

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
 Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
 Interview of: DON BOSNIC

Docket No.

LOCATION: Scriba, New York

DATE: Monday, August 19, 1991

PAGES: 1 - 42

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Exhibit 3-1 (continued)

ADDENDUM TO INTERVIEW OF DON P BOSNICH ASS
(Name/Position)

<u>Page</u>	<u>Line</u>	<u>Correction and Reason for Correction</u>
9	18	"Light" should be "leg" indicating an EOP "leg"
	20	
	21	
	23	
10	5-6	I looked at the PAM recorders which were indicating air pressure and level. They were trending properly
14	7	"CFP" should be "OSP"
16	1	Both Pressure & level indication is on the PAM recorders
17	14	"about" should be "above"
21	13	"every" should be "about"
21	17	"EOP" should be "EOC"
25	21-25	I was trying to get across that at this point power had been restored and I wasn't that sure exactly what indicators had been lost during the initial event. I think I initially said that "most" indicators then later clarified that only balance of plant indication was lost.
26	18-21	I am talking about the swapping of ICS to condensate booster pump level control when level dropped below $< L3$ after ICS reached its level 8 setpoint and stg
26	23-25	I never saw the injection valve go shut - ICS may have been place tank to tank and injection stopped well before Level 8
25	13	"full" should be "before"
34	9	"charts" should be "notes"

Page 1 of Signature Don P Bosnich Date 8/2/91



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

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Interview of :
DON BOSNIC :
(Closed) :

Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Monday, August 19, 1991

The interview commenced, pursuant to notice,
at 8:28 a.m.

PRESENT FOR THE IIT:
John Kauffman, NRC
William Vatter, INPO
PRESENT WITH MR. BOSNIC:
Jerry Helker, Niagara Mohawk

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11

12



P R O C E E D I N G S

[8:28 a.m.]

1
2
3 MR. KAUFFMAN: At this time we're going to start
4 the formal interview. It's August 19, 1991, Nine Mile Point
5 P admin building. Interview of Don Bosnic concerning the
6 August 13 Nine Mile Two event. My name is John Kauffman.
7 I'm with NRC, Office for Analysis and Evaluation of
8 Operational Data.

9 MR. VATTER: My name is Bill Vatter. I work for
10 INPO.

11 MR. HELKER: My name is Jerry Helker, general
12 supervisor of operations at Nine Mile Two, here at Mr.
13 Bosnic's request.

14 MR. BOSNIC: My name is Don Bosnic. I'm an
15 assistant SSS at Nine Mile Two.

16 MR. KAUFFMAN: Don, at this point we'd like you to
17 tell us a little bit about your previous background and
18 experience and your progression to CSO.

19 MR. BOSNIC: I graduated from the Naval Academy in
20 1982, a Navy nuke. I served aboard a submarine in the
21 engineering department for three years following the nuclear
22 pipeline. My last position held was nuclear engineer
23 officer. Part of that time was spent in the shipyard,
24 decommissioning.

25 Following my sea tour, I attended the University



1 of Illinois and obtained my master's degree in nuclear
2 engineering from the University of Illinois. At the same
3 time, I was recruiting officer for that area.

4 Approximately two years ago, I resigned from the
5 Navy and took a position here as a generation engineer at
6 Nine Mile Point, Unit Two, in the operations support
7 department. After about between four and six months, I
8 entered the SRO license training, which was completed
9 approximately eight to nine months ago, where I obtained my
10 SRO license and was promoted to the position of assistant
11 SSS. Since that time period, I've been on shift work in the
12 control room, working primarily with Steve Davis as my SSS.

13 MR. KAUFFMAN: I'd like you to tell us about your
14 involvement in the event on August 13 -- since you got here,
15 when it was in progress, from your time in the gate to
16 pretty much when you were relieved or when you were done
17 with duties for the day.

18 MR. BOSNIC: I'm not sure exactly the time I
19 entered the gate. It was very close to 12 minutes before 6
20 o'clock, because after entering the gate I recalled hearing
21 a loud slamming noise.

22 MR. KAUFFMAN: This was in the yard?

23 MR. BOSNIC: Just as I was walking between the
24 security building and the unit itself.

25 When I heard this slam -- it sounded like a big



1 steel door slamming shut -- the offsite lights, some of
2 them, went out. At that point, I kind of hurried up my
3 pace a little bit, entered one of the control building
4 entrances.

5 MR. VATTER: Excuse me. That noise, do you have
6 any idea where it was coming from? Can you, thinking back
7 on it, associate what that might have been?

8 MR. BOSNIC: No idea. It could have been the
9 circuit breakers. I'm not sure. It just sounded like a big
10 steel door shutting. And it was from the switch yard
11 location; it was from that area -- that direction, I should
12 say.

13 MR. VATTER: Which is out behind you, not that
14 little yard right next to the transformers.

15 MR. BOSNIC: Like the cooling towers, off to the
16 side, here, the twelve buildings here. It was coming from
17 the main switch yard.

18 MR. HELKER: Not the Scriba yard. Is that what
19 you're thinking of?

20 MR. VATTER: I'm just trying to orient the thing
21 in my mind.

22 MR. BOSNIC: Depending on the way it could have
23 echoed, it could have been from anywhere on that side.

24 MR. VATTER: Excuse me.

25 MR. BOSNIC: Okay.



1 MR. VATTER: Go ahead.

2 MR. BOSNIC: I entered the control building
3 entrance, which is essentially the back way up to the
4 control room. It's a little quicker route. As soon as I
5 walked inside, all of the lights were out, and it was dark
6 inside, and so I decided to turn around and go through the
7 normal, aux-service-building entrance.

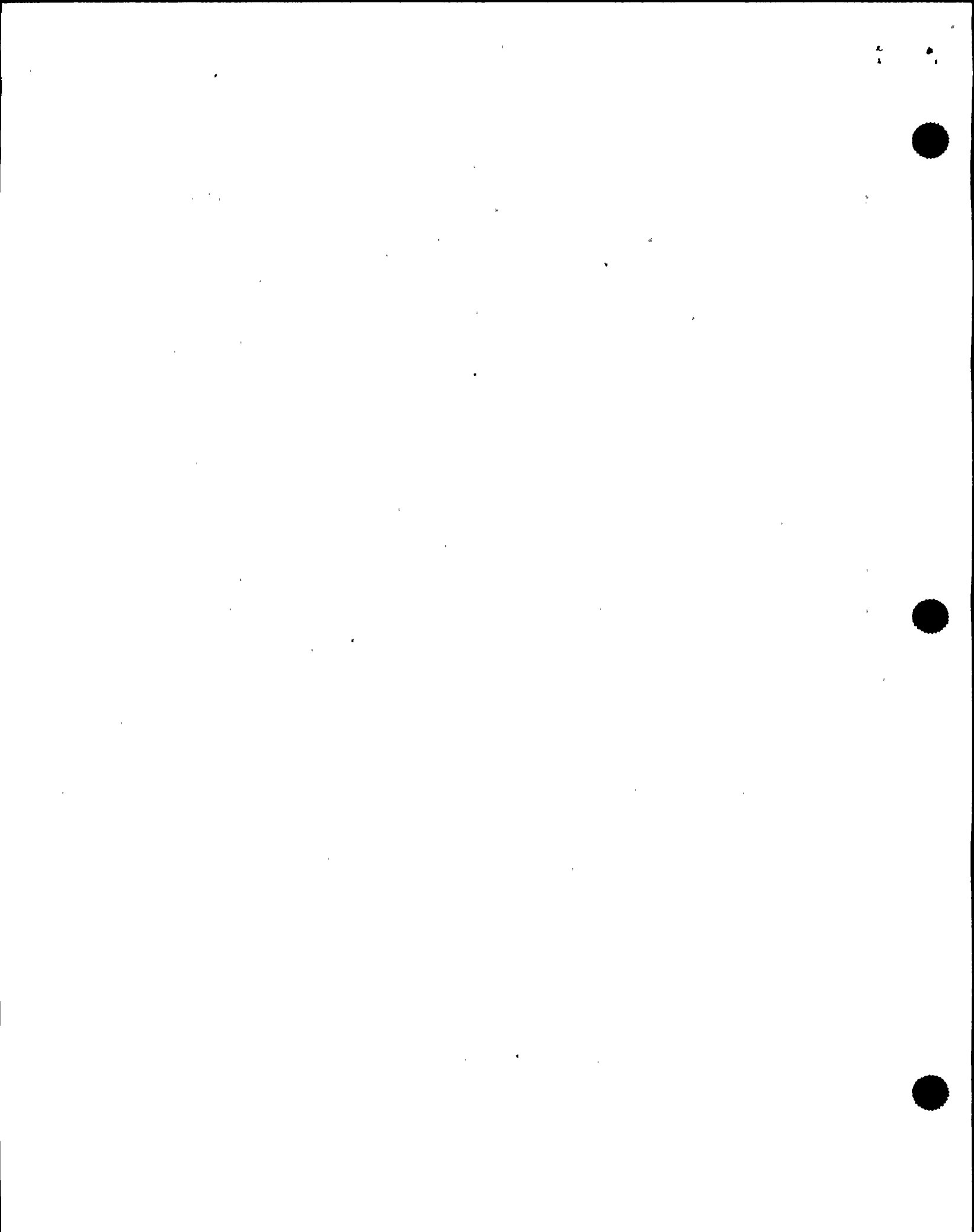
8 There were lights on there, but not all the lights
9 were energized. I took the stairs up, since it's quicker,
10 went through, and entered the back entrance to the control
11 room.

12 It was real quiet in the control room, so some of
13 my initial apprehension was relieved. Then one of the
14 nuclear operators, Mark Bodoh, went scurrying past me. We
15 kind of went through the door at the same time. I walked
16 through the center alley, by the back panels.

17 MR. VATTER: Excuse me. He went scurrying past
18 you. He was also outside the control room and was coming
19 in?

20 MR. BOSNIC: He was coming in the control room at
21 the same time I entered.

22 I walked up through the back panels, turned the
23 corner. Everything was still very quiet, and it was real
24 calm in the control room. I looked over at the power
25 recorders, and they were all showing 100 percent, so I



1 walked back to talk to the SSS and assistant, and the
2 assistant said, the plant has tripped. He asked me if I
3 would call the communications aide and ensure that our
4 communications aide came to the control room.

5 I called the rad waste operations office and told
6 them to send up the communications aide in a hurry, and he
7 arrived some five to seven minutes later.

8 After I had the communications aide in place, I
9 started walking around the control room, looking at some
10 indications, since my initial idea was the plant was still
11 on 100 percent power and obviously it was not. The concern
12 was with water level and pressure -- those are the two key
13 parameters -- and reactor power. During this time period,
14 someone was monitoring reactor water level; I think it was
15 Mark Bodoh or Dave Hanczyk. They were calling out water
16 level, and it was slowly trending down.

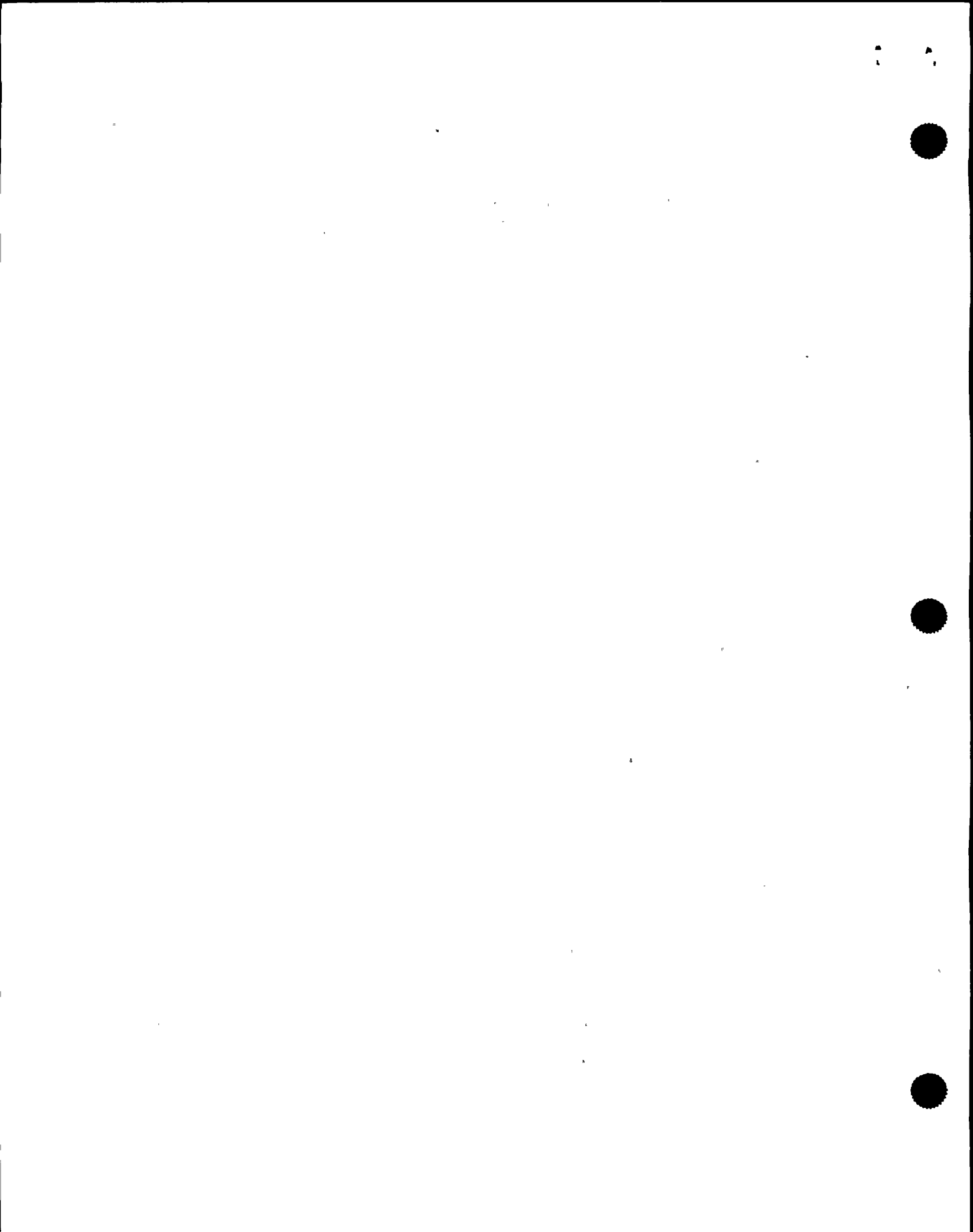
17 MR. KAUFFMAN: About what time are we talking
18 about?

19 MR. BOSNIC: Time frame?

20 MR. KAUFFMAN: We're trying to fix the time pretty
21 closely. Normally we would have good alarm printouts and
22 lots of strip chart recorders.

23 MR. BOSNIC: Right.

24 MR. KAUFFMAN: In our interview, we're trying to
25 fix the time intervals the best we can.



1 MR. BOSNIC: Okay.

2 I walked into the control room at --

3 At 05:51 we walked into the control room.

4 MR. VATTER: Do you know if anybody has checked to

5 make sure that the control room clock and the security clock

6 were in synch?

7 MR. HELKER: Not to my knowledge.

8 MR. BOSNIC: That sounds pretty reasonable since,

9 when I looked at the alarm typer, it had stopped at 05:48.

10 It takes about three minutes to get into the control room

11 from what I heard that initial what I think was the reactor

12 trip.

13 MR. KAUFFMAN: At this point, was the mode switch

14 in shutdown?

15 MR. BOSNIC: I didn't look.

16 MR. KAUFFMAN: I guess you said you went and

17 walked around and looked at the panels. We're real

18 interested in the indications he may have seen.

