

Q Do I understand that the alarm printer
functioned automatically?

21

A Yes.

22

23

Q And the utility typewriter operated
upon request?

24

A It depends.

25

Q Was there any information printed out

2 on the utility typewriter automatically?

3 A I don't know.

4 Q The utility typewriter was programmed
5 so that it would produce certain information if
6 the operators asked for it, is that correct?

7 A Yes.

8 Q What information did you understand
9 on the day of the accident you could get from the
10 utility printer concerning primary system pressure?

11 A You could select out points to print out the
12 loop pressures on it.

13 Q If at a certain point in time you
14 wanted to get certain loop pressures for that
15 particular moment and for a half-hour earlier, could
16 you do that?

17 A No, not that I recall.

18 Q In other words, as far as loop
19 pressures are concerned, you would be able to get
20 simply the pressure at the particular time you asked
21 for it?

22 A I believe that is the way it functions, yes.

23 Q Is there any other information that you
24 could get from the utility printer with respect to
25 pressure in the primary system?

1
2 A I believe you just printed out the pressures
3 you wanted. You could select various points from
4 the different pressure instruments and print them
5 out.

6 Q What information was available from
7 the utility typewriter with respect to temperature
8 in the primary system?

9 A Print out different loop temperatures. If
10 you wanted them also, you look up the point and
11 print them out. There are group functions along the
12 side of it. You get selected groups, different groups
13 of things and print them out.

14 Q Was it possible from the utility
15 printer to obtain historical information with respect
16 to reactor coolant system temperature?

17 A There was a post-trip alarm review function
18 on it. I don't know if it is on the utility
19 typewriter. I think of it as on the alarm
20 typewriter.

21 You can print that out post-review, I think
22 it is called. You can print out on the utility
23 typewriter. That is an alarming function, I believe.

24 Q You mean with respect to temperature?

25 A With respect to an alarm coming in. If a

2 parameter hit an alarm point, that is when you
3 could be called out on that.

4 Q The alarms --

5 A I don't know what the capacity of it is now.

6 Q The alarms were printed on an alarm
7 printer, correct?

8 A I guess I am thinking of components that
9 might have tripped. You can go back from that. You
10 can call it up on the printout.

11 Q What was the source of your
12 information on the day of the accident as to what
13 kind of information you could get out of this
14 utility typewriter?

15 A What was my source?

16 Q Yes.

17 A You mean did I use it?

18 Q No. From what source had you learned
19 what kind of information was available to you on that
20 utility typewriter?

21 A Usually when we were studying a system, we
22 would refer if it had a computer alarm point on it or
23 something.

24 Q Was it part of the training program?

25 A It would have been incorporated in it. Part

1
2 of our system training when you are studying a
3 particular item, we would refer if it had a computer
4 alarm readout or something, information that could
5 be obtained on the computer as far as an alarm,
6 usually.

7 Q So when you were studying a particular
8 system, you would learn whether or not you could get
9 information from the utility typewriter about that
10 system? Is that what you are saying?

11 A I guess what I am saying is you could get
12 alarm functions off. I don't recall if the system
13 description described system parameters you could
14 call up on the computer.

15 I don't recall that as being learned from
16 that or if --

17 Q Was it ever part of your training at
18 Met Ed for someone to put you in a group with other
19 people and say, "Here is the kind of information
20 that you operators can get from the utility
21 typewriter during a transient"?

22 MR. MacDONALD: By "training at Met Ed,"
23 training by just Met Ed employees at the
24 Island, and not B&W or anybody else?

25 Q If B&W trained you on the utility

1
2 printer, I would like to hear about it.

3 a We used the computer. I don't remember
4 phrasing it in those terms now. I don't recall
5 that.

6 When we used the computer, we used what was
7 available when we might have been going through
8 something in our training.

9 Q And B&W gave you training on the use
10 of that kind of a computer during the training you
11 had in 1977 at Lynchburg, right?

12 A They gave us training on using the computer,
13 yes.

14 Q In addition to that, whatever you
15 learned during those nine weeks that you were at
16 Lynchburg, during the period of time you were at Met
17 Ed, did anyone working for Met Ed ever sit you down
18 with any group of other people as part of a training
19 program and say, "This is the kind of information
20 you can get out of a utility typewriter" and then
21 describe the kind of information that was available?

22 A I am trying to isolate something over a period
23 of time that I can't specifically point out in a point
24 of time, but I have been on training on the computer,
25 yes, at Met Ed.

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Q Specific training on the computer?

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A We have trained on the computer, as far as going up and becoming familiar with it. A lot of that training might have been on-the-job training where we were up there going through the computer and picking things out on it that we could get out of the computer. That was incorporated in it, too.

I don't remember a specific point right now other than the same as a general statement like I did down at B&W, where we used the computer as part of our training, working for our license.

Q The computer you used at B&W was the computer that was available at the simulator, is that right?

A I think it was a Bailey 8855, the same one we had.

Q Who was it who determined what information the computer was programmed to print out at Mat Ed?

A I couldn't answer that.

Q What information as of March 28, 1979 did you understand you could ask for from this utility typewriter?

A My understanding of it was that I could ask

1
2 for alarms off the computer. I could ask for system
3 information off the computer.

4 Q What type of system information?

5 A Various components you might want to look at.
6 You can look at pressure or temperatures on pumps.
7 You can pick out flows on different points in the
8 plant.

9 You can pick out different temperatures on
10 the reactor coolant pumps, for instance; temperatures
11 associated with that. Flow rates off the pump
12 as far as leakage. You get that off the computer.
13 Decay heat system, steam generator, condensate system.
14 You can go through them all and pick items that you
15 wanted to look at and get it off the computer.

16 Q Did you understand that you could get
17 information from the utility printer with respect to
18 the temperature of the thermal couples on the tailpipe
19 leading from the pilot-operated relief valve to the
20 drain tank?

21 A Yes.

22 Q Did you understand that you could get
23 pressure of the reactor coolant drain tank?

24 A I don't recall everything I could get off the
25 computer. If that is what you are trying to have me

1
2 reproduce here, I don't recall all the points I could
3 get off the computer. Everything in the plant.

4 Q I am just asking you one at a time.
5 I wouldn't ask everything in the plant.

6 A I might have remembered things then that I don't
7 remember now.

8 Q I have listed a lot of things that you
9 do remember.

10 A I am listing general things that I am trying
11 to say, because even on individual systems, you didn't
12 get everything off of it. You could get pressure
13 and temperature as well as flow on particular systems
14 off of it. But as far as some systems you could,
15 and others you could not.

16 I would go to a manual we had laying there
17 and see if it had a particular point in that manual
18 that covered that parameter I wanted, if I didn't
19 remember it off the top of my head, and determine if
20 I could print it up on the computer. I would send
21 an AO out to print it out on the computer if I
22 didn't have it in the control room.

23 Q On the day of the accident, could you
24 determine the temperature in the reactor drain tank?

25 A I don't recall.

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Q Was there something that came out of the utility printer called the sequence of events review?

A That is what I was trying to remember, yes.

Q What was the sequence of events review?

A It listed events that occurred in relation to time.

Q Did that happen automatically?

A It stored it, and you had to request it out. I think that is the one I am thinking about.

Q So that if you wanted to know with respect to something that was programmed into the sequence of events review whether that had happened at some time previously, you could find that out by asking for that printout, is that correct?

A I don't know how inclusive it was, but that is a source you could go to.

Q That is the way it worked, in any event?

MR. MacDONALD: The way what worked?

Everything that happened in the plant on it?

Q I take it that the sequence of events review was programmed to contain certain information, is that correct?

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A I don't know what information it was programmed to contain. There was certain information that was programmed on it.

Q Whatever that information was, you could obtain it not only in terms of a present reading but also you could find that same reading over a period of time going back into the past?

A I don't know how far back it would go. I don't know the volume of it, what its capacity was, total.

Q There was something called an operator group trend?

A Operator group trend recorder, I believe is what you are referring to.

Q What was the difference between that and the sequence of events review?

A You have the -- the computer gives you the capacity to be able to select points and put them on four trend recorders. You could trend four items up there. You could also select -- you could select a group and put items on it and then trend that out, I believe, on the utility typewriter.

Q By trending, you mean getting the information over a period of time?

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A Yes.

Q Could you ask the operator group trend recorder for that kind of information with respect to thermal couple readings at the tailpipe of the PORV?

A If you put it up, you could trend it.

Q On the day of the accident, could you have asked the operator group trend recorder for that kind of information?

MR. MacDONALD: Objection. it is a hypothetical question.

Q Did you understand on the day of the accident that that kind of information was available to you from the operator group trend recorder?

A I don't recall at this time, no. I don't recall if it was or not.

Q Did you understand on the day of the accident that from the operator group trend recorder, you could obtain that kind of information over a period of time for the pressure in the reactor coolant drain tank?

A I wasn't thinking about that on the day of the accident. That is why I don't recall what I was thinking on that.

Q Did anyone tell you at any time before

1
2 the accident that that kind of information was
3 available on the operator group trend recorder?

4 A It may have but I don't recall at this time.

5 Q Did you understand on the day of the
6 accident that from the sequence of events review
7 you could find out whether HPI had been automatically
8 actuated?

9 A I understood it would have been logged on
10 that. That is what I understood.

11 Q Was there something called the memory
12 trip review that was available to you from the
13 utility printer?

14 A Yes, there was a memory trip review.

15 Q What kind of information was available
16 on that?

17 A It listed readouts of things that occurred
18 after a trip or, you name it, things that came
19 on were tripped off. It would attempt to log.
20 I don't know how inclusive that was.

21 Q Was there a person at Met Ed in
22 March of 1979 who was in charge of the computer?

23 A A person in charge of it?

24 MR. MacDONALD: You mean the operation
25 of it, the program of it?

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A What do you mean?

Q Who had responsibility for the
operation of the computer?

A Operation of it? Programming it?

Q Let's start with that.

A I believe the man that comes to mind for me
would be Bill Fels.

Q What was his title at that time?

A I don't know his title.

Q Is he still with Met Ed?

A I think he is. I haven't seen him lately.

MR. FISKE: Let's break for lunch.

(Luncheon recess: 12:30 p.m.)

oOo

AFTERNOON SESSION

(2:00 p.m.)

CRAIG C. FAUST, having been
previously sworn, resumed and testified further
as follows:

EXAMINATION (Continued)

BY MR. FISKE:

Q You realize you are still under oath?

A Yes.

Q I would like to go back to this
computer for a moment, and going back to the time
just before the Three Mile Island accident, I would
just like to have you tell us what your understanding
then was as to information that you could get from
the computer with respect to various parameters.

MR. MacDONALD: Are these going to be
the same ones you asked him this morning?

I think he gave you those.

MR. FISKE: I would just like to ask
the questions.

Q I would like to take first the
sequence of events review, and I would like to ask
you first, did you understand on the day of the
accident that you could obtain from the sequence of

1
2 events review readings on HPI actuation as to whether
3 HPI was automatically actuated?

4 MR. MacDONALD: I object to the form.

5 I think he told you this morning. I think
6 you went through each one of these and I think
7 you are going back asking the same question.

8 Q Can you answer that?

9 A I believe I did state that from my best
10 recollection, what I remembered at that time.

11 Q What was that? What did you remember
12 at that time?

13 MR. MacDONALD: He told you that this
14 morning. Are we going to spend two hours
15 now this afternoon?

16 I know this question was asked.

17 MR. FISKE: This will take ten
18 minutes if we are not interrupted with
19 objections. I assure you it won't take two
20 hours.

21 MR. MacDONALD: It took two hours this
22 morning.

23 MR. FISKE: I will ask the questions
24 one at a time and you can take whatever
25 position you want.

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2 A I believe I answered that. I would like to
3 hear it, if I can, hear what I said this morning.

4 MR. MacDONALD: Let's go back. If you
5 are going to do this, we will go back and we
6 will sit here and have his answers reread
7 to that exact same question. That is what
8 the witness would like, because he knows he
9 has answered, so your ten minutes will turn
10 into a lot longer time.

11 MR. FISKE: I don't believe the record
12 is at all clear.

13 MR. MacDONALD: It is very clear.

14 MR. FISKE: Are you telling him not
15 to answer?

16 MR. MacDONALD: He has asked to go
17 back and hear the prior question and answer.
18 We can go back to do that, if you are going
19 to ask the question a second and third time,
20 the same question you asked this morning.

21 MR. FISKE: You don't have to make a
22 big speech. Let's move ahead.

23 MR. MacDONALD: I am trying to get
24 you to move on and not come back.

25 Q Let me ask you this, did you

1
2 understand that you could get trend information,
3 that is information, relative readings over a
4 period of time from the sequence of events review
5 with respect to HPI actuation?

6 MR. MacDONALD: I object.

7 MR. FISKE: I will tell you right now,
8 if you instruct him not to answer these questions
9 and we go back and we find he has not answered
10 these questions on the record, Mr. Faust is
11 coming back at your expense to answer these
12 questions at a later time. You are taking
13 the risk that he is going to be brought back
14 to answer these questions at a later time.

15 MR. MacDONALD: Very good.

16 MR. FISKE: If you want to take that
17 risk, you take it.

18 Q Did you understand on the day of the
19 Three Mile Island accident that you could obtain
20 information with respect to automatic actuation of
21 HPI, and again I mean trend information over a period
22 of time from the memory trip review?

23 MR. MacDONALD: I object to that. He
24 already testified to that.

25 Q Will you answer that?

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2 MR. MacDONALD: You can have your
3 answers reread if you think you have
4 answered the question.

5 A That is what I was curious, as to how it was
6 phrased before, because it sounds like a similar
7 question that I answered earlier.

8 MR. FISKE: We are not going to stop
9 this deposition and have the reporter wade
10 through all the notes of the morning to try
11 to find out, after a long review, that he never
12 was asked that question. Meanwhile we have
13 wasted two hours while the reporter goes
14 back through his notes.

15 MR. MacDONALD: You are the one asking
16 the questions two or three times.

17 MR. FISKE: I am asking the question
18 and he can either answer it or he can't
19 answer it. There is no judge here at this
20 moment to rule on the objections.

21 If you tell him not to answer, you tell
22 him, but if we go back through this record,
23 as I am confident we will, and find that
24 those questions have not been asked, let
25 alone answered, he will come back.

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2 MR. MacDONALD: He was asked and he
3 told you what his best recollection was. You
4 haven't heard an instruction not to answer.
5 You have heard a lot of objections.

6 If he feels he has already answered
7 it, he has a right to go back and look at
8 his prior answers.

9 MR. FISKE: We are not going to do
10 that.

11 MR. MacDONALD: If you are not going
12 to let the witness go back, if he has a
13 request and he wants to hear a prior question
14 and answer, and you won't let him do that
15 when he thinks you have asked that question
16 before and he has given you his answer, then
17 I am going to instruct him not to answer.

18 MR. FISKE: Then we will both take the
19 risk. If it is in there before and it has
20 been answered, fine. If it isn't in there and
21 it hasn't been asked or answered, then you
22 and Mr. Faust are taking the risk.