19 MR. BOSNIC: All the annunciators were black. I

20 remember walking --

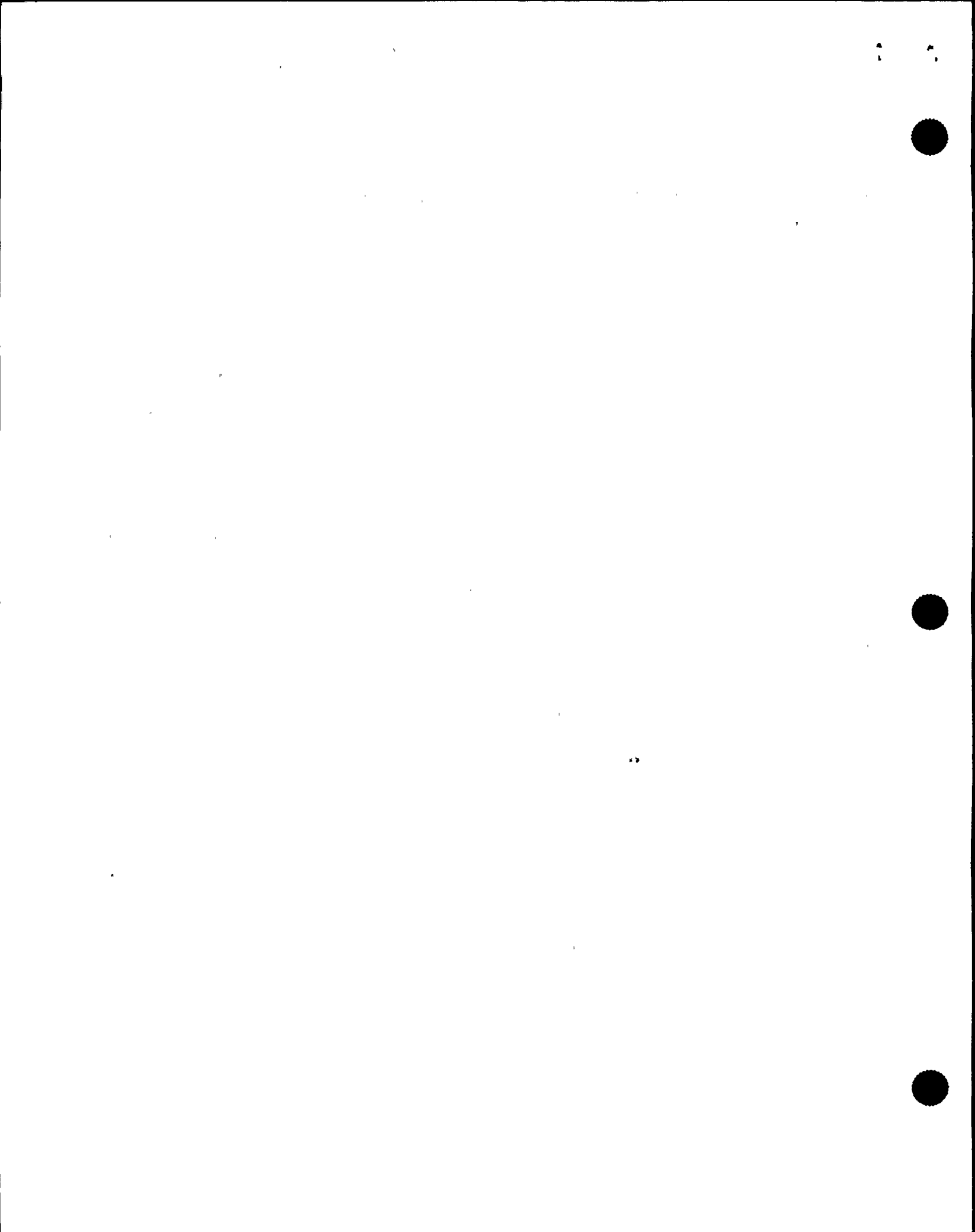
21 MR. VATTER: All of them?

22 MR. BOSNIC: I don't remember seeing any

23 annunciators.

24 MR. VATTER: Okay.

25 MR. BOSNIC: I think I walked around the back



1 panels and looked at -- let's see. What did I look at
2 first? I walked to look at water level first.

3 This is all about the 05:55 time frame.

4 I looked at narrow range, and narrow range Alpha
5 was down-scale.

6 MR. VATTER: That's water.

7 MR. BOSNIC: Water level.

8 MR. KAUFFMAN: It's on the 603.

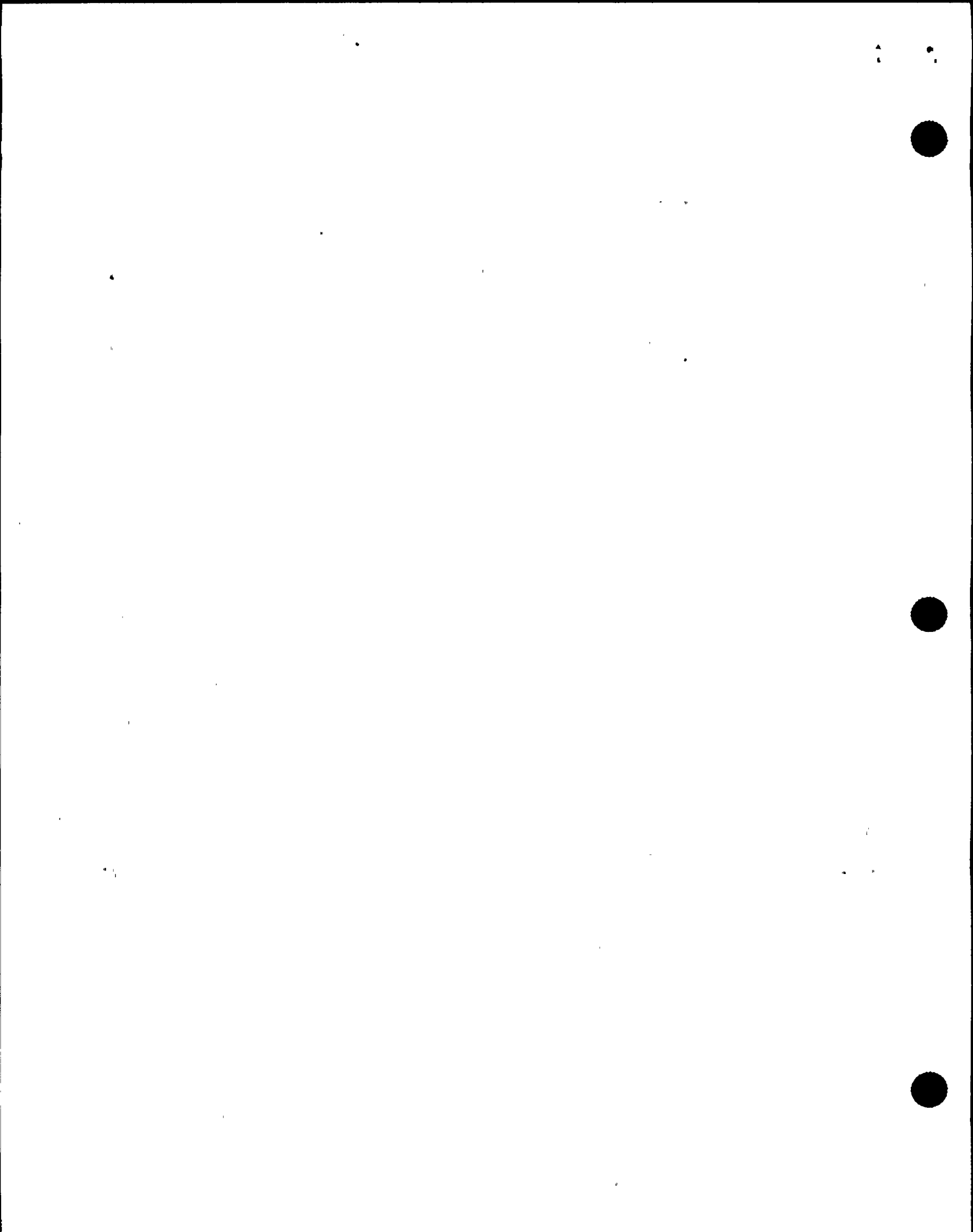
9 MR. BOSNIC: Yes, 603.

10 Bravo and Charlie were still indicating
11 approximately normal level, about 185 inches.

12 Since the narrow range Alpha level indicator was
13 down-scale, just from training exercises, the first thing I
14 thought was either a battery problem for normal station
15 batteries or the UPS's. I think I walked around the back of
16 the panel on 852 and looked at battery voltage for safety-
17 related and non-safety-related batteries. I didn't see any
18 discrepancies there.

19 As I was walking back, the valve position
20 indication and pump indication lights seemed to be operating
21 normally. I didn't see any problems there. I didn't really
22 look at too many indicators 851, 852, which are our normal
23 steam-plant type of indicators.

24 I came back around, and the operator was giving a
25 lowering trend in water level. I know I wrote that at 05:56



1 we reached 159 inches, which is our level three, and that's
2 when the SSS entered EOPs.

3 When he did that, the concern was with level,
4 power and pressure. Somebody had gone into the back panels
5 to look at the APRMs, to get an actual indication. I heard
6 somebody say that the down-scale lights were on, indicating
7 that power was less than 4 percent.

8 MR. KAUFFMAN: On the APRMs and LPRMs.

9 MR. BOSNIC: On the APRMs, yes.

10 MR. KAUFFMAN: Okay.

11 MR. BOSNIC: The full core display was out, so
12 there wasn't any indication of rod position. I didn't
13 specifically look at the minimizer, the rod worth minimizer,
14 so I don't know what the status of that was. I didn't see
15 any red lights on the rod sequence control system,
16 indicating that rods were in.

17 Since the SSS didn't have rod position, he was
18 forced by the EOPs, the reactor power light, to go to C-5
19 for power level control, and he did that.

20 MR. HELKER: You mean the water level light. You
21 said the power light.

22 MR. BOSNIC: Correct. I'm sorry. He was still in
23 the power light, but you're right; the water level -- the
24 one that overrides into C-5.

25 He also directed somebody to verify the level 3



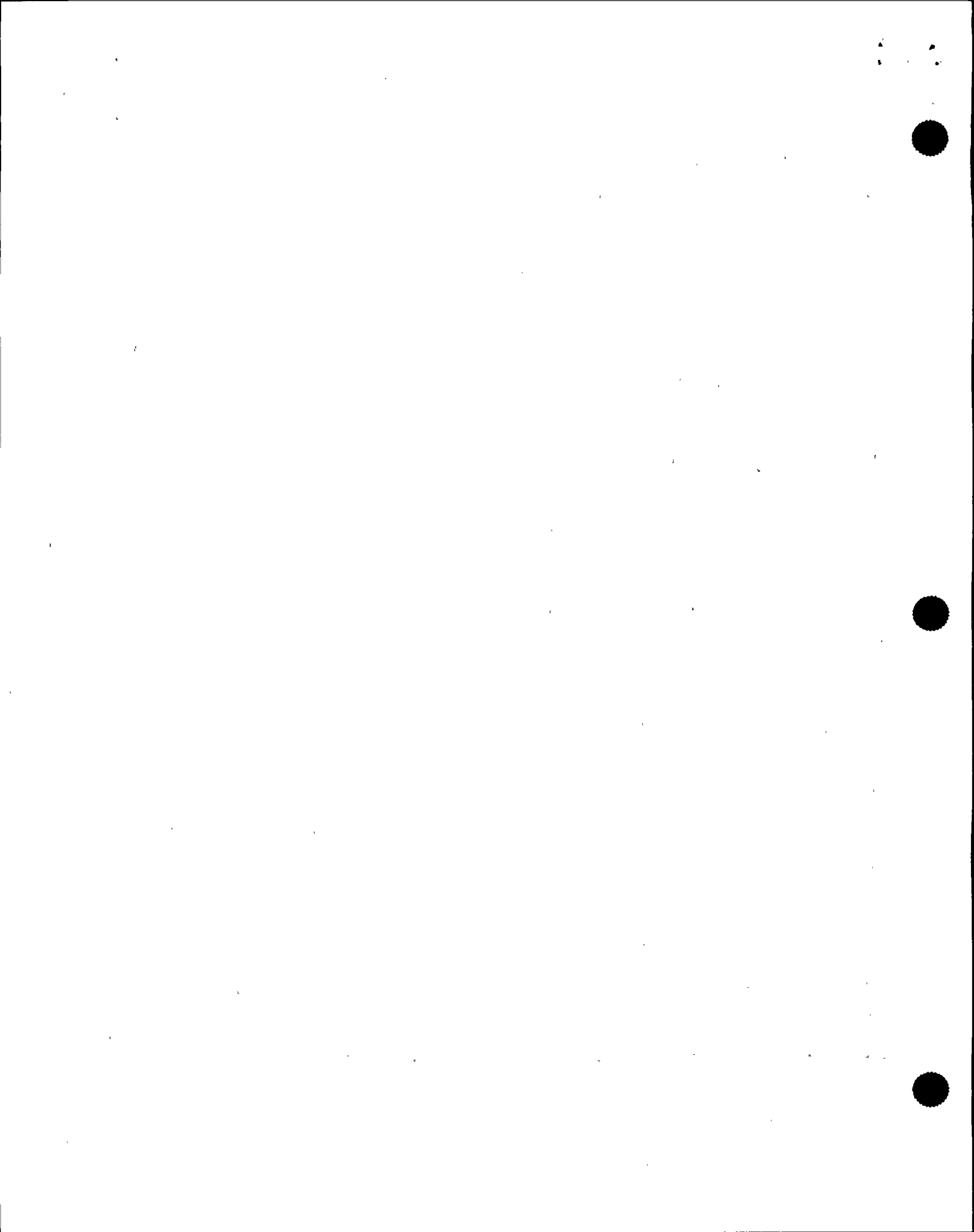
1 isolations, if I remember correctly, which shouldn't have
2 been a problem, since -- rad waste discharge shouldn't have
3 been in operation.

4 At that point I continued. I think I walked to
5 601 first. I looked at the PAM recorders, trending power,
6 and our level and pressure. It appeared that the indication
7 -- I looked quickly at the containment parameter
8 indicators, and they all looked normal, too. I couldn't see
9 any discrepancies or indications of problems with the
10 containment.

11 It appeared that all the 601 indicators were
12 operating correctly, as far as I could tell from a quick
13 scan. I walked into the back panels, looked to see if the
14 reactor building had isolated, and it had not. Normal
15 ventilation to the reactor building was still going. I
16 checked the standby gas trains, and they were still on
17 standby. Actually, one of them was administratively inop at
18 the time, but they were both still on standby.

19 I think I looked at drywell cooling at that point.
20 I don't remember -- I didn't really take note of what it
21 was, if it was still going on or not. Later on, I did hear
22 somebody say that drywell cooling had been lost, which is a
23 concern for drywell pressure, the fans.

24 That quick walk-down was all around 6 o'clock. At
25 6:02 I noted -- during that time period, too -- that the SSS



1 ordered RCIC initiated sometime around when level 3 came in,
2 so it was sometime around 05:55 and 05:56. He initiated
3 that for water level control. There was some initial
4 concern over how RCIC concern was operating. I didn't pick
5 up the specifics of it, but there were some initial problems
6 with running in automatic.

7 MR. KAUFFMAN: Based on your time on shift and
8 other things, have there been problems with RCIC in previous
9 surveillances or in previous plant trips? Do you recall?

10 MR. BOSNIC: I've only been on shift for about
11 nine months, and I don't remember any problems with RCIC
12 running on automatic --

13 MR. KAUFFMAN: Okay.

14 MR. BOSNIC: -- that occurred while I was on.

15 MR. VATTER: Do you know if RCIC can normally be
16 expected to keep you away from level 3 if you have a scram
17 and loose feed pumps?

18 MR. BOSNIC: Yes. At this point in the event,
19 RCIC should have been able to maintain water level, and
20 actually did.

21 MR. VATTER: Do you know -- I guess we have the
22 strip charts -- how far the water level got down?

23 MR. BOSNIC: Initially? What I saw was two level
24 excursions, or drops. On the first one, water level didn't
25 drop much below level 3, from what I saw. RCIC was



1 operating very quickly, right on the time frame of when we
2 hit level 3. We do a lot of training on, if RCIC is not
3 working in automatic, how to take manual control of it. I'm
4 sure all the operators are pretty practiced at that, from
5 the simulator training.

6 MR. VATTER: RCIC puts out enough water that, if
7 you turn it on, you won't have water level still going down
8 to where you get level 3 even when you have RCIC, right?

9 MR. BOSNIC: I guess it would all depend on how
10 much steam is being pulled off the reactor through the
11 drains. RCIC is putting out 600 gallons a minute, and I
12 know at 6:02, which is within six minutes after they
13 initiated it, level was back above 159. It restored water
14 level very quickly, so, from the event, RCIC was able to
15 restore water level.

16 MR. KAUFFMAN: The sources of water injection at
17 that time were RCIC and CRD; is that correct?

18 MR. BOSNIC: At that point, the feed pumps had
19 been lost and pressure was still high, so CRD was still
20 running; RCIC was running; all the ECCS -- none of the
21 ECCS's was initiated, so yes.