23 MR. MacDONALD: He is making the
24 request to hear it. You have denied him that.
25 On the basis of that, I instruct him not to

Faust

1
2 answer.

3 MR. FISKE: If it turns out he did
4 answer the question before, then obviously I
5 am not going to ask him a second time. If
6 he didn't answer it before, if he was not asked
7 before, he is taking the risk to come back.

8 MR. MacDONALD: You are not permitting
9 him to go back and hear the answer.

10 MR. FISKE: We are not going to have
11 the reporter go back to read back every
12 question and answer. These questions are
13 not the same.

14 MR. MacDONALD: The first two were the
15 same.

16 MR. FISKE: They were not.

17 MR. MacDONALD: Mr. Faust thought they
18 were. He said he would like to have it reread
19 and you won't let him hear it, so I instruct
20 him not to answer.

21 BY MR. FISKE:

22 Q Did you understand that you could get
23 trend information with respect to thermal couple
24 readings of the tailpipe of the pilot-operated
25 relief valve from the sequence of events review?

MR. MacDONALD: I object to the form of the question. I think you asked him before.

Q You can answer that, I believe.

MR. MacDONALD: Just hold it.

(Discussion off the record between counsel.)

A If I understand, I believe I said it before, at the time -- you are asking for a specific parameter right now?

Q I am going to ask you about a series of specific parameters.

A You are asking me to recall right now if I can remember if it trended on the sequences of events.

Q I am asking you whether on the day of the accident, you understood that you could get that information.

MR. MacDONALD: He is asking you exactly what you stated, whether you can recall.

A That is what I was saying. I don't recall all I could get at that time, but I remembered I could pull off the sequence of events.

Q All I am asking at the moment is about the readings of the thermal couples for the

1
2 pilot-operated relief valve. I am asking you
3 specifically with respect to that, whether you
4 understood on the day of the accident you could get
5 trend information for that reading from the sequence
6 of events review?

7 MR. MacDONALD: Objection.

8 A That is what I am trying to tell you. I don't
9 remember that right now. I don't recall if I could
10 or not.

11 Q Did you understand on the day of the
12 accident that you could get that from the memory
13 trip review?

14 MR. MacDONALD: I object to each one
15 of these questions, all right, so I don't
16 have to bother you any more.

17 A I have to review to find out what the
18 computer, what prints out on it now or what I can
19 pull out on the sequence of events as far as
20 individual items go.

21 I know what you are saying, but I don't
22 recall what trended out. What I could pull out
23 totally from the computer. I hate to say yes to
24 one that I am not sure of and maybe I do remember
25 the other ones that could be trended out.

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2 Q Just taking the thermal couple readings
3 at the pilot-operated relief valve, and the pending
4 question is whether on the day of the accident you
5 understood you could get trend information for that
6 reading from the memory trip review.

7 A I don't recall.

8 Q Did you understand on the day of the
9 accident that you could get trend information for the
10 thermal couple readings for the pilot-operated
11 relief valve from the operators' group trend recorder?

12 MR. MacDONALD: The same objection.

13 A I would be guessing if I said an answer. I
14 just don't recall the specifics on that now. It has
15 been quite a period of time since I really thought
16 about what comes up on a trend recorder.

17 Q So is your answer as you sit here
18 today you don't remember whether you knew on the
19 day of the accident?

20 A Not a factual answer right now, no. On the
21 day of the accident, I didn't even get involved
22 with the computer. That is also what I am trying
23 to indicate.

24 Q Did you understand on the day of the
25 accident that you could get trend information with

1
2 respect to HPI actuation from the operator trend
3 recorder?

4 MR. MacDONALD: I object. Is this
5 going to be a long series of questions, because
6 he told you generally he doesn't recall.

7 MR. FISKE: No.

8 A I don't recall.

9 Q Did you understand on the day of the
10 accident that you could get trend information with
11 respect to pressure in the reactor coolant drain tank
12 from the sequence of events review?

13 MR. MacDONALD: Same objection.

14 A I don't recall.

15 Q Did you understand on the day of the
16 accident you could get information, trend information
17 with respect to the reactor coolant drain tank
18 pressure from the memory trip review?

19 A It is like you are asking me to recall
20 everything that gets put in there.

21 Q I am just asking you at the moment
22 reactor coolant drain tank pressure.

23 MR. MacDONALD: I think he already
24 told you five times he doesn't recall any
25 of the specific information. You can spend

1
2 another hour going through specifics of what
3 you have there on your list.

4 Q Can you answer that question?

5 A At this time, I don't recall.

6 Q Did you understand on the day of the
7 accident you could get trend information for reactor
8 coolant drain tank pressure from the operator's
9 group trend recorder?

10 MR. MacDONALD: Same objection.

11 A You realize I haven't looked at this thing
12 for about two years now.

13 MR. MacDONALD: Just your recollection.

14 A My recollection is I don't recall.

15 Q Did you understand before you came
16 here to testify in this deposition that you might be
17 asked about what happened on the day of the accident
18 in this deposition?

19 A What happened, yes.

20 Q Did you understand that you might be
21 asked about what information you had on the day of
22 the accident?

23 A What information I had?

24 Q Yes.

25 MR. MacDONALD: You mean what his

1
2 recollection was?

3 A What I remember, yes. What I can recall,
4 yes.

5 Q In other words, you understood before
6 you came here that you might be asked at this
7 deposition what you remembered about information that
8 you had on the day of the accident? Did you
9 understand that you might be --

10 A I understood I would be asked about the
11 accident, definitely.

12 Q Did you understand that you might be
13 asked about what information regarding the plant
14 parameters you had on the day of the accident?

15 A The ones I looked at, yes.

16 Q You understood you might have been
17 asked about that?

18 A The items that I looked at the day of the
19 accident, I understood I would be asked that. I
20 understood I would be asked about factual things
21 that I remembered.

22 MR. MacDONALD: That is what he is
23 giving you. You think you will embarrass
24 the witness by asking a series of questions --

25 MR. FISKE: I am asking what he

1
2 understood.

3 MR. MacDONALD: It is irrelevant.

4 Q Were you aware on the day of the
5 accident of something called the operator's special
6 summaries?

7 A I don't remember the specific name. I remember
8 a summary review.

9 Q That was available from the utility
10 typewriter?

11 A If I remember right, that is the one we
12 printed out on the utility typewriter.

13 Q Did you understand on the day of the
14 accident that you could get trend information with
15 respect to thermal couple readings for the pilot
16 operated relief valve from the operator's special
17 summary?

18 MR. MacDONALD: Same objection.

19 A It sounds like the same question.

20 Q It is with respect to a different
21 printout.

22 A I will answer this way --

23 MR. MacDONALD: Before you answer, what
24 information -- could I hear the question?

25 (Record read.)

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A I don't recall if I did or not.

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Q Did you understand on the day of the accident that you could get trend information with respect to drain tank pressure from the operator's special summary?

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MR. MacDONALD: Same objection.

8

A I don't recall.

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Q Did you understand on the day of the accident that you could get trend information with respect to actuation of high pressure injection from the operator's special summary?

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MR. MacDONALD: Same objection.

14

15

A What do you mean by trend? Over a period of time?

16

17

Q Yes, when it had gone on and when it had gone off.

18

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A I knew the operator's summary printed out events that occurred. As far as all the items you are asking about --

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Q Did you understand on the day of the accident that HPI actuation was one of those events that printed out on the operator's special summary?

24

A On and off and it gave the time.

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Q Yes?

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A I knew it did that for events.

Q Did you know that HPI actuation was one of those events? On the day of the accident, did you know that?

MR. MacDONALD: Same objection.

A I think I have a misunderstanding of trend and what you are saying to me, anyway. I am thinking of something that is almost like a plot.

Q With respect to HPI actuation, I am simply asking you whether you understood on the day of the accident that you could get information with respect to HPI being on or off on a trend basis from the operator's special summary.

A I knew that the trend recorder-- not trend, but summary -- would print out events that occurred. HPI would have been one of them I would have suspected would have been on that.

Q That is what you understood on the day of the accident?

A That is what I am trying to recollect. All the items that printed out on it.

MR. MacDONALD: We are dealing with your recollection.

A I think I mentioned high pressure injection

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printed out an alarm summary review.

Q You mean the sequence of events review?

A I thought it was alarm summary.

Q Are you talking of something other than the alarm printer that we talked about?

A That is what I am getting mixed up. I am not sure which ones we are talking about printed out.

I looked at it as something that listed events that occurred and printed out the time along with it.

Q All I am asking, and I will make it a broad question with respect to HPI actuation, did you understand on the day of the accident that there was a place you could go by the computer where you could find out whether or not HPI had been on at any particular point in time earlier in the day?

A That would have been the sequence of events review.

Q And your understanding was --

A That was one of the items that was on it.

Q Can you tell us whether there were any other forms of printouts that came out of the utility typewriter or were available from the utility typewriter on the day of the accident besides the sequence of events review, memory trip review,

1 operator group trend recorder or operator special
2 summary?

3 A I don't remember all the printouts on the
4 module that you are referring to for those, I believe.
5 These are different group commands that you can sum
6 up and print out. That is -- I don't remember what
7 was on each of them.
8

9 Q Are you aware of an incident during
10 the start-up of TMI-2 in which damage was caused to
11 a makeup pump?

12 A I am aware of an incident that damage was
13 caused to the makeup pump, yes.

14 Q Was the cause of that damage improper
15 valve alignment, valve lineup?

16 A The cause of it came from a valve that was
17 checked by a lineup procedure in a book that was
18 used to log valves that were normally locked open
19 or locked shut, and the book was used as reference
20 to it, I believe for -- for the lineup.

21 Q Were you involved in that incident?

22 A No, I wasn't.

23 Q Were you involved in an incident
24 where damage was caused to seals in the reactor
25 coolant pump during a test?

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2 MR. MacDONALD: You are asking whether
3 he was aware of that, if it actually ever
4 happened?

5 MR. FISKE: I will start with that.

6 A I am not sure I am aware of the damage. All
7 four pumps you are saying?

8 Q Any pump.

9 A I believe the event is one where we checked
10 the seals on the pumps, but I don't recall damage
11 being done to all the pump seals.

12 Q Were you involved in that incident?

13 A I don't recall if I was or not on that one.

14 Q You testified yesterday on several
15 occasions you made reference to a large break LOCA.

16 A Yes.

17 Q What did you mean when you refer to
18 a large break LOCA?

19 A Large break LOCA is a LOCA that is in excess
20 of the capacity of the makeup pumps to handle the
21 leak. If you can't keep up with the leak, you are
22 going to depressurize.

23 Q You mean in excess of the capacity
24 of the high pressure injection?

25 A I understood a large break LOCA to be a very

2 rapid depressurization in the plant.

3 Q Producing a drop in pressure that the
4 high pressure injection couldn't keep up with; is
5 that your testimony?

6 A Producing a drop in pressure that the makeup
7 pumps couldn't keep up with, which essentially you
8 just dropped pressure down rapidly. All your makeup
9 pumps were doing was putting water into the system.

10 Q What did you understand LOCA stood for?

11 MR. MacDONALD: Those initials?

12 MR. FISKE: Yes.

13 A Loss of coolant accident.

14 Q It is a fact, is it not, that prior
15 to the accident on March 28, 1979 you knew that you
16 could have a loss of coolant accident other than a
17 large break, as you have just described?

18 A You could have a loss of coolant accident
19 that was within the capacity of the makeup pumps,
20 yes.

21 Q Does a loss of coolant accident as you
22 understood it mean an accident in which coolant
23 escaped from the reactor coolant system?

24 A Loss of coolant accident is an accident; the
25 transient itself is one where coolant escaped but the

1
2 pressure and pressurizer level remained fairly stable.
3 What you decreased was your makeup tank level in
4 that transient.

5 Q I am not asking you for the moment
6 about what may or may not have happened to the plant
7 parameters in the course of a loss of coolant
8 accident. I am simply asking you whether you understood
9 that a loss of coolant accident, as that term is
10 used, included a situation where coolant escaped
11 from the reactor coolant system.

12 A Under loss of coolant accident, it had a
13 major break, a major break section, and the
14 capacity that dealt with the makeup pumps, a small
15 leak that the makeup pumps kept up with, and you could
16 do a normal shutdown with it.

17 Q I am talking about whether you
18 understood when someone referred to a loss of coolant
19 accident, that that involved any situation in
20 which coolant escaped from the reactor coolant
21 system?

22 MR. MacDONALD: He answered your
23 question twice.

24 A I am telling you how I looked at it.

25 Q Did it make any difference in the

1
2 definition of a loss of coolant accident where in
3 the system the coolant was escaping from?

4 MR. MCDONALD: You mean in his
5 understanding of what a loss of coolant
6 accident is?

7 MR. FISKE: Yes.

8 A It made a difference in the sense of the
9 actions you would take, yes. And the size. You
10 had to try to fit the symptoms that you had at the
11 time to know where you were going to go in
12 a procedure to follow up on it.

13 Q Did you understand that you could have
14 a situation in which coolant escaped from the
15 reactor coolant system through the top of the system,
16 above the pressurizer as a loss of coolant accident?

17 A I never thought of it like that at the time.

18 Q When you said you reviewed, I believe,
19 a report on the transient that occurred on March 29,
20 1978, involving a failed open pilot-operated relief
21 valve --

22 MR. MacDONALD: Are you asking him
23 again whether that is true?

24 MR. FISKE: I am referring him to the
25 testimony he gave yesterday in which he said

1 he had read such a report.

2 MR. MacDONALD: You may make any
3 characterization you want of that testimony.
4 Either ask it or not. Don't load up the
5 question with something that you feel he
6 testified to.

7 MR. FISKE: I am asking a preliminary
8 question to set the stage for what follows.

9 MR. MacDONALD: The question was asked.

10 MR. FISKE: This is a perfectly
11 normal procedure.

12 A Could I hear that again, what I said? I
13 believe I said for the document that you had --

14 MR. SELTZER: Let me move it along.
15 You asked him had he heard of it and he said
16 he had heard of that event. Had he read a report.
17 Yes, he read some report on it. He wasn't
18 able to identify exactly what report.

19 MR. FISKE: That is what I said, I
20 believe.

21 Q I think Mr. Seltzer may have helped
22 move it along. I believe what I said was that you
23 testified yesterday that you had read a report of that
24 accident.
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2 MR. SELTZER: That is what the record
3 shows. What is the next question?

4 MR. FISKE: Mr. Faust I think is still
5 struggling with that. I want to make sure
6 before I proceed, that he understands.

7 A I believe I am saying what I said before, that
8 I believe I read a report on it but I don't remember
9 everything about it.

10 Q And that report was also discussed at
11 Met Ed, was it not--that accident, I'm sorry, was
12 also discussed by you with others at Met Ed, was it
13 not?

14 MR. MacDONALD: You are speaking of the
15 March 29 transient?

16 MR. FISKE: Yes.

17 A We had gone over the accident in the sense
18 that you mean in training?

19 Q Yes. |

20 A The best I recall we did, yes.

21 Q As part of that review and as part
22 of your reading the report, you learned, did you not,
23 that coolant had escaped through the pilot-operated
24 relief valve?