22 MR. KAUFFMAN: What kind of flow do you normally
23 give after a scram at Nine Mile?

24 MR. BOSNIC: After the scram, it's going to be
25 primarily recharging the accumulators, so I would say very



1 little flow was going to the reactor at that point from CRD.

2 MR. HELKER: We recharge the accumulators after
3 the scram is reset, so flow is going to be higher than
4 normal. I don't know a number right off the top of my head.
5 Typically, cooling water flow is 63 gallons a minute. One
6 of the GEKs has a process diagram and a chart for different
7 system configurations, which shows you all the different
8 parameters.

9 MR. KAUFFMAN: We were just trying to get a ball
10 park.

11 MR. HELKER: You could get a rough idea from that
12 chart what it would be.

13 MR. KAUFFMAN: We have a thermohydraulics guy, and
14 he is going to know if what goes in goes out and do some
15 balances.

16 MR. HELKER: The bottom line is that it was enough
17 going in to match what was going out.

18 MR. BOSNIC: Yes.

19 MR. KAUFFMAN: For an operator, that's good. For
20 a thermohydraulics guy, he likes exact things. He is
21 probably going to back-calculate decay heat and develop a
22 decay heat rate curve and that sort of thing.

23 Sorry to interrupt.

24 MR. BOSNIC: I'm not sure if RCIC was inputting at
25 his maximum rate at that point or not, but level was rising



1 steadily, and pressure was dropping steadily. I was
2 concerned at that point that the cool-down rate was going to
3 be exceeded, or that the pressure was going down quicker
4 than I was comfortable with. The SSS, Mike Conway, has a
5 lot more experience up in the control room, though, so he
6 probably had a better feel for it than I did.

7 What I did was, I went and made a copy of the OFP,
8 or surveillance procedure, for cool-down rate, so that we
9 could plot that and trend that. I made that copy, gave that
10 to the CSO so he could start working on that, and he
11 assigned that job to one of the C operators. I think we
12 started getting cool-down rate data about 10 after, in that
13 time frame.

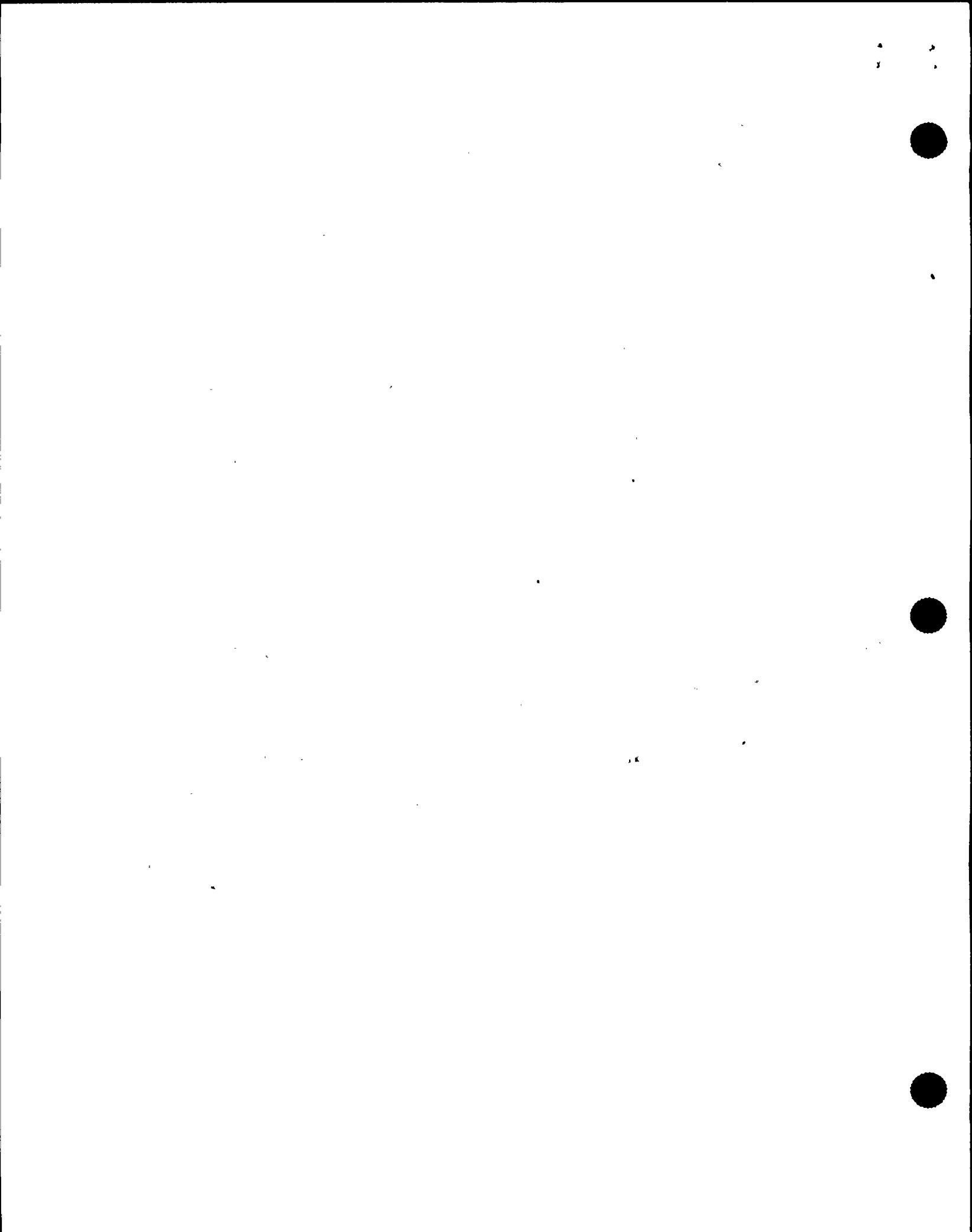
14 I also made a copy of our normal shutdown
15 procedures, so that we could start working through that in
16 conjunction.

17 MR. VATTER: Was there a guy plotting the cool-
18 down, putting points on a graph or something like that?

19 MR. BOSNIC: We log it. We log steam pressure.
20 In this event, initially we were using the steam pressure
21 from the PAM recorders to plot cool-down rate for the first
22 at least 20 minutes of the event, 30 minutes.

23 MR. VATTER: So you log times and pressures.

24 MR. BOSNIC: Times and pressures, yes. In the
25 back of the surveillance procedure, there are essentially



1 steam table numbers, giving you saturation temperature for
2 pressures.

3 MR. VATTER: Did we get a copy of that?

4 MR. KAUFFMAN: I haven't requested it yet. We can
5 request it.

6 MR. HELKER: Would you like to request it?

7 MR. VATTER: As long as we haven't got it, yes.

8 MR. HELKER: I will provide the copy of that --
9 the one that they used, correct?

10 MR. VATTER: That's right. The data that they
11 recorded.

12 MR. KAUFFMAN: I'd like to backtrack just for a
13 second. When you were doing your tour of the control room,
14 did you notice where people were stationed around the
15 panels? You mentioned, for example, that there was
16 somewhere stationed to monitor the panel indicators for
17 level and pressure. Were there other people stationed,
18 continually monitoring any certain parameters that you
19 noticed?

20 MR. BOSNIC: Well --

21 MR. KAUFFMAN: I guess specifically what I'm
22 interested in is, was there someone --

23 MR. BOSNIC: There was somebody monitoring
24 pressure and level.

25 MR. KAUFFMAN: Okay.



1 MR. BOSNIC: That's both round PAM recorders. I
2 don't know if that was the same person who was running RCIC;
3 it's likely that it was, since they had water level control.

4 MR. KAUFFMAN: Sure.

5 MR. BOSNIC: The CSO was just giving general
6 direction from the center.

7 MR. KAUFFMAN: Did you go back to the back-panel
8 APRM indications. If so, was there somebody there?

9 MR. BOSNIC: I didn't walk back to the APRMs.

10 MR. KAUFFMAN: Okay.

11 So you made the copy of the normal, of the
12 shutdown procedure. People were plotting cooldown rate.

13 MR. BOSNIC: Right. So we had cooldown rate being
14 plotted. The shutdown procedure I gave to the CSO. I knew
15 he wouldn't initially use it but as soon as more operators
16 showed up they started doing the normal shutdown things.

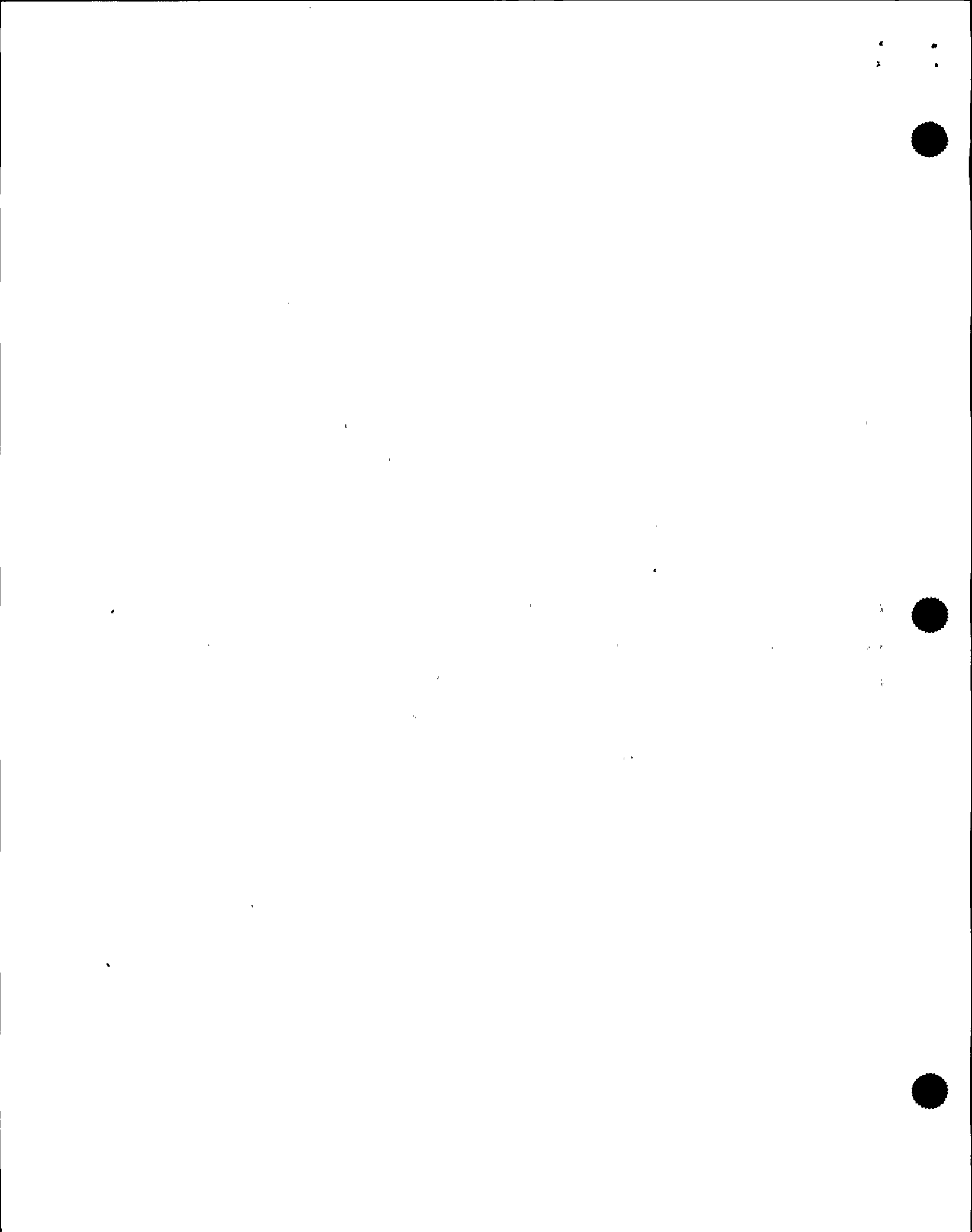
17 MR. KAUFFMAN: About how many people were in the
18 control room at this point in time? If you can't give me a
19 number, maybe you can say "a lot" or "not many more than
20 normal."

21 I am just trying to get a feel for how many.

22 MR. BOSNIC: Half a dozen to ten.

23 MR. KAUFFMAN: Had people been dispatched into
24 the plant at this time to do local actions?

25 MR. BOSNIC: The CSO and the SSS were directing



1 that and so I didn't hear that.

2 MR. KAUFFMAN: Okay, but there probably were extra
3 people out there then?

4 MR. BOSNIC: There are, yes. There are five other
5 auxiliary operators doing something at this time.

6 The reactor operators were all in the control room
7 if I remember correctly. My shift was just coming in so we
8 were picking up another three reactor operators and another
9 five auxiliary operators.

10 MR. KAUFFMAN: Okay.

11 MR. BOSNIC: Let's see -- reactor pressure, time
12 frame of ten after 6:00 was around 700 pounds so that was
13 within 20 minutes of the scram. I know we normally look at
14 maintaining about 450 pounds to not exceed our 100 degrees
15 an hour cooldown rate.

16 Didn't occur to me immediately that RCIC was
17 suppressing the reactor pressure due to the fact that it
18 spraying in the steam dome region.

19 That could have been the reason pressure dropped
20 as quickly as it was.

21 Also we started the MSIVs were open and so we're
22 losing 1 to 2 percent steam flow down the steam drains.

23 I didn't look at the bypass valve position --

24 MR. VATTER: Excuse me. You said that RCIC was
25 spraying in the steam dome region?



1 MR. BOSNIC: Yes.

2 MR. VATTER: Is that the normal place that RCIC
3 comes in here?

4 MR. BOSNIC: Yes. RCIC sprays right into above
5 the dryers.

6 MR. VATTER: It varies upon performing -- go
7 ahead, excuse me.

8 MR. BOSNIC: It's that type of thing that will
9 collapse in the steam up there and cause pressure to drop a
10 little faster than a normal scram.

11 Let's see. I took a look around. At this point I
12 figured I'd try to do a little diagnosis and see if I could
13 figure out what we'd lost, so I pulled out the OP for DC
14 distribution and was trying to figure out the power supply
15 to the alpha level, narrow range level record or level
16 instrument.

17 Mike Conway and Mike Eron had remembered somewhere
18 along the way that when we lost the UPS we'd lose some of
19 the annunciators at that point and so they -- Mike Conway
20 and Eron, they keyed in on it quicker than I did that there
21 may be a UPS problem. So they ordered somebody, I think it
22 was Dave Hanczyk, to go down and check the UPS's.

23 That was pretty early on. That was about that
24 6:05 - 6:10 time frame.

25 At 6:22 the annunciators came back on and there



1 was a lot of -- I mean a lot of annunciators came in due to
2 the scram, the full core display came back on. The rod
3 sequence control system was back on and I walked over and
4 took a quick scan to see what the rod positions were. I
5 didn't count them but I noticed there were gaps in the red
6 lights indicating that some of the rods weren't in, by
7 indication.

8 MR. VATTER: Rod sequence control, display of
9 bottom lights that you are referring to?

10 MR. BOSNIC: Bottom lights?

11 MR. KAUFFMAN: Smaller --

12 MR. BOSNIC: Smaller, that's correct, with the red
13 lights.

14 MR. VATTER: Could I ask you to back up for just a
15 second?

16 When you said you thought it was Dave Hanczyk that
17 was sent to take care of the UPS's, do you recall exactly
18 what was said to him or can you give me the -- could you say
19 again what it was that you heard transpire over the UPS's?

20 MR. BOSNIC: I don't remember the exact words but
21 I remember Mike telling one of the RO's, I think it was
22 Dave, to look and check out the UPS's. I don't know if he
23 said verify they're operating or to restore power if they
24 weren't or what. I'm not sure what exactly he said but I
25 know he sent somebody down to the UPS's.



1 MR. VATTER: Okay, but you don't know whether he
2 was given instructions to inspect and report --

3 MR. BOSNIC: No.

4 MR. VATTER: -- or turn them on if they're off
5 or --

6 MR. BOSNIC: I don't know the direct order he
7 gave, no.

8 MR. VATTER: Okay, thank you. Excuse me.

9 MR. BOSNIC: But they did -- at 6:22 and then they
10 came back and reported to Mike that they had put the UPS's
11 on their maintenance supply. I didn't know that at this
12 time though.