25 A Mass escaped through the pilot-operated

1
2 relief valve. Steam mass. Steam escaped through
3 the pilot-operated relief valve.

4 Q You understood that steam had escaped
5 during the time that the pilot-operated relief valve
6 was open?

7 A Yes. I don't remember them stating that
8 coolant escaped. Coolant meaning to me water from the
9 system not in the form of liquid, but in the form
10 of steam.

11 Q I believe you testified, by the way,
12 that you learned in the course of your training
13 that if a pilot-operated relief valve failed open,
14 what you were supposed to do to correct it was close
15 the block valve?

16 A If I knew it was open, yes.

17 Q Let me direct your attention again
18 to your testimony before the President's Commission.

19 MR. MacDONALD: July 25?

20 MR. FISKE: Page 214, July 25, 1979.

21 Q I will read you questions and answers
22 starting at Page 214, going to 215, and I ask you
23 whether or not you were asked these questions and
24 gave these answers --

25 MR. MacDONALD: Give him a minute first

1
2 to read the testimony.

3 MR. FISKE: All right.

4 Q Starting at Line 12, Page 214, were you
5 asked these questions and did you give these answers
6 in your testimony before the President's Commission
7 in a deposition on July 25, 1979:

8 "Q Were you taught in your training
9 concerning that incident any concerns with respect
10 to the PORV failing open?

11 "A Not from that. We were
12 taught methods if you take the pilot-operated relief
13 valves being open, your immediate action would be to
14 shut the isolation valve if you are concerned
15 about that. That is in our training, in our EP.

16 "Q Did you have any concerns about
17 utilizing the isolation valve?

18 "A That day?

19 "Q No, prior to March 28.

20 "A No.

21 "Q You never voiced a concern about
22 using the isolation valve?

23 "A No, I never had any problem.
24 If I wanted to shut it, I would shut it."

25 Were you asked those questions and did

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you give those answers?

A I don't remember this whole thing totally, but that is what I am saying, I don't remember the whole sequence of questions that were stated here. I remember answering questions to the Commission about it.

MR. MacDONALD: He is asking whether you recall giving answers to those questions.

A What I recall is giving answers to questions about the block valve.

Q Are you saying you don't remember now whether you gave these answers to these questions?

A No. I remember talking to the Commission about questions posed to me. I don't remember the total substance of being just this way.

In other words, I couldn't recall from memory if this was the exact thing that was said to me right now. I remember answering questions about the pilot-operated relief valve to the Commission that they were asking me.

Q Do you have any basis for believing as you sit here now that the reporter that transcribed your testimony inaccurately recorded what you were asked and what you answered in the

1
2 questions and answers that I just read?

3 A I myself can't talk for him. I don't know.

4 Q You don't know one way or the other?

5 A I don't know one way or the other.

6 Q You read this deposition over, did you
7 not, before you signed it?

8 A I did.

9 Q Did you make any changes with respect
10 to that question and answer?

11 MR. MacDONALD: You are asking whether
12 he recalls making changes?

13 MR. FISKE: Yes.

14 A I don't recall making changes to it. I don't
15 know. I have to see the sheet.

16 Q Would you like to look at the sheet?

17 A Could I?

18 Q Let's look at the back of this same
19 volume, immediately following Page 252. Do you see
20 a series of pages there entitled Corrections to the
21 testimony that you gave on various dates?

22 Do you see those pages following
23 Page 252, which is captioned Corrections to the
24 Deposition of Craig Faust?

25 A I see questions there, or corrections, yes.

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Q Do you see down the lefthand side it refers to the page? Looking in the first column, does that contain a list of page references?

A Yes.

Q In your handwriting, is that correct, on each of the pages at the end of the deposition?

A It definitely looks like mine.

Q And the next column says "Line", does it not, and then there is a list of numbers again in your handwriting?

A Yes.

Q Starting with the first page.

A O.K.

Q The next column says "Change", and then there is various writing under that column for each of the lines and pages, again in your handwriting, is that correct?

A It looks like my handwriting, yes.

Q Then it says in the fourth column, "To read" and again there is some more writing in your handwriting down the page?

A Yes.

Q Did you understand that what you were doing was making changes page by page, line by

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2 line, on anything you wanted to change after you
3 read your Kemeny deposition?

4 A I understood that at the time I was to make
5 those changes, I was making it with what I knew at
6 that time were the best of my recollection of things
7 that occurred that I could recall, and I was also
8 making it to statements that weren't necessarily
9 asked in the sense of what I thought about it as
10 being how I figured it occurred in that sense.

11 Q Did you understand that you had the
12 right to go through the transcript and make changes
13 after you read it with respect to anything that you
14 felt was inaccurate when you read it?

15 MR. MacDONALD: Any questions?

16 MR. FISKE: Any questions or answers.

17 A To the best that I could recall the question
18 or after reading the question again on there, the
19 best that I could recall the answer, I would attempt
20 to change it to be more correct or make it more clear
21 at the time to what I understood the situation
22 existed.

23 Q And each page has your signature, does
24 it not, each correction page?

25 A All the correction pages here have my

signature on them.

Q Each of them separately is subscribed and sworn to by you before a notary public, is it not?

A Yes.

Q Is there any change reflected with respect to the questions and answers that I read from Pages 214 and 215?

A I don't see any in there.

Q Is there any correction to the question and answer that I read to you from Page 225 of your deposition concerning the memorandum from Mr. Frederick to Mr. Seelinger indicating concern with the alarm system?

A I don't see any at this point.

Q You testified there was a change made to the instrumentation with respect to indicating whether or not there was power to the solenoid which opened the pilot-operated relief valve.

MR. MacDONALD: Just ask him whether he recalls the testimony on that subject, not to verify it as you said it.

Q Do you remember testifying about that subject yesterday?

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2 MR. MacDONALD: About the change in the
3 indication?

4 MR. FISKE: Yes.

5 A That is not exactly how I said it but I
6 remember testifying on it, yes.

7 Q And you understood that the purpose
8 of that instrumentation was to help the operators
9 determine whether or not the pilot-operated relief
10 valve had failed open?

11 A I understood it to be an indication that the
12 pilot-operated relief valve was either open or shut.

13 Q I don't want to go back through what
14 you understood it to show, because I think we have
15 been through that at great length yesterday. I don't
16 think what you just testified to here is what you
17 said yesterday, but I will let the record speak for
18 itself.

19 MR. SELTZER: It is consistent with
20 what my notes of yesterday said.

21 MR. FISKE: I think he said he knew
22 it indicated power was on or off to the
23 solenoid.

24 MR. MacDONALD: I think he testified
25 just the way he did.

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2 MR. FISKE: We will all go back and
3 read that record sometime.

4 Q All I am trying to direct you to now
5 is that you did understand that there was
6 instrumentation put on the control board which was
7 designed to help the operator determine whether the
8 pilot-operated relief valve was open?

9 MR. MacDONALD: I object to "designed."
10 I think what he understood is a little more
11 proper.

12 MR. FISKE: I don't want to fight that
13 battle again. It is just as a preliminary
14 question.

15 Q Why did you think it was important
16 for you as an operator to know whether the pilot
17 operated relief valve was open?

18 A Whether it was open?

19 Q Yes.

20 A To insure or determine that it would shut.

21 Q What would you understand could happen
22 if the pilot-operated relief valve stayed open and
23 didn't shut?

24 A Bleed down primary system pressure.

25 Q How?

1

2 A Have a leak.

3 Q A leak out the top of the system?

4 A I don't remember ever referring to it like
5 that. I mean, just the way you phrased it, you are
6 saying prior to the 28th, March 28th -- I don't
7 remember it being phrased that way, a leak out the top
8 of the system.

9 Q Didn't you understand that that is what
10 it was?

11 A I don't remember what I understood it to be
12 at the time. I understood it was a relief open on
13 the pressurizer. That is the way I went at it.

14 Q Did anybody at Met Ed tell you at any
15 time after that accident why it was bad if the
16 pilot-operated relief valve stayed open and didn't
17 shut?

18 MR. MacDONALD: I object. I think he
19 just told you.

20 A The leak in the system.

21 (Recess taken.)

22 BY MR. FISKE:

23 Q You were on duty on March 28, 1979 at
24 4 o'clock in the morning at Three Mile Island Unit 2?

25 A Yes.

1
2 Q At that point in time, you were a
3 control room operator?

4 A Yes.

5 Q Were you part of a regular shift that
6 was on duty at that time?

7 MR. MacDONALD: You mean working with
8 the same people in that shift?

9 Q Was there a regular procedure at
10 Three Mile Island Unit 2 where when you would go to
11 work on a particular day, you would work as part
12 of a shift?

13 A Yes.

14 Q How many control room operators were
15 there in the shift on duty March 28, 1979?

16 A Two.

17 Q You and who else?

18 A Ed Frederick.

19 Q Was there a shift foreman on duty?

20 A Yes.

21 Q Who was that?

22 A Fred Scheimann.

23 Q Was there a shift supervisor?

24 A Yes.

25 Q Who was that?

2 A Bill Zewe.

3 Q Had all four of you come on shift at
4 the same time?

5 A You mean exactly? Within a reasonable
6 period of time, yes.

7 Q When did you start on that shift?
8 When did the shift begin?

9 A It began at 2300, a little bit after that if
10 you want to talk about people coming in at
11 different times. A half-hour's time period, about.

12 Q Was that scheduled to be an eight-hour
13 shift?

14 A Yes.

15 Q It means you were scheduled to go off
16 duty at 0700, is that correct?

17 A Yes.

18 Q Had you and Mr. Frederick, Mr.
19 Scheimann and Mr. Zewe all been on duty since 2300
20 on March 27?

21 A As far as I can recall, we were all on just
22 for that period of time. I don't know at this time
23 that Bill would have come in earlier or Fred.

24 Q You were all scheduled to go off
25 shift at 0700?

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A We were all scheduled to go off at 0700.

Q At 4 o'clock in the morning, 0400,
were you in the control room?

A Yes, I was.

Q Was Mr. Frederick in the control room?

A Yes, he was.

Q Was Mr. Scheimann in the control
room?

A Not at 4 o'clock, no.

Q Was Mr. Zewe in the control room?

A Yes.

Q Who else was in the control room
at 4 a.m. besides you and Mr. Frederick and Mr.
Zewe?

A I think the janitor.

Q Was there anyone else in the control
room besides the three of you that was licensed by
the Nuclear Regulatory Commission?

A Not that I recall.

Q Was there anyone else, just so we are
clear, in the control room then besides you, Mr.
Frederick, Mr. Scheimann and this janitor at 4 a.m.?

A Mr. Scheimann wasn't there.

Q I'm sorry, you and Mr. Zewe and Mr.

1 Frederick?

2 A I believe that was, as far as I can recall,
3 the people that were in there.

4 Q Just going back up a little bit, in
5 terms of the way responsibilities were assigned, was
6 there one person on a shift that was supposed to be
7 in charge?

8 A Bill Zewe would have been the lead man in the
9 control room at that time.

10 Q And was Mr. Scheimann the second in
11 command?

12 A Yes.

13 Q What are the duties of a shift
14 supervisor as you understand it?

15 MR. MacDONALD: As he understood them
16 at that time?

17 MR. FISKE: Yes.

18 Q As you understood them then.

19 A Overall responsibility for the operation
20 of the plant.

21 Q What were the responsibilities of
22 the shift foreman as you understood them at the
23 time?

24 A He was to operate under the shift supervisor
25 as far as normal operation of the plant, and as far

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2 as operation of the plant he would operate under
3 the shift supervisor.

4 Q And you and Mr. Frederick as control
5 room operators operated under both Mr. Zewe and
6 Mr. Scheimann, correct?

7 A Yes.

8 Q In the course of an ordinary shift,
9 were there particular responsibilities that were
10 assigned to you as opposed to Mr. Frederick?

11 A If I understand what you are saying, we had
12 responsibilities on operation of the plant. That
13 operation was split depending on who had what position
14 in regards to the title known as switching and
15 tagging, or the man who had the panel. The panel
16 man normally did normal operations of the plant
17 while the switching and tagging operator took
18 various readings and performed surveillance
19 requirements as well as tagging orders that would come
20 up, but the man on the board normally directed the
21 auxiliary operators and stood primary watch over
22 the instrumentation as far as operation of the
23 plant.

24 Q And that is the man that you referred
25 to that was at the panel?

2 A Yes.

3 Q By the panel, you mean the control
4 room panels we talked about earlier this morning?

5 A The controls used to operate the primary and
6 secondary side of the plant.

7 Q From one shift to another, one day
8 would you be on the panel and another day on
9 switching and tagging?

10 A Yes.

11 Q You didn't have the same job every
12 time?

13 A No.

14 Q Would that sometimes change during the
15 course of a shift, or once you started on switching
16 and tagging at the beginning of a shift, would you
17 stay on that right through?

18 A It was normal practice to,
19 going through a shift, stay on a specific area of
20 your shift, either tagging operations or panel
21 through the whole shift, unless something came up
22 that required maybe the man had something else to
23 do, you could turn things over to the other man
24 that was on the shift, and he would then perform
25 those duties while that man picked up his.

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Q Switching and tagging as you described it, was that done right in the control room?

A That was performed, the CRO's part of it was performed in the control room.

Q On the 2300 to 0700 shift that you were on on March 28, 1979, you were the switching and tagging person, is that correct?

A That's right.

Q Can you indicate by looking at the control room panel, Exhibit 263, where approximately you were at 4 a.m. on March 28, 1979?

A I was walking from here to over there. From the computer console to the control room desk. There are two desks. This doesn't show it. It is split up. It was.

Q How did it first come to your attention that there was anything unusual happening?

A The alarms on the ICS alarm panel.

Q Where is that?

A That would be on panel 13. The top of panel 13.

Q What did those alarms indicate?

A It indicated something was going on in the plant. Something other than normal operations, steady state.

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Q What is the first thing that came to your attention? Was there a sound that you heard, was there a light that went on?

A The alarm horn is what caught my attention to the alarm panel.

Q What did you see on the alarm panel when you looked at it?

A All I saw from that distance, I believe it was two or three alarms coming in, in a T formation.

Q Which alarms?

A I didn't read the alarms from that distance. What I was going by was the location of, the alarms.

Q Did those alarms in any way indicate to you what the nature of the problem was?

A That initially called my attention up there. At the same time I was not -- it indicated that something was definitely abnormal because I would not expect that many alarms on that area of the panel to come in at once like that.

Q What did you do after you saw those alarms?

A I pointed at them as I was moving around the panel. I said something to Ed, something to the effect that we had problems in the plant.

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Q What happened next?

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A I was coming around the panel, and I noticed the alarms coming up on the panel beside 17. It would be over in that area, to the right of panel 17, over in here. Somewhere over in here.

7

Q You better indicate that.

8

A It would be the electrical.

9

Q Put another number on the panel that you are pointing to with the black pen.