13 I found this out a little bit later.

14 So all the rods weren't indicating "in." There
15 were two or three RO's up at 603 trying to determine rod
16 position by various means -- full core display, by the 4
17 core selector and the report that I heard was that six rods
18 weren't, you know, at the end of that the six rods still
19 weren't indicating full in.

20 MR. VATTER: Was there another place that they
21 might have been recording other than on those displays, like
22 for example rod worth minimizer could look at them.

23 MR. BOSNIC: They could look at the minimizer or at
24 least the minimizer will give you how many rods aren't in.
25 It will give you a number. It will say the rod's not in, 1,



1 2, 10, whatever.

2 MR. VATTER: Of those six rods, could any of them
3 be seen on some other indications, or were there six rods
4 that had --

5 MR. BOSNIC: My impression was they checked all
6 the possible indicators. They checked the process computer.
7 They had checked displays and they still couldn't find
8 position indication for six rods.

9 MR. VATTER: The six rods had no indication on any
10 available instrument?

11 MR. BOSNIC: That's right. That was my
12 impression. That was after they did, you know, some
13 research for every five minutes or whatever to actually look
14 for indications, to try to find it.

15 Let's see, also I missed something. Back --
16 initially when I was walking the panels down one thing I did
17 notice is on 602 that the recirc pumps, the 3 and 4 EOP, end
18 of cycle recirc pump trip breakers were tripped. I looked
19 up at pump speed and pump speed indicated downscale on both
20 pumps but the 1 and 2 breakers were closed in, indicating
21 that the slow speed pump breakers were actually shut so the
22 pumps were probably at slow speed and it was an indication
23 problem.

24 MR. VATTER: The pump speed indication that you
25 were referring to typically goes downscale when you have a



1 shift like that?

2 MR. BOSNIC: No, it should have been indicating.

3 MR. VATTER: Okay, so that was probably a failed
4 indication?

5 MR. BOSNIC: Yes. That is what I perceived it as
6 because I did have the 1 and 2 breakers closed in.

7 MR. VATTER: I am a little confused as to the time
8 now.

9 MR. BOSNIC: This was about in the 6:00 time
10 frame, when I was walking the panels looking at narrow range
11 level and 603, early on.

12 MR. VATTER: Before they got these UPS's on the
13 maintenance supply?

14 MR. BOSNIC: Correct.

15 Also back then I had noticed that the Group 9 had
16 an isolation signal was on 602 at the same time,
17 background.

18 MR. VATTER: What's on the Group isolation?

19 MR. BOSNIC: Sorry, we have indication lights for
20 the isolations for Group 8 and 9 on 602 and that light was
21 on indicating Group 9 is isolation.

22 MR. VATTER: What things go on --

23 MR. BOSNIC: That's the containment purge. It was
24 already shut at the time period. From the notes that I
25 jotted, I am not sure if that was before the annunciators

1



1 came back on or after.

2 At this point I guess it was around between 0630
3 and 0645 time frame I guess somebody asked me if I would
4 talk with the NRC on the hot line, since they wanted to talk
5 to somebody with a little more experience than the
6 communications aide had. So I picked up the NRC phone and
7 started answering questions for the NRC.

8 Let's see --

9 MR. KAUFFMAN: About how long did those
10 discussions take?

11 MR. BOSNIC: With the NRC? I was on the phone for
12 about two hours so I missed a lot of the fine points going
13 around the control room and I was just more or less
14 answering questions at that point.

15 MR. VATTER: What time did you start getting on
16 the phone with them?

17 MR. BOSNIC: It was around, I'd say around 6:45
18 time frame.

19 I remember that the NRC phone was real staticky.
20 It was real hard to hear as usual. I was talking -- there
21 were quite a few different individuals on the phone. I had
22 the control center, the OPS officer, the Region I
23 administrator was on. There was quite a few individuals
24 asking a lot of questions. Their concern primarily appeared
25 to be the stability of the plant, the level pressure which I



1 think I gave them a indication that the plant was in a
2 relatively stable condition. We still had a good indication
3 of pressure and level. We'd established by then that the
4 cool down rate had been stopped and controlled. Level was
5 in good status. ECCS systems were still on standby. We
6 still had all our vital power.

7 Initially they were asking which indication we had
8 lost and I didn't know. All I could tell them was it
9 appears that our vital instrumentation is still operating.

10 They were asking questions like why we initially
11 classified the site area emergency and it's just due to the
12 EOP or the EAP attachment two, and that was classified -- I
13 guess I can go back to that.

14 The classification was made at 6:00.

15 MR. HELKER: All of your ENS phone calls are
16 taped, right, so you can go back and look at those?

17 MR. KAUFFMAN: Yes. We may have some followup
18 about the ENS, not the specifics but one of the things the
19 IIT looks at is --

20 MR. VATTER: The AIT or the IIT?

21 MR. KAUFFMAN: IIT -- is the impact the NRC had on
22 this and we're going to ask for your thoughts about what
23 impact, if any, that being on the phone had on the response
24 to the incident.

25 In other words, if we are asking stupid questions



1 and bothering you and distracting your resources, we want to
2 know that. If it was no problem, we want to know that too.

3 MR. BOSNIC: Okay. I think it wasn't, it didn't
4 impact at all due to the fact that I was an extra SRO who
5 had come in to relieve.

6 By that time Jerry Helker was in the control room.
7 I think Al deGracia and Davy Wilson.

8 Some other SROs or previous SROs had walked in the
9 control room so there was quite a bit of manpower to be
10 utilized so it didn't hurt the situation at all that I was
11 on the phone.

12 MR. KAUFFMAN: Were any questions asked that
13 perhaps got asked to the TSC/OSC that you are aware of and
14 maybe they went and chased getting answers to those
15 questions rather than maybe doing what they thought they
16 needed to be doing? You don't know?

17 MR. BOSNIC: You know, I don't know anything that
18 was happening in the TSC/OSC. Primarily for the -- until
19 about 8:00 I would say I was the only one giving NRC
20 information.

21 Still, you know, at this point we're still not
22 sure, you know, what had been lost until there was -- I'm
23 sure there are going to be some questions on, you know, the
24 data. It kept changing, somebody asking, well, now what did
25 you lose? My initial impression was that we had lost the



1 majority of our indication and a little bit later I said no,
2 we had only lost the balance of plant indication from the
3 UPS's.

4 Then when we found, well, and also as soon as we
5 had found the transformer problem they were curious to hear
6 that, that being maybe the initiating event was the
7 transformer. That's why that information was passed along
8 to them very quickly.

9 Going back to about 6:00 time frame the
10 classification, I know that was classified by the SEPC using
11 the guidelines and the emergency site -- the SSS became the
12 site emergency director and he classified it and the CSO
13 called over to Unit 1 to make the alarm and announcements
14 since there appeared to be a problem with our Gaitronics due
15 to the UPS loss.

16 The only other key think I think is important is
17 the second level drop. There may be questions concerning it.
18 While we were swapping over from it, as we were inputting
19 RCIC, RCIC raised the water level up to Level 8 at some
20 point. You know, I'm not sure of the time. It may have
21 been logged.

22 MR. VATTER: How did they know it was at Level 8?

23 MR. BOSNIC: Because the RCIC injection valve went
24 shut and by this time we had our indications back so they
25 had the Level 8 water level trips come in.



1 MR. VATTER: With alarms and all that other stuff.

2 MR. BOSNIC: I think this was after the 6:22.

3 MR. KAUFFMAN: At some point I figured you got
4 relieved of the NS Communicator position by the TSC or by
5 someone else. How long did you maintain the NS
6 Communicator?

7 MR. BOSNIC: I maintained the NS communications
8 until probably about 8:00 o'clock time frame, for well over
9 an hour.

10 MR. KAUFFMAN: Right. Did you give it back to then
11 the normal Communicator?

12 MR. BOSNIC: Yes. Looks like we reached Level 8
13 at 6:15 so that was the full at 6:22 so the indication they
14 would have had would have been the RCIC injection valve
15 shutting.

16 MR. VATTER: Who was monitoring water level?

17 MR. BOSNIC: Brian Hilliker was running RCIC so I
18 assume that he was monitoring level at the same time.

19 MR. VATTER: And he is a licensed reactor
20 operator?

21 MR. BOSNIC: That's correct.

22 MR. VATTER: So he would have know where Level 8
23 was?

24 MR. BOSNIC: Yes, and it looks like they knew
25 level was rising because they were putting RCIC tank to tank



1 right before that, which means they were stopping injection
2 to the vessel and recircing the water from the CST back to
3 the CST.

4 MR. VATTER: You think that they were stopping the
5 injection to the vessel before you got to the Level 8?

6 MR. BOSNIC: Yes, they were. They were trying not
7 to hit, not to reach Level 8 but water level just kept
8 sliding up.

9 At that point I note -- I wasn't, I didn't see any
10 of it but I know that there were two operators working with
11 the feed and condensate system over there, trying to do
12 something with the line. I'm not sure what.

13 They were taking actions to prevent the Level 8
14 and then after they reached Level 8, level started to drop
15 and drift slowly down, as the steam was going down the
16 bypasses. There would be some small amount of steam load.

17 They finally, what they tried to do at this point
18 is swap over control of water level to the condensate system
19 since pressure was by this time around 650 pounds, 600-650
20 pound pressure, so the condensate booster pump discharge is
21 sufficient to supply water at that point.

22 What they were trying to do and what they
23 eventually accomplished was to put water level on the
24 condensate, condensate booster pump through the LV137, which
25 is - that is our preferred method of water level control



1 during the shutdown. We are essentially back in a normal
2 lineup.

3 MR. VATTER: That's an automatic level control
4 valve, 147 valve?

5 MR. BOSNIC: Yes. By the end of this in about
6 9:00 time frame I noticed it was in automatic. I don't know
7 when it got there.

8 MR. HELKER: It can be controlled either in
9 automatic or manually?

10 MR. VATTER: Don, I have kind of perspective about
11 this water level. I am not sure it's accurate. Maybe I
12 could just talk with you a little bit about it.

13 My understanding is that the feed pumps tripped
14 simultaneous with the reactor scram or pretty near close, is
15 that right?

16 MR. BOSNIC: That's my impression too, yes.

17 MR. VATTER: At which time there was no water
18 going to the vessel?

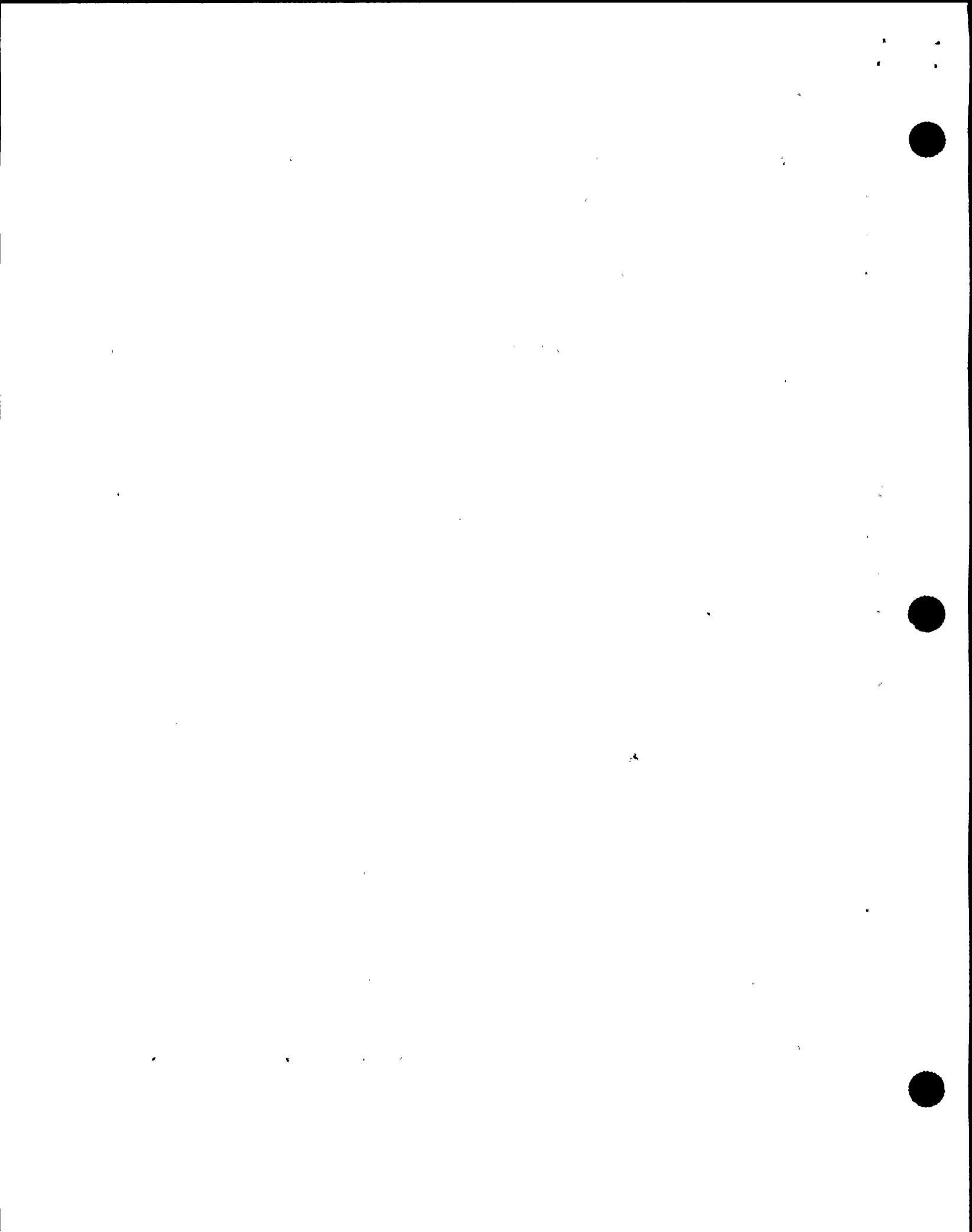
19 MR. BOSNIC: That's correct, other than CRD.

20 MR. VATTER: CRD was going to the vessel and
21 that's about 63 gallons a minute, ballpark?

22 MR. BOSNIC: Right.

23 MR. HELKER: 63 gallons a minute is the normal
24 cooling water supply flow rate.

25 MR. KAUFFMAN: If you research it, I think you'll



1 find it's probably at 400 right after the scram.

2 MR. HELKER: I believe that to be probably
3 correct.

4 Would you like me to look that up for you?

5 MR. KAUFFMAN: Sure. Typically it's something in
6 training. Evidently it's covered in training.

7 MR. VATTER: At any rate the CRD cooling flow is
8 not nearly enough water after a scram?

9 MR. BOSNIC: No.

10 MR. VATTER: My impression is that the concern of
11 the operators was not immediately focused on getting a
12 source of water. There were other things more demanding,
13 like all these lights were out and they didn't know what was
14 going on and trying to figure that out.

15 MR. BOSNIC: No, I wouldn't say that. I would say
16 the water level was their initial concern and their primary
17 concern because that is the only thing I have heard, you
18 know, initially during the event was water level was being
19 called off, so they were monitoring that constantly.

20 MR. VATTER: Okay. Yet RCIC wasn't started until
21 right about the time that you reached Level 3, which was --

22 MR. HELKER: Approximately one minute prior to,
23 according to the sequence that we got developing.

24 MR. VATTER: So that was about?

25 MR. BOSNIC: We're talking probably six or seven



1 minutes after the scram occurred.

2 MR. VATTER: Is that a normal time that it takes
3 to get RCIC going?

4 MR. BOSNIC: It doesn't take much time at all to
5 get RCIC going. I mean RCIC initiation is push button,
6 right, arm and depress and RCIC should start up and start
7 injecting.

8 I couldn't tell you why, you know, why it didn't
9 happen until that point, you know, why they waited for water
10 level to get to 165 or whatever when they initiated it. I
11 don't know.