11

MR. SELTZER: Does it help if he looks

12

at --

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A It is not exactly right. From what I can best recall, when I looked there, I was coming around the panel and I saw lights come up over on the electrical panel. Over in this area. I didn't read the alarms. I just came around and noticed the alarms coming up in here. I am not sure now what alarms were coming in.

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Q Indicating alarms in the vicinity of the station electric auxiliary monitoring panel on the document which we will now mark as Exhibit 265.

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(Diagram above referred to marked B&W Exhibit 265 for identification, as of this date.)

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2 Q You indicated that you were moving
3 from behind the panel. If you would rather look at
4 Exhibit 265, feel free to look at that. I would like
5 to have you indicate where you went after you saw
6 these alarms.

7 A I just started coming around the panel. As I
8 was coming around the panel --

9 Q By the panel, you are referring to
10 what is indicated as the operator's desks on Exhibit
11 265?

12 A Right.

13 Q And you went to where?

14 A I sort of changed direction. I was heading
15 over -- I was heading over when I noticed the rod
16 drive controls come on or the bottom lights come on,
17 on panel 14. Control rod drive. A position
18 indication panel is on that, you call them 14. I
19 noticed the rod bottom lights come on and, like I
20 said, I noticed lights over here on electrical
21 panel.

22 I was coming around. I just made an
23 assumption at that point that we had a turbine
24 trip followed by a reactor trip. What I was heading
25 for was the makeup station.

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Q Is that the first station to which you went after the trip; the first station you went to after you learned of the reactor trip was the makeup station?

A I made a determination that we had a turbine trip followed by a reactor trip from the rod bottom lights, and what I assumed over here were the generator breakers opening up. I didn't actually see the alarms. It was just a general assumption I made from the position of the alarms on the panel.

When I say "see the alarms," I mean read the alarms from that point.

I headed over to the makeup station to perform initial immediate action on reactor trip.

Q At that point in time, at the point in time you just described, did you notice what had caused the turbine trip?

A No, I didn't.

Q Is there a system on the secondary side of the plant for providing emergency feedwater to the steam generator?

A Yes, there is.

Q How do you describe that system?

A I describe that as three pumps, the necessary

1
2 piping to take suction off the condensate system,
3 storage tanks via the condensate system, to inject
4 water into the top of the steam generator via the
5 auxiliary feedline.

6 Q That is referred to, is it not, as
7 emergency feedwater?

8 A Emergency feedwater, yes.

9 Q What is the purpose of emergency
10 feedwater?

11 A Provide feed to the steam generator in the
12 event that you lose normal feed. It is not for
13 operating, though.

14 Q Are there valves which open and close
15 to allow or prevent the flow of emergency feedwater
16 into the steam generator?

17 A You have valves that can be opened and shut,
18 yes.

19 Q How many valves, such valves, are there?

20 A You are talking of valves I can control from
21 the control room only?

22 Q Yes, let's talk about those.

23 A Not seeing a print, I would say about seven
24 on each leg, on each header. Maybe that should be
25 a better way to say it.

1
2 No, I am leaving more than that out if you
3 are talking about inhibiting flow -- okay.

4 Q What is the answer?

5 A I am saying approximately seven, without
6 looking at it, in each header.

7 Q Which would make a total of --

8 A Fourteen.

9 Q -- fourteen, that would be controlled
10 from the control room?

11 A Do you have a system print? We can look at
12 it.

13 Q I am just interested in your
14 understanding as you can give it to us now.

15 A Right now I think it was about that number.

16 Q During ordinary operation of the plant,
17 are those valves opened or shut?

18 A Let's see. 32s, 33s, the 11s, 89s, COV. I
19 don't remember the designation on the header on
20 that. I think it is EFV.

21 12s -- you have to watch when you say 12s.

22 No, I can't remember the number on it. But
23 there was a pressure -- it goes to the emergency
24 feed. The steam-driven emergency feed pump
25 regulating steam flow to the pump for operation of the

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pump. That was shut. Those were shut.

3

Is that what you wanted?

4

Q All of the ones you just described

5

are all shut during normal operation of the steam

6

generator?

7

A Yes. I believe I got them. I believe I got

8

the right ones.

9

Q When emergency feedwater goes on or is

10

supposed to go on, are all these valves supposed to

11

open?

12

A No, they are not all in the direct flow path.

13

I shouldn't say direct flow path -- they are not in

14

the flow path that is going to be initially used.

15

Q Which ones are in the flow path that

16

is going to be initially used?

17

A The 11s, the regulator valve for the

18

steam-driven emergency feed pump. The ones going

19

to the steam-driven feed pumps aren't in the flow

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path; they are in the supply that lights or drives

21

the steam-driven feed pump, so the 11s really

22

would be the ones that are shut at this time that would

23

be in the initial flow path.

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Q There are two 11 valves?

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A Yes.

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Q Are there block valves for those 11 valves?

A Yes.

Q What do you call those?

A 12s. You have V-12A and B.

Q There is one block valve -- there is one 12 for each 11, is that correct?

A Yes.

Q So there would be two 12 valves?

A Right.

Q What is the function of a block valve?
What is the function of the 12s?

A Isolate the emergency feedwater header along that flow path.

Q When the 12s are closed, there can be no flow of emergency feedwater even if the 11s are open, is that correct?

A If you are going that path, yes. Assuming the other lineup is right.

Q Was it part of your responsibility as switching and tagging control room operator to determine at the beginning of the shift that started at 2300 whether the 12s were open or closed?

A No.

1
2 Q Are the 12s supposed to be closed
3 during normal operation of a plant?

4 A No.

5 Well, that is excluding surveillance.

6 Q Were the 12s supposed to be closed on
7 March 28, 1979?

8 A No.

9 Q What procedures were there at TMI
10 Unit 2 to determine at the beginning of a shift
11 whether or not the 12s were closed?

12 MR. MacDONALD: You are asking were
13 there any procedures?

14 MR. FISKE: Yes, were there any
15 procedures at all that Met Ed had to determine
16 whether the 12s were open or closed at the
17 beginning of a shift?

18 A At the beginning of every shift?

19 Q Yes.

20 A The thing that was relied on wasn't a check
21 in that sense, but the initial valve lineup
22 procedure that was run on the plant or when we
23 started up the plant.

24 Q In other words, the valves were
25 supposed to be open at all times?

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A According to a valve lineup that we had done for startup.

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Q So that in an ordinary day when you came to work you would expect that the 12s would be open?

6

7

A That wouldn't stop me from looking around the plant at the panel. I just might not look at those, yes.

9

10

Q And there was an indication on the panel whether or not the valves were closed?

11

12

A There is an indication that the valves on the panels -- yes.

13

14

Q Yes?

15

A Yes.

16

Q And it would indicate whether the valve was open or closed?

17

18

A Yes.

19

Q Where was that indication on the control room panel? And use the large one, if you can, 263. You can put EFW where the indication is.

21

22

A About there. It is located on panel 4 on the lower slope part of the panel, to the extreme right of the panel, right front of the panel where the controls for those valves are located and their

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1
2 indicators.

3 (Discussion off the record between
4 the witness and his counsel.)

5 Q What does the instrumentation look
6 like that shows you whether the 12s are open or
7 closed?

8 A The red and green lights located above a
9 switch.

10 Q Is there one light for each valve?

11 A There are two lights for each valve.

12 Q If the valves are open, the lights
13 are green?

14 Withdrawn.

15 What color are the lights when the
16 valves are open?

17 A When the valves are open, the lights are
18 red.

19 Q When they are green, the valves are
20 closed, right?

21 A Yes.

22 Q Is there any procedure requiring
23 entries to be made in any log at Met Ed whenever a
24 check is made to determine whether the 12s are open or
25 closed?