12 MR. VATTER: Is it preferred to keep water level
13 above Level 3 following the scram?

14 MR. BOSNIC: Yes.

15 MR. VATTER: Okay, so --

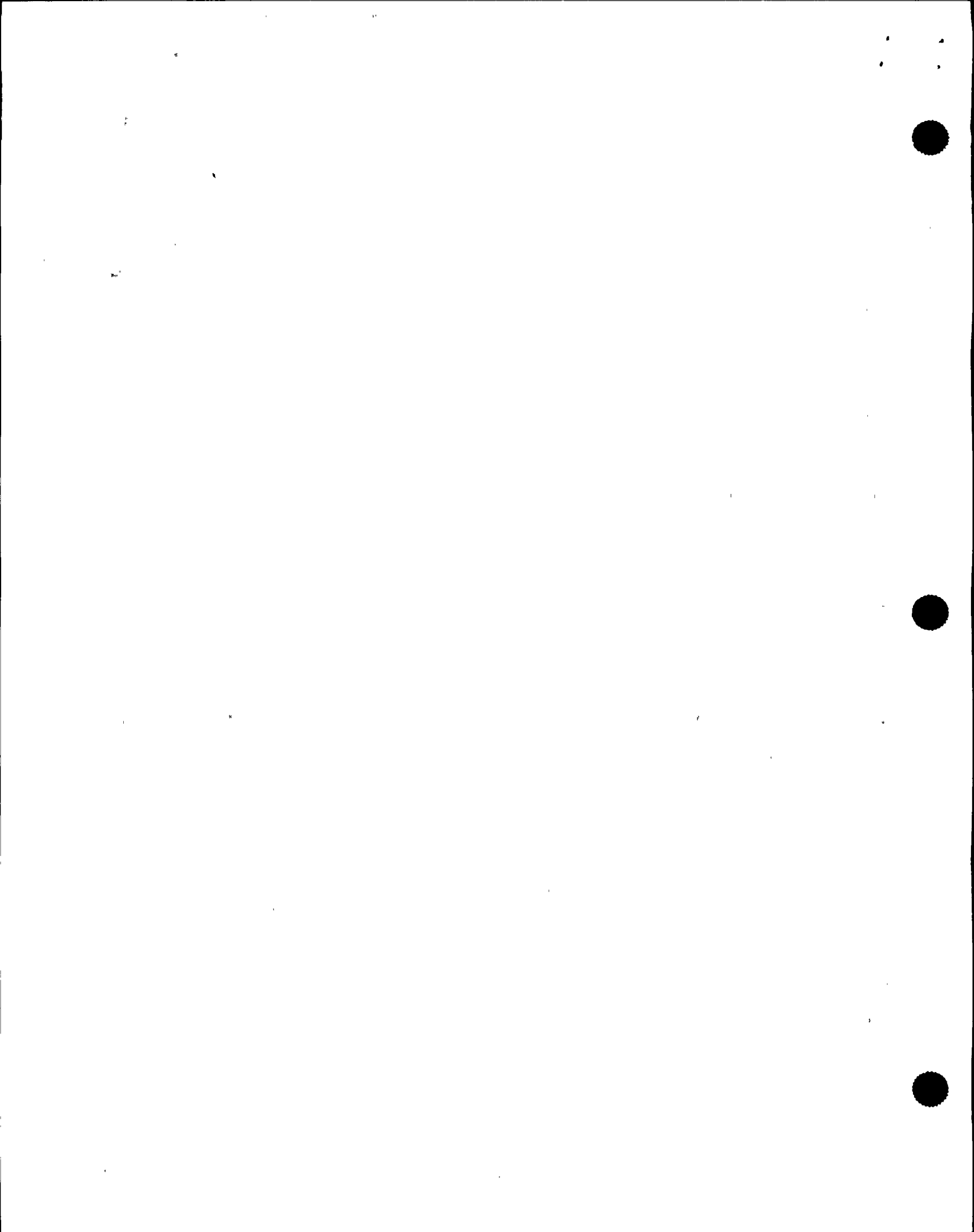
16 MR. BOSNIC: But I couldn't tell you that if a
17 scram from 100 percent power whether or not manual
18 initiation or RCIC immediately would stop the Level 3 or
19 not. I don't know.

20 From training I almost would expect water level to
21 reach Level 3 following a scram from 100 percent power.

22 In my opinion, that's expected almost.

23 MR. VATTER: That's based upon the simulator.

24 MR. BOSNIC: The simulator and talking to the
25 other operators who have experience with a scram.



1 MR. VATTER: And then, when RCIC was started,
2 there was a little bit of difficulty in manual control --

3 MR. BOSNIC: In automatic.

4 MR. VATTER: -- in automatic control, so they went
5 to manual.

6 MR. BOSNIC: Yes.

7 MR. VATTER: And then they were feeding until just
8 before it got to level 8.

9 MR. BOSNIC: They fed it back into the normal
10 band, and then water level step kept rising. I'm not sure
11 what actions the operator took to secure feed -- to stop
12 feeding the reactor and raising water level.

13 MR. VATTER: It's not desirable to get to level 8.

14 MR. BOSNIC: No, it is definitely no.

15 MR. VATTER: Then, about that time, they went on
16 water level control from the condensate booster pump.

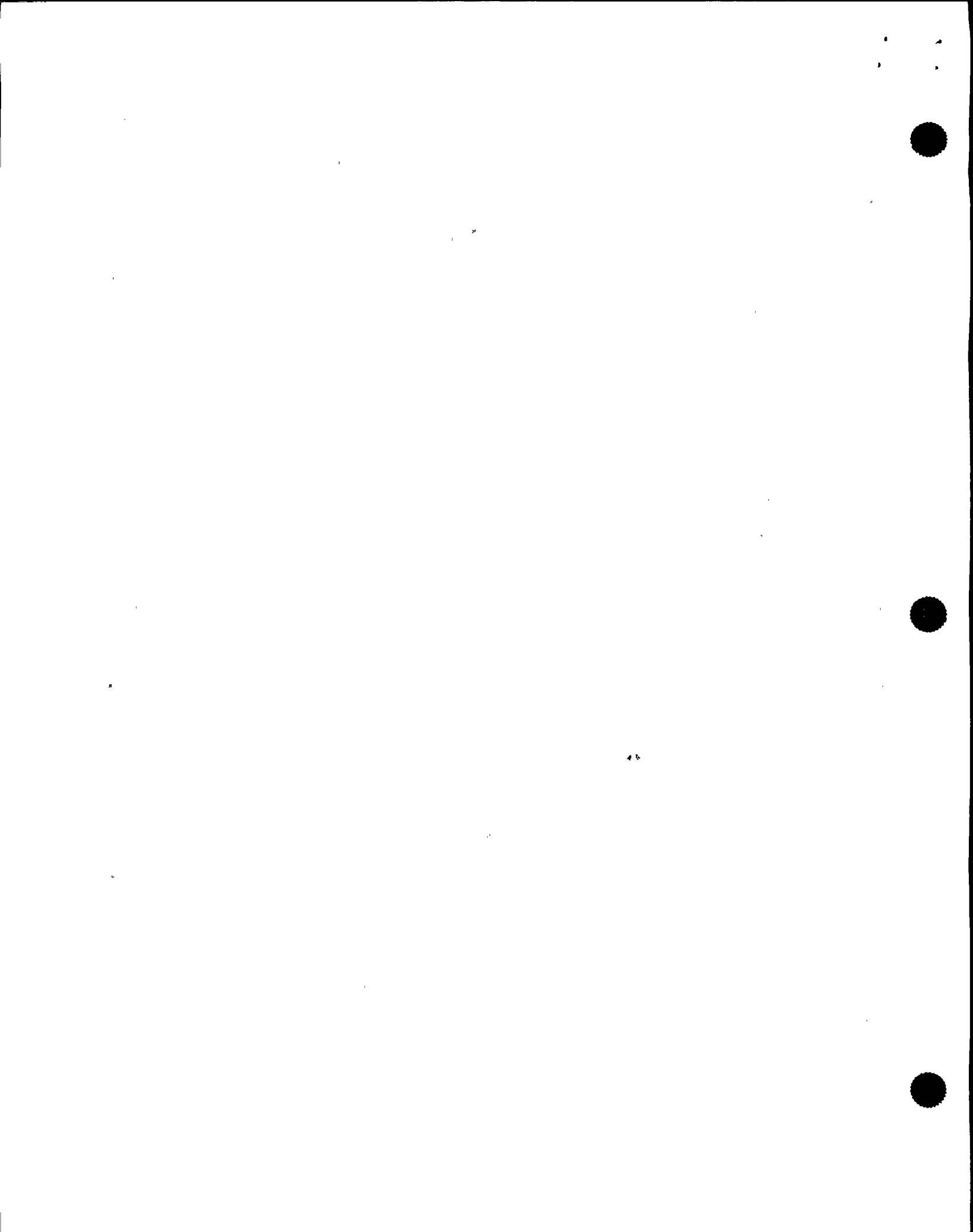
17 MR. BOSNIC: There was a transition in there.
18 Once the RCIC injection valve went shut, the water level
19 was dropping, and at some point -- the lowest I heard water
20 level was 140 inches. It was a slow drop.

21 MR. VATTER: It went down below level --

22 MR. BOSNIC: -- three again. That's correct.

23 MR. VATTER: And that wouldn't be desirable, would
24 it?

25 MR. BOSNIC: No. You want to avoid that, because



1 that would give us another scram.

2 MR. VATTER: And then water level was brought back
3 up.

4 MR. BOSNIC: Yes. At that point, they had gotten
5 a condensate pump, a booster pump, running and the LB-137 on
6 line.

7 MR. VATTER: And then it was pretty steady after
8 that.

9 MR. BOSNIC: Yes. Pressure by this time was about
10 600 pounds or so, so I know they were concerned with feeding
11 the reactor quickly and dropping pressure and exceeding a
12 100-degrees-an-hour cool-down rate. They fed it very slowly
13 so that, if there was a level -- On the PAM recorders, it
14 probably looked like we took a long time restoring water
15 level. That was due to the pressure concern. We didn't
16 want to cool down the reactor quickly. We were trying to
17 hold pressure about 600 pounds or so.

18 I couldn't tell you why RCIC wasn't reinitiated to
19 stop the level drop. I just don't know.

20 MR. KAUFFMAN: As a side question, how many trips
21 of the real plant, not training, not simulator --

22 MR. BOSNIC: None. This is my first. I wasn't
23 even there for the first two minutes of it.

24 MR. KAUFFMAN: Bill, do you have more questions
25 related to the sequence of events?



1 MR. VATTER: I don't think so.

2 Did we get a copy of the control room log?

3 MR. KAUFFMAN: I got that turned over from the
4 AIT.

5 MR. VATTER: Okay. I haven't read that yet.
6 You were keeping a log, also?

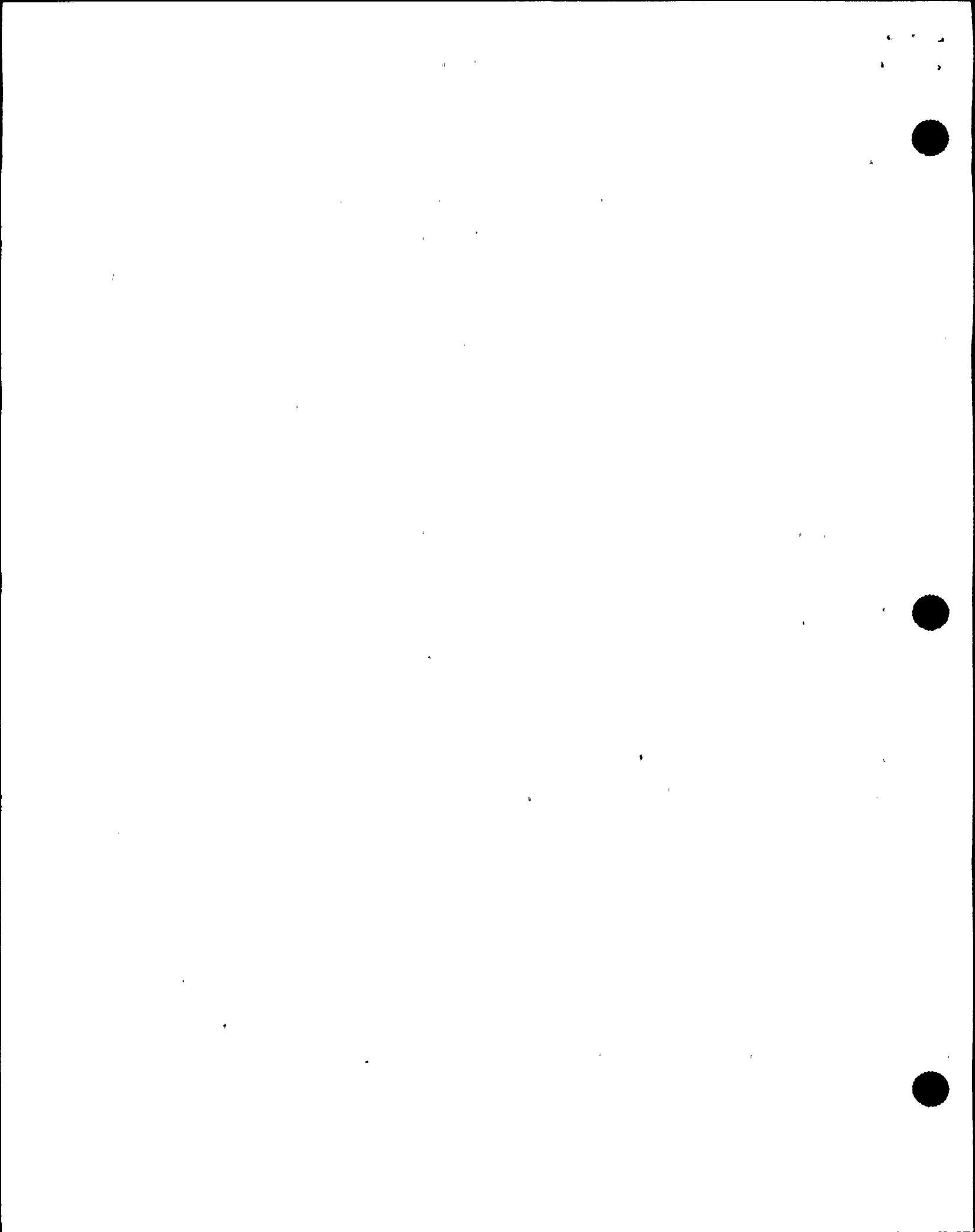
7 MR. BOSNIC: Yes. I was taking notes. We had
8 assigned Brian Hilliker -- no, it was Mike Garbus, I think,
9 and he was taking all the actions, following a certain
10 point. The CSO was taking notes. The SSS had some notes.
11 I took all the notes and constructed the log to get the
12 sequence of events in there as best I could. I put that
13 together.

14 MR. VATTER: I would like to ask you a little bit
15 more about the difficulty in getting rod positions for those
16 six rods.

17 MR. BOSNIC: Okay.

18 MR. VATTER: Is that typical, that some rods are
19 hard to figure out where they are following a scram, or is
20 that associated with this event, unique to this event?

21 MR. BOSNIC: I don't know. This is the first
22 scram I've gone through, so I can't really give you any
23 insight into that. I think there could be a -- We do have
24 some rod position indication problems. Over the last three
25 or four months, we've had a couple ESL entries on certain



1 positions' not working.