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2 MR. MacDONALD: You are talking about
3 prior to the accident?

4 MR. FISKE: Yes.

5 A Would you restate that?

6 Q Was there any procedure at Met Ed
7 prior to the date of the accident that required
8 entries to be made in any log when a check was made
9 to determine if the 12s were closed?

10 A Those specific valves?

11 Q Yes.

12 A I don't remember procedures saying specifically
13 the 12 valves. There was a procedure that indicates
14 if you change position of a valve in the operation of
15 the plant, that it is either done by a valve lineup
16 or you logged a change in the position of the valve.
17 Something along that effect. A major valve like in
18 the plant, it would be a major isolation valve as
19 far as your emergency feedwater goes.

20 I don't know if it states it that way in
21 the procedure, though. That is my understanding of
22 it.

23 Q Are there any circumstances that you
24 were aware of on March 28, 1979 under which the 12s

25

1
2 should be closed while the reactor was at full power
3 operation?

4 A There is a surveillance procedure you would
5 use during the course of your surveillance. I believe
6 it shut the valves.

7 Q At a time when the people that are
8 doing the surveillance know that the valves are
9 closed and are conducting surveillance, including
10 the procedure that has the valves closed, right?

11 A Yes.

12 Q Apart from that situation where people
13 are specifically aware that the valves are closed
14 for that purpose, is there any situation in which the
15 plant is operating at full power where the valves
16 are supposed to be closed?

17 MR. MacDONALD: You are asking whether
18 he knows of any situation.

19 Q Did you know of any in March 28?

20 A I don't recall any, no.

21 Q The fact is, is it not, that the valves
22 were supposed to be open any time the reactor was
23 operating at full power other than in the
24 surveillance situation?

25 A During startup operation of the plant when

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we were starting up the plant is when we were in a procedure to open the valves, to have the emergency feed system lined up for operation for going to power.

Q From that point on, the valves were supposed to stay open except for this procedure that you described, right?

MR. MacDONALD: You are talking about all times?

Q During when the plant was in normal operation.

A Normal operation, as far as I remember, that is the way it was.

Q At the time that the alarms first started going off at 4 o'clock in the morning on March 28, did you know then that the 12 valves were closed for the emergency feedwater?

MR. MacDONALD: You are talking of precisely 0400 now?

Q At the time the first alarm went off, did you know that the valves were closed, the 12 valves were closed?

A No.

Q You said that the first station that

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2

you went to was the makeup station?

3

A Yes.

4

Q Why did you go there?

5

A I was going to start the immediate actions
on our reactor trip.

6

7

Q What was the first thing that you did?

8

A Shut MUV 376.

9

Q What is that? That is a valve,

10

correct?

11

A Yes.

12

Q Is that a letdown valve?

13

A Letdown isolation valve.

14

Q What is the purpose of shutting that

15

valve?

16

A To insure you are not letting out water
because of the initial cool-down you have on the
reactor trip. You are not letting down water.

17

18

19

Q You were shutting down that valve
and that keeps any water from running out of the
primary system?

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MR. MacDONALD: You want his

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understanding?

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MR. FISKE: Yes. At the time he

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shut it.

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A That was a letdown isolation valve for letting water down into the makeup system which is also a purification system in the plant.

Q And is that valve on the primary side or the secondary side?

A The valve is on the primary side.

Q So the effect of closing that valve was to keep water from escaping from the primary side of the system, is that correct?

A It is to keep water from being let down from the primary side of the system.

Q Did you do anything else at the same time, on or about the same time?

A At that point I attempted to start a makeup pump.

Q Which pump was that?

A That was the A pump.

Q Is that one of the pumps that is also a high pressure injection pump?

A Yes.

Q I think you said earlier that under normal operations the B makeup pump is running?

A Yes.

Q At what flow rate does it run under

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normal operations?

A It varies. Usually you have the B makeup pump provide seals to the reactor coolant pump. You have about 40 GPM from there, depending on what the demand to the pressurizer might be calling for. It might be on up from there.

Q But it is a minimum of 40 gallons per minute?

A 40.

Q I take it that the B makeup pump was running at 4 o'clock in the morning on March 28?

A Yes.

Q And then you went over to start this second pump, the A pump, is that correct?

A Yes.

Q Did you start it?

A I attempted to start it. At the time I went to start on the pump, there was an interlock on the pump and I let go of the pump switch before it picked up. I then went to start on the pump again, and I still believe I got the running light on the pump. When I let go of the switch, it went out, but when I did that, I was moving out of that area because I noticed Ed moving back over to the pressurizer area, and I can't

1
2 really talk of exactly what he was doing, but I
3 noticed he reached over to the pump after I let go
4 of it, so I kept going over to carry out then. He
5 would figure up the actions on the reactor trip there,
6 carry out the remaining parts of that procedure,
7 and I continued over to check the emergency feedwater
8 and carry out actions on the secondary side of the
9 plant.

10 Q Do I understand that the purpose of
11 starting the second makeup pump was to add more
12 pressure to the primary system?

13 MR. MacDONALD: His understanding now?

14 His recollection of his understanding at the
15 time?

16 Q What was the reason for starting the
17 second makeup pump?

18 A The reason is because it is a requirement
19 of the procedure, for one thing.

20 Q Did you understand what the reason
21 was behind the procedure?

22 A It added capacity in the initial event of
23 a cooling down of the reactor system. What you
24 wanted to do was prevent the level drop that comes
25 along with the initial cooling down on the

1
2 pressurizer to stabilize level in the pressurizer.
3 That is what I believe it was.

4 (Discussion off the record between
5 the witness and his counsel.)

6 MR. MacDONALD: I am going to cut it
7 here for the day. I don't mean to impose
8 upon your questions, but the witness has
9 just told me that he is tired and he would
10 like to stop for the day, and we will start
11 earlier tomorrow morning.

12 I don't feel it is doing anybody
13 any good for him to go on tired.

14 MR. FISKE: It is 4:10 in the
15 afternoon.

16 MR. MacDONALD: That may be. The
17 witness has been sitting here all day
18 testifying. We can start fifteen minutes
19 earlier tomorrow morning to make up for the
20 time we lost this afternoon.

21 (Continued on Page 410-A)
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2 MR. FISKE: I think that would be a
3 good idea.

4 (Time noted: 4:15 p.m.)
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6 -----
7 Subscribed and sworn to before me
8 this day of 1981.
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CERTIFICATE

STATE OF NEW YORK)
 : ss.:
COUNTY OF NEW YORK)

I, JOSEPH R. DANYO, a Notary

Public of the State of New York, do hereby
certify that the continued deposition of
CRAIG C. FAUST was taken before
me on August 20, 1981 consisting
of pages 276 through 410-A;

I further certify that the witness had
been previously sworn and that the within
transcript is a true record of said testimony;

That I am not connected by blood or
marriage with any of the said parties nor
interested directly or indirectly in the matter
in controversy, nor am I in the employ of any
of the counsel.

IN WITNESS WHEREOF, I have hereunto set my
hand this 7 day of September 1981,

Joseph R. Danyo
JOSEPH R. DANYO

I N D E X

WITNESS

PAGE

Craig C. Faust

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E X H I B I T S

B&W FOR
IDENTIFICATION

264 Copy of handwritten letter
dated May 3, 1978, to
Mr. Seelinger from Mr.
Frederick

314

265 Diagram

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I N D E X

WITNESS

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Craig C. Faust

278

E X H I B I T S

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264 Copy of handwritten letter
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