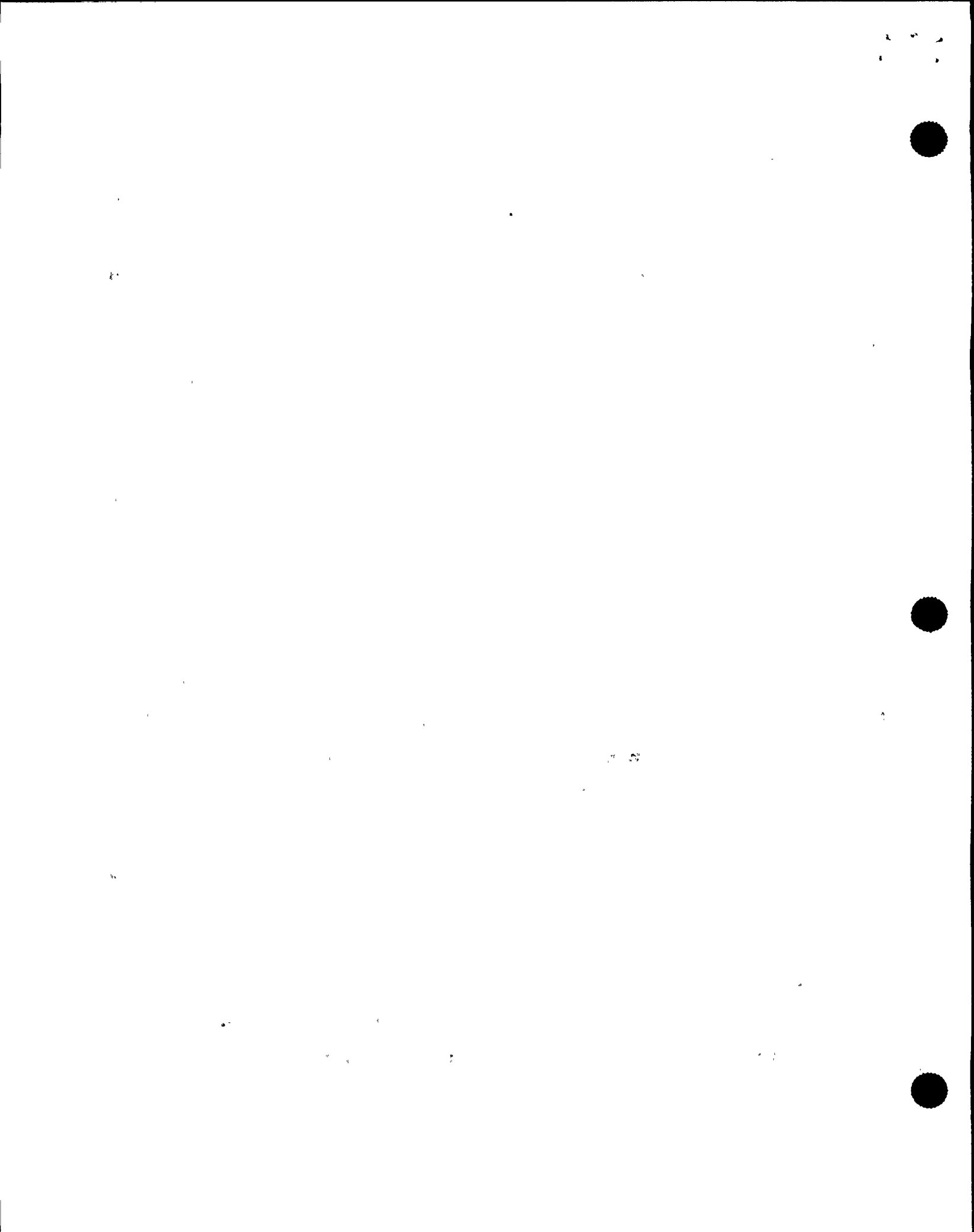
2 MR. VATTER: Do you recall what actions they took
3 to recover the rod position indication?

4 MR. BOSNIC: No, I don't, but, following a certain
5 time frame, I got another report back that all rods
6 indicated full in, and I wrote that down. I know that made
7 it into the log. I know I passed the information on. I was
8 on the phone with NRC at that time, and everybody was
9 concerned with that: where are the rods. That was the
10 0700. It looks like somebody finally said, Hey, we finally
11 have all rods indicating full in. That report actually came
12 in, and there was -- Let's see.

13 At 6:30, we wrote down that all the rods except
14 six, and then there was another time period in there when we
15 had -- I think we went from six to none, because somebody
16 walked a piece of paper and said, These are the six rods not
17 indicating right now, so I saw that there were six.

18 MR. KAUFFMAN: After you got relieved as NS
19 communicator, what were your activities following that
20 point?

21 MR. BOSNIC: At that point -- I guess that was
22 around the 9:00 time frame, 9:30 -- I started going through
23 the panels. I got the log back together, and I started
24 going through my relief process. I took over the shift at
25 about -- I want to say about the 10:30 time frame I



1 relieved.

2 By that time period, we were solidly into the OP-
3 101 shutdown procedure. Essentially, as soon as the
4 annunciators came back on at 6:22, it was a normal scram, so
5 we were taking just normal reactor scram procedure and
6 shutdown procedure.

7 MR. KAUFFMAN: One of the questions I'd like to
8 ask is, I'd like you to think and brainstorm about things
9 that went well. If you could tell me the reason why you
10 thought they went well, whether it was lots of people, good
11 training, luck, the right people happened to be there, or
12 whatever.

13 Similarly, in a minute we're going to turn that
14 question around and ask you if there were any difficulties
15 encountered or things you would like to have had that you
16 didn't, to turn around and give any thoughts or suggestions
17 that could have made the response better or easier.

18 MR. BOSNIC: Good things: The SSS and assistant
19 did a real good job. The control room, throughout the
20 initial part of the event, was real quiet and real
21 deliberate. What they were concerned with, I thought, were
22 the right things: level, pressure, and power. I think the
23 training process is real good, in that they emphasize: when
24 you get into your EOPs or have a problem, those are the
25 parameters that you're most concerned with.



1 I think the SSS and assistant, and maybe the
2 CSO -- I don't know who all was involved in the decision,
3 but somebody, but one of those three people did a real good
4 job troubleshooting or determining what the cause was of our
5 problems, and that was the UPS's. Whoever it was that
6 initially diagnosed that and then sent the operators down to
7 restore that condition, I think that was the turning point.
8 If that had been delayed, it just would have complicated
9 things.

10 MR. KAUFFMAN: Is that covered a lot in training?
11 Did the people know that from the side?

12 MR. BOSNIC: I think there was a past experience,
13 where we lost one of the UPS's and lost annunciators. I
14 think people remember that.

15 MR. KAUFFMAN: What kind of training have you had,
16 training on UPS's and loss of instrumentation?

17 MR. BOSNIC: There are some areas. We do
18 primarily loss of DC buses. Every week, especially lately,
19 there has been more of a push on electrical plant training
20 and electric hazards, so we'll see at least a couple of
21 those every week that we're over in training.

22 MR. KAUFFMAN: Those are typically the loss of one
23 bus, the partial losses -- not a big loss of five buses all
24 at once. Is that fair to say?

25 MR. BOSNIC: No. I wouldn't say that. I would



1 say that some of the scenarios are loss of battery 1A or
2 battery 2, just loss of a single DC bus, loss of a single
3 AC. There are scenarios that are loss of an entire major
4 switch gear, 001, 003. There are simulator scenarios on
5 loss of the offsite lines. There is full loss of offsite
6 power. The scenarios, they range from loss of one bus to
7 loss of all the buses, including diesels and safety buses.

8 MR. KAUFFMAN: Okay.

9 MR. BOSNIC: I think the diagnosis of the UPS
10 really helped out quite a bit. Whoever came up with that
11 minimized the problems we were having.

12 The fact of how the plant's laid out, that the
13 safety-related buses were totally distinct from just
14 balance-of-plant buses, is a good thing. The safety-related
15 systems were all intact throughout the casualty. Diesel
16 generators never had to start. The safety-related systems
17 were up operating, giving us the parameters that we needed.
18 It seemed like the fact that we didn't have our balance-of-
19 plant instrumentation really didn't cause as many problems
20 as I would have thought.

21 MR. KAUFFMAN: The biggest problems seemed to be,
22 where are the rods?

23 MR. BOSNIC: That was the big one, yes.

24 Other than that, we still had level-pressure
25 control, and that's what we were maintaining. We still had

1 2 3
4 5 6



1 power from the back panels. Not having the rod positions,
2 not knowing where they were, was kind of compensated by
3 knowing the other parameters. If you know what power powers
4 into the source range, then you have a pretty good feel that
5 most of the rods, if not all the rods, are in.

6 The time period that it happened, at 6 a.m., when
7 a whole new shift of operators was coming in, was
8 fortunate. That way, we essentially had double the people
9 here very quickly, so that helped out. I think there were
10 more than enough people to handle the casualty and the
11 shutdown. It worked out quite well, I thought.

12 MR. KAUFFMAN: Any things you'd like to see
13 better? I picked up that the ENS phone connection was one.

14 MR. BOSNIC: I'd like to see that change to maybe
15 a fiber optics SPRINT system or something.

16 MR. KAUFFMAN: As an aside, I think they are
17 exploring changing the method they use and fiber optics is
18 something they are looking at.

19 MR. BOSNIC: It doesn't make sense to have a
20 staticky phone line in today's day and age. I mean, I
21 don't know, it seems like we could do better.

22 MR. KAUFFMAN: As an aside we'll do a little bit
23 of self-justification of the NRC here. When that big
24 earthquake hit California a couple of years ago in the Bay
25 Area, the ENS lines stayed up, so it might be old and it



1 might be an antique but --

2 MR. BOSNIC: It works.

3 MR. KAUFFMAN: It came in handy at least once.

4 MR. BOSNIC: Seemed like there were a lot of
5 people on the ENS line, not that it caused a problem. It's
6 just that we ended up repeating a lot of things a lot of
7 times.

8 MR. KAUFFMAN: In drills I've been an ENS
9 communicator on the other end, so I understand.

10 MR. BOSNIC: I don't know if there is any way we
11 can -- I mean I don't think it hurt anything.

12 MR. KAUFFMAN: Okay.

13 MR. BOSNIC: I thought it was pretty good and it
14 kind of worked out nice that I was talking to the NRC
15 because I could -- I had more, I had a lot better input than
16 the regular communications aide would have had and I didn't
17 have to tie up the SSS -- so it freed up, you know, their
18 own party to do that.

19 MR. KAUFFMAN: How did you get your information?
20 From where you were standing could you see the indications
21 or listen or did you get questions and send somebody out to
22 get the answer?

23 MR. BOSNIC: Mostly I would walk up and look
24 myself. I had to ask the SSS a few questions but I probably
25 didn't disturb him more than five or six times during the

11



1 event.

2 There were things like, you know, did we, are the
3 UPS's on maintenance supply? The reports were coming to him
4 and not me.

5 MR. KAUFFMAN: Can you think of any other things
6 that caused problems or could have been better? I know that
7 some other people told us for example on some of the EOP
8 legs they had a little different exit criteria and it would
9 have been nice to have been able to transition from the EOPs
10 at certain times and not worry so much about the cooldown
11 when it was apparent that most of the rods were in and they
12 were pretty sure they were shut down but didn't know for
13 sure.

14 MR. BOSNIC: I have been very pleased with the way
15 the EOPs work from training. I don't know how Mike Conway
16 was, you know, where he was in the legs and any problems he
17 had I don't know but I know overall I liked the EOPs.

18 MR. VATTER: Did you have, from what you were
19 doing did you have the ability to see whether the EOP was
20 going smoothly? Or were they perhaps getting bogged down in
21 trying to figure out what to do at particular places?

22 MR. BOSNIC: It didn't appear that they were.
23 Most of the time when I looked at the SSS he was standing,
24 either talking to somebody or looking at indication. It
25 didn't appear that he was struggling, you know, looking



1 trying to make decisions.

2 MR. VATTER: You know, NDOPs?

3 MR. BOSNIC: His lines looked pretty clear. I
4 wouldn't think there would be any serious EOP problems.

5 MR. VATTER: So the decisions on with regard to
6 the EOP were pretty clear to the guys that were making them?
7 The guidance wasn't hard to figure out -- they got to a step
8 and knew exactly what to do when they were at it?

9 MR. BOSNIC: I think so. You know, Mike Conway
10 would be the one to ask on that one. The phones are right
11 beside the EOP panel. It didn't appear that he was having
12 problems with them.

13 MR. KAUFFMAN: I'd just like to give you an
14 opportunity now if you have anything.

15 We have been asking the questions. If there is
16 anything you want to say here, get on the table or tell us,
17 you have that opportunity.

18 If not, the interview is over.

19 MR. BOSNIC: No, that would be fine.

20 [Whereupon, at 9:33 a.m., the taking of the
21 interview was concluded.]

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11



REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

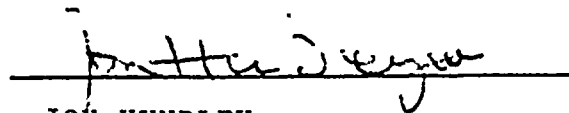
in the matter of:

NAME OF PROCEEDING: Int. of DON BOSNIC

DOCKET NUMBER:

PLACE OF PROCEEDING: Scriba, N.Y.

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.



JON HUNDLEY

Official Reporter
Ann Riley & Associates, Ltd.



ORIGINAL

02 - 85A-91

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
Interview of: DON BOSNIC

Docket No.

LOCATION: Scriba, New York

DATE: Monday, August 19, 1991

PAGES: 1 - 42

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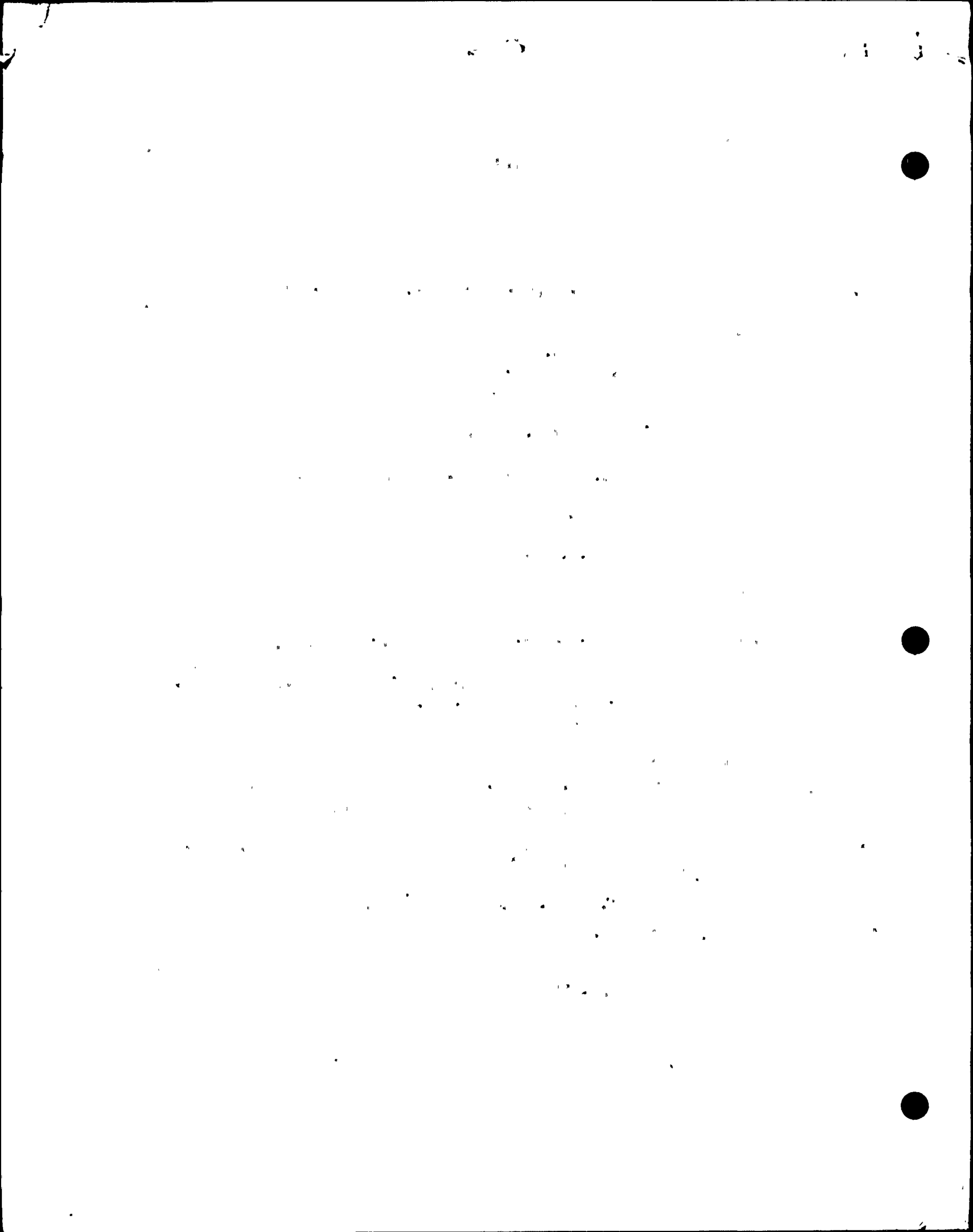
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ADDENDUM TO INTERVIEW OF DON P BOSNIC ASSS
(Name/Position)

<u>Page</u>	<u>Line</u>	<u>Correction and Reason for Correction</u>
9	18	"Light" should be "leg" indicating an EOP "leg"
	20	
	21	
	23	
10	5:6	I looked at the PAM recorders which were indicating our pressure and level. They were trending properly
14	7	"CFP" should be "OSP"
16	1	Both Pressure & level indication is on the PAM recorders
17	14	"about" should be "above"
21	13	"every" should be "about"
21	17	"EOP" should be "EOC"
25	21-25	I was trying to get across that at this point power had been restored and I wasn't sure sure exactly what indicators had been lost during the initial event. I think I initially said that "most" indications then later clarified that only balance of plant indication was lost.
26	18-21	I am talking about the swapping of ICS to condensate booster pump level control when level dropped back < L3 after ICS reached its level 8 setpoint and stop
26	23-25	I never saw the injection valve go shut - ICS may have been place tank to tank and injection stopped well before level 8
27	13	"Swirl" should be "before"
34	9	"actions" should be "notes"

Page 1 of Signature Don P Bosnic Date 8/2/94



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

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Interview of :
DON BOSNIC :
(Closed) :

Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Monday, August 19, 1991

The interview commenced, pursuant to notice,
at 8:28 a.m.

PRESENT FOR THE IIT:
John Kauffman, NRC
William Vatter, INPO
PRESENT WITH MR. BOSNIC:
Jerry Helker, Niagara Mohawk

1.1.1

1 2



P R O C E E D I N G S

[8:28 a.m.]

1
2
3 MR. KAUFFMAN: At this time we're going to start
4 the formal interview. It's August 19, 1991, Nine Mile Point
5 P admin building. Interview of Don Bosnic concerning the
6 August 13 Nine Mile Two event. My name is John Kauffman.
7 I'm with NRC, Office for Analysis and Evaluation of
8 Operational Data.

9 MR. VATTER: My name is Bill Vatter. I work for
10 INPO.

11 MR. HELKER: My name is Jerry Helker, general
12 supervisor of operations at Nine Mile Two, here at Mr.
13 Bosnic's request.

14 MR. BOSNIC: My name is Don Bosnic. I'm an
15 assistant SSS at Nine Mile Two.

16 MR. KAUFFMAN: Don, at this point we'd like you to
17 tell us a little bit about your previous background and
18 experience and your progression to CSO.

19 MR. BOSNIC: I graduated from the Naval Academy in
20 1982, a Navy nuke. I served aboard a submarine in the
21 engineering department for three years following the nuclear
22 pipeline. My last position held was nuclear engineer
23 officer. Part of that time was spent in the shipyard,
24 decommissioning.

25 Following my sea tour, I attended the University



1 of Illinois and obtained my master's degree in nuclear
2 engineering from the University of Illinois. At the same
3 time, I was recruiting officer for that area.

4 Approximately two years ago, I resigned from the
5 Navy and took a position here as a generation engineer at
6 Nine Mile Point, Unit Two, in the operations support
7 department. After about between four and six months, I
8 entered the SRO license training, which was completed
9 approximately eight to nine months ago, where I obtained my
10 SRO license and was promoted to the position of assistant
11 SSS. Since that time period, I've been on shift work in the
12 control room, working primarily with Steve Davis as my SSS.

13 MR. KAUFFMAN: I'd like you to tell us about your
14 involvement in the event on August 13 -- since you got here,
15 when it was in progress, from your time in the gate to
16 pretty much when you were relieved or when you were done
17 with duties for the day.

18 MR. BOSNIC: I'm not sure exactly the time I
19 entered the gate. It was very close to 12 minutes before 6
20 o'clock, because after entering the gate I recalled hearing
21 a loud slamming noise.

22 MR. KAUFFMAN: This was in the yard?

23 MR. BOSNIC: Just as I was walking between the
24 security building and the unit itself.

25 When I heard this slam -- it sounded like a big



1 steel door slamming shut -- the offsite lights, some of
2 them, went out. At that point, I kind of hurried up my
3 pace a little bit, entered one of the control building
4 entrances.

5 MR. VATTER: Excuse me. That noise, do you have
6 any idea where it was coming from? Can you, thinking back
7 on it, associate what that might have been?

8 MR. BOSNIC: No idea. It could have been the
9 circuit breakers. I'm not sure. It just sounded like a big
10 steel door shutting. And it was from the switch yard
11 location; it was from that area -- that direction, I should
12 say.

13 MR. VATTER: Which is out behind you, not that
14 little yard right next to the transformers.

15 MR. BOSNIC: Like the cooling towers, off to the
16 side, here, the twelve buildings here. It was coming from
17 the main switch yard.

18 MR. HELKER: Not the Scriba yard. Is that what
19 you're thinking of?

20 MR. VATTER: I'm just trying to orient the thing
21 in my mind.

22 MR. BOSNIC: Depending on the way it could have
23 echoed, it could have been from anywhere on that side.

24 MR. VATTER: Excuse me.

25 MR. BOSNIC: Okay.



1 MR. VATTER: Go ahead.

2 MR. BOSNIC: I entered the control building
3 entrance, which is essentially the back way up to the
4 control room. It's a little quicker route. As soon as I
5 walked inside, all of the lights were out, and it was dark
6 inside, and so I decided to turn around and go through the
7 normal, aux-service-building entrance.

8 There were lights on there, but not all the lights
9 were energized. I took the stairs up, since it's quicker,
10 went through, and entered the back entrance to the control
11 room.

12 It was real quiet in the control room, so some of
13 my initial apprehension was relieved. Then one of the
14 nuclear operators, Mark Bodoh, went scurrying past me. We
15 kind of went through the door at the same time. I walked
16 through the center alley, by the back panels.

17 MR. VATTER: Excuse me. He went scurrying past
18 you. He was also outside the control room and was coming
19 in?

20 MR. BOSNIC: He was coming in the control room at
21 the same time I entered.

22 I walked up through the back panels, turned the
23 corner. Everything was still very quiet, and it was real
24 calm in the control room. I looked over at the power
25 recorders, and they were all showing 100 percent, so I



1 walked back to talk to the SSS and assistant, and the
2 assistant said, the plant has tripped. He asked me if I
3 would call the communications aide and ensure that our
4 communications aide came to the control room.

5 I called the rad waste operations office and told
6 them to send up the communications aide in a hurry, and he
7 arrived some five to seven minutes later.

8 After I had the communications aide in place, I
9 started walking around the control room, looking at some
10 indications, since my initial idea was the plant was still
11 on 100 percent power and obviously it was not. The concern
12 was with water level and pressure -- those are the two key
13 parameters -- and reactor power. During this time period,
14 someone was monitoring reactor water level; I think it was
15 Mark Bodoh or Dave Hanczyk. They were calling out water
16 level, and it was slowly trending down.

17 MR. KAUFFMAN: About what time are we talking
18 about?

19 MR. BOSNIC: Time frame?

20 MR. KAUFFMAN: We're trying to fix the time pretty
21 closely. Normally we would have good alarm printouts and
22 lots of strip chart recorders.

23 MR. BOSNIC: Right.

24 MR. KAUFFMAN: In our interview, we're trying to
25 fix the time intervals the best we can.



1 MR. BOSNIC: Okay.

2 I walked into the control room at --

3 At 05:51 we walked into the control room.

4 MR. VATTER: Do you know if anybody has checked to
5 make sure that the control room clock and the security clock
6 were in synch?

7 MR. HELKER: Not to my knowledge.

8 MR. BOSNIC: That sounds pretty reasonable since,
9 when I looked at the alarm typer, it had stopped at 05:48.
10 It takes about three minutes to get into the control room
11 from what I heard that initial what I think was the reactor
12 trip.

13 MR. KAUFFMAN: At this point, was the mode switch
14 in shutdown?

15 MR. BOSNIC: I didn't look.

16 MR. KAUFFMAN: I guess you said you went and
17 walked around and looked at the panels. We're real
18 interested in the indications he may have seen.

19 MR. BOSNIC: All the annunciators were black. I
20 remember walking --

21 MR. VATTER: All of them?

22 MR. BOSNIC: I don't remember seeing any
23 annunciators.

24 MR. VATTER: Okay.

25 MR. BOSNIC: I think I walked around the back



1 panels and looked at -- let's see. What did I look at
2 first? I walked to look at water level first.

3 This is all about the 05:55 time frame.

4 I looked at narrow range, and narrow range Alpha
5 was down-scale.

6 MR. VATTER: That's water.

7 MR. BOSNIC: Water level.

8 MR. KAUFFMAN: It's on the 603.

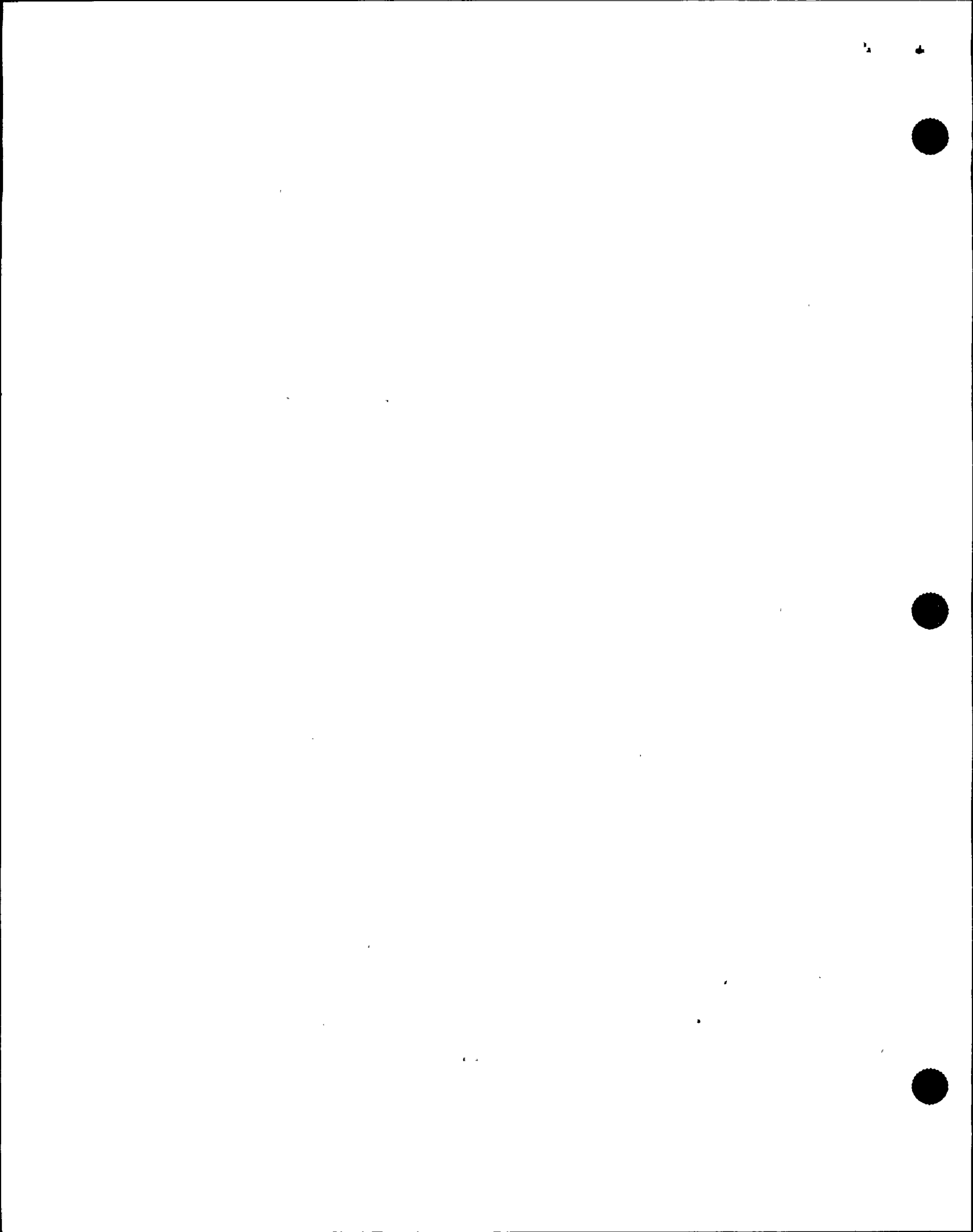
9 MR. BOSNIC: Yes, 603.

10 Bravo and Charlie were still indicating
11 approximately normal level, about 185 inches.

12 Since the narrow range Alpha level indicator was
13 down-scale, just from training exercises, the first thing I
14 thought was either a battery problem for normal station
15 batteries or the UPS's. I think I walked around the back of
16 the panel on 852 and looked at battery voltage for safety-
17 related and non-safety-related batteries. I didn't see any
18 discrepancies there.

19 As I was walking back, the valve position
20 indication and pump indication lights seemed to be operating
21 normally. I didn't see any problems there. I didn't really
22 look at too many indicators 851, 852, which are our normal
23 steam-plant type of indicators.

24 I came back around, and the operator was giving a
25 lowering trend in water level. I know I wrote that at 05:56



1 we reached 159 inches, which is our level three, and that's
2 when the SSS entered EOPs.

3 When he did that, the concern was with level,
4 power and pressure. Somebody had gone into the back panels
5 to look at the APRMs, to get an actual indication. I heard
6 somebody say that the down-scale lights were on, indicating
7 that power was less than 4 percent.

8 MR. KAUFFMAN: On the APRMs and LPRMs.

9 MR. BOSNIC: On the APRMs, yes.

10 MR. KAUFFMAN: Okay.

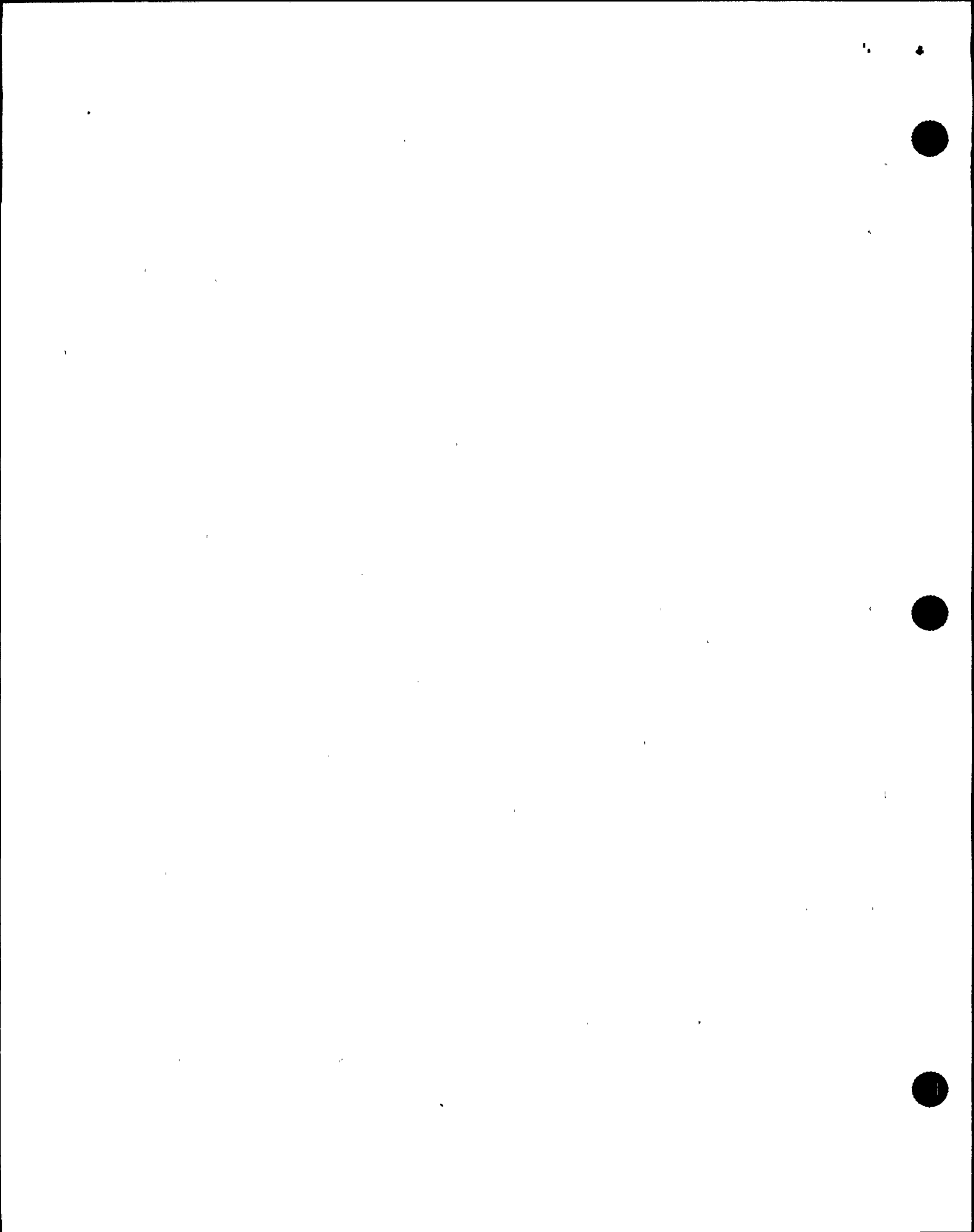
11 MR. BOSNIC: The full core display was out, so
12 there wasn't any indication of rod position. I didn't
13 specifically look at the minimizer, the rod worth minimizer,
14 so I don't know what the status of that was. I didn't see
15 any red lights on the rod sequence control system,
16 indicating that rods were in.

17 Since the SSS didn't have rod position, he was
18 forced by the EOPs, the reactor power light, to go to C-5
19 for power level control, and he did that.

20 MR. HELKER: You mean the water level light. You
21 said the power light.

22 MR. BOSNIC: Correct. I'm sorry. He was still in
23 the power light, but you're right; the water level -- the
24 one that overrides into C-5.

25 He also directed somebody to verify the level 3



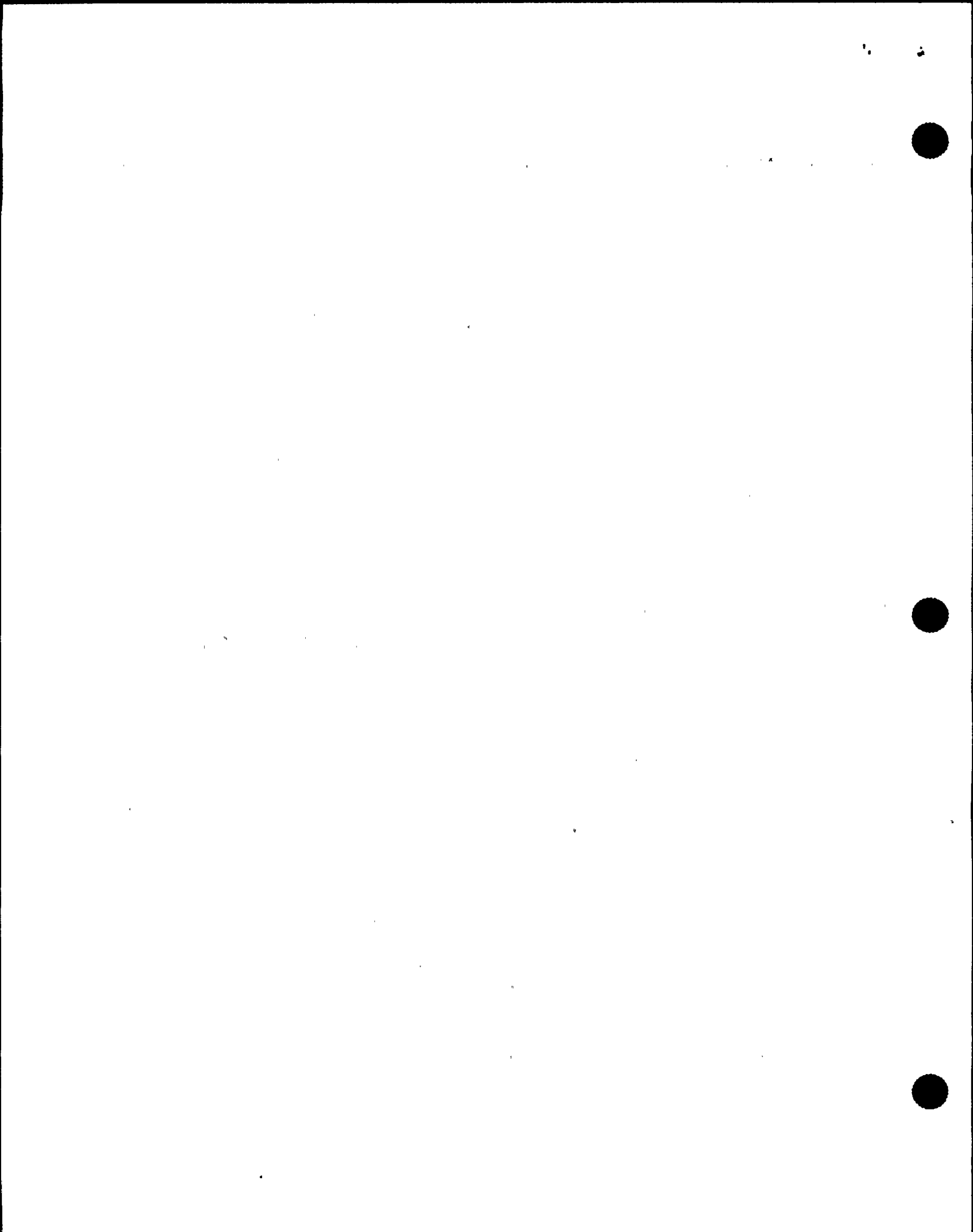
1 isolations, if I remember correctly, which shouldn't have
2 been a problem, since -- rad waste discharge shouldn't have
3 been in operation.

4 At that point I continued. I think I walked to
5 601 first. I looked at the PAM recorders, trending power,
6 and our level and pressure. It appeared that the indication
7 -- I looked quickly at the containment parameter
8 indicators, and they all looked normal, too. I couldn't see
9 any discrepancies or indications of problems with the
10 containment.

11 It appeared that all the 601 indicators were
12 operating correctly, as far as I could tell from a quick
13 scan. I walked into the back panels, looked to see if the
14 reactor building had isolated, and it had not. Normal
15 ventilation to the reactor building was still going. I
16 checked the standby gas trains, and they were still on
17 standby. Actually, one of them was administratively inop at
18 the time, but they were both still on standby.

19 I think I looked at drywell cooling at that point.
20 I don't remember -- I didn't really take note of what it
21 was, if it was still going on or not. Later on, I did hear
22 somebody say that drywell cooling had been lost, which is a
23 concern for drywell pressure, the fans.

24 That quick walk-down was all around 6 o'clock. At
25 6:02 I noted -- during that time period, too -- that the SSS



1 ordered RCIC initiated sometime around when level 3 came in,
2 so it was sometime around 05:55 and 05:56. He initiated
3 that for water level control. There was some initial
4 concern over how RCIC concern was operating. I didn't pick
5 up the specifics of it, but there were some initial problems
6 with running in automatic.

7 MR. KAUFFMAN: Based on your time on shift and
8 other things, have there been problems with RCIC in previous
9 surveillances or in previous plant trips? Do you recall?

10 MR. BOSNIC: I've only been on shift for about
11 nine months, and I don't remember any problems with RCIC
12 running on automatic --

13 MR. KAUFFMAN: Okay.

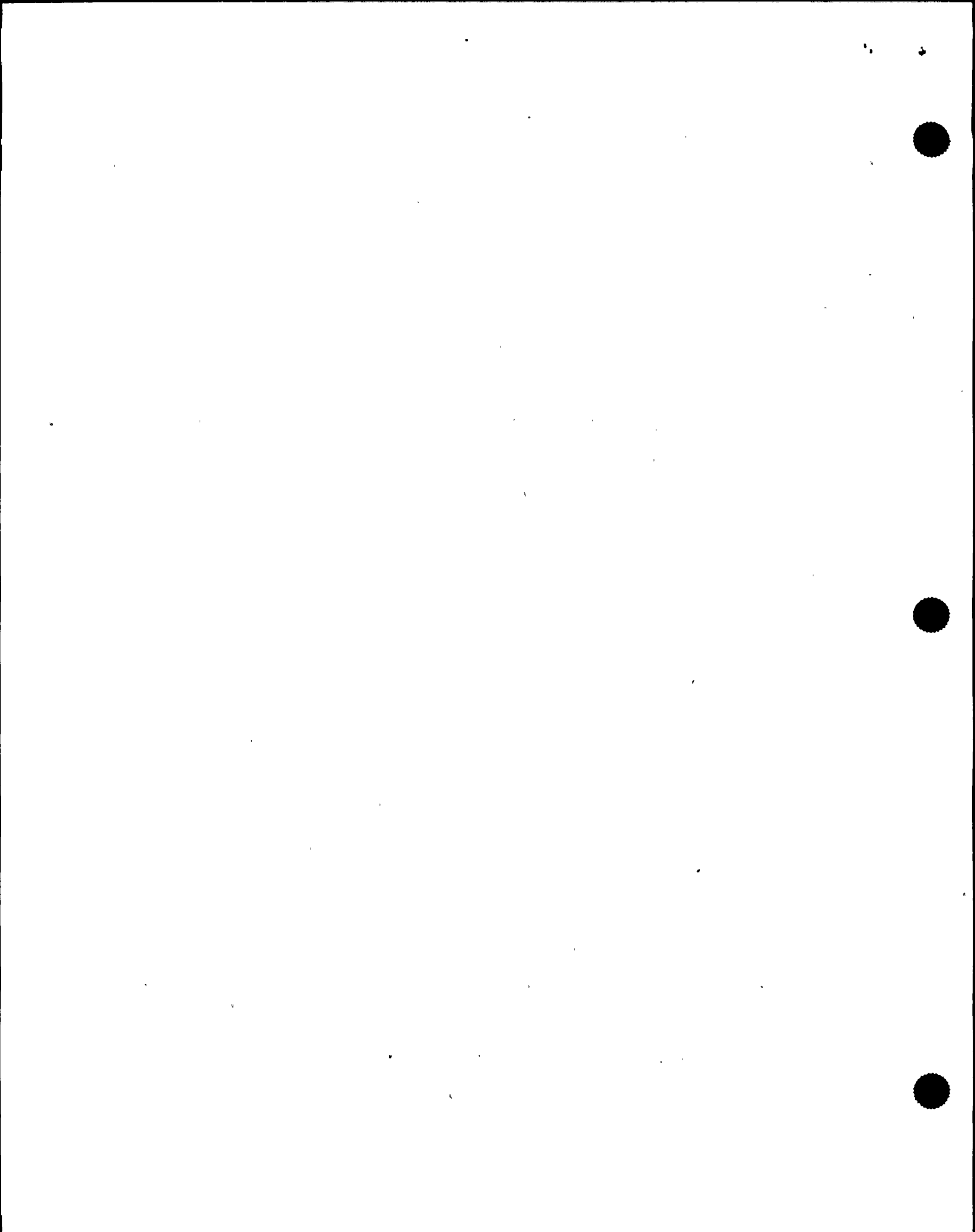
14 MR. BOSNIC: -- that occurred while I was on.

15 MR. VATTER: Do you know if RCIC can normally be
16 expected to keep you away from level 3 if you have a scram
17 and loose feed pumps?

18 MR. BOSNIC: Yes. At this point in the event,
19 RCIC should have been able to maintain water level, and
20 actually did.

21 MR. VATTER: Do you know -- I guess we have the
22 strip charts -- how far the water level got down?

23 MR. BOSNIC: Initially? What I saw was two level
24 excursions, or drops. On the first one, water level didn't
25 drop much below level 3, from what I saw. RCIC was



1 operating very quickly, right on the time frame of when we
2 hit level 3. We do a lot of training on, if RCIC is not
3 working in automatic, how to take manual control of it. I'm
4 sure all the operators are pretty practiced at that, from
5 the simulator training.

6 MR. VATTER: RCIC puts out enough water that, if
7 you turn it on, you won't have water level still going down
8 to where you get level 3 even when you have RCIC, right?

9 MR. BOSNIC: I guess it would all depend on how
10 much steam is being pulled off the reactor through the
11 drains. RCIC is putting out 600 gallons a minute, and I
12 know at 6:02, which is within six minutes after they
13 initiated it, level was back above 159. It restored water
14 level very quickly, so, from the event, RCIC was able to
15 restore water level.

16 MR. KAUFFMAN: The sources of water injection at
17 that time were RCIC and CRD; is that correct?

18 MR. BOSNIC: At that point, the feed pumps had
19 been lost and pressure was still high, so CRD was still
20 running; RCIC was running; all the ECCS -- none of the
21 ECCS's was initiated, so yes.

22 MR. KAUFFMAN: What kind of flow do you normally
23 give after a scram at Nine Mile?

24 MR. BOSNIC: After the scram, it's going to be
25 primarily recharging the accumulators, so I would say very



1 little flow was going to the reactor at that point from CRD.

2 MR. HELKER: We recharge the accumulators after
3 the scram is reset, so flow is going to be higher than
4 normal. I don't know a number right off the top of my head.
5 Typically, cooling water flow is 63 gallons a minute. One
6 of the GEKs has a process diagram and a chart for different
7 system configurations, which shows you all the different
8 parameters.

9 MR. KAUFFMAN: We were just trying to get a ball
10 park.

11 MR. HELKER: You could get a rough idea from that
12 chart what it would be.

13 MR. KAUFFMAN: We have a thermohydraulics guy, and
14 he is going to know if what goes in goes out and do some
15 balances.

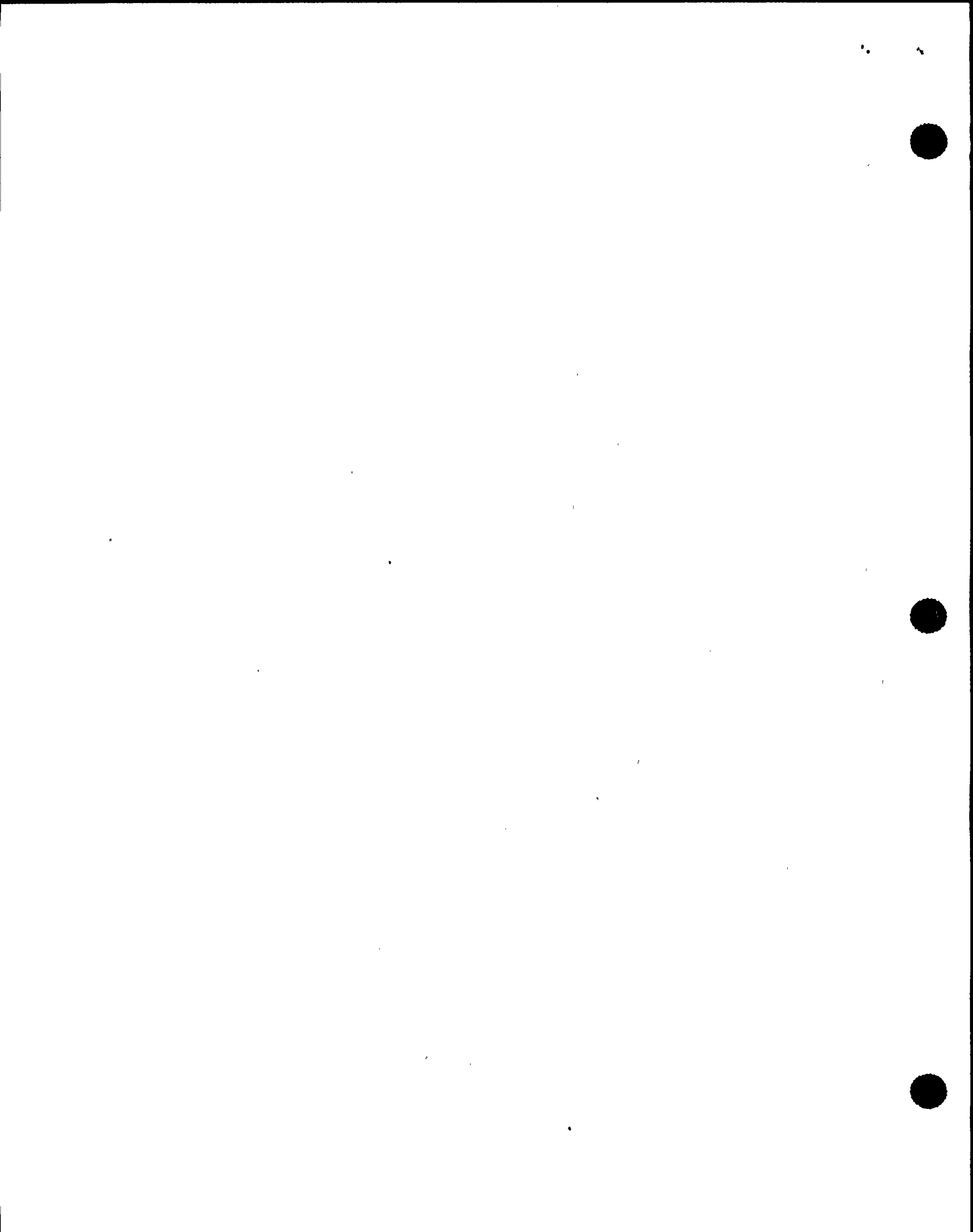
16 MR. HELKER: The bottom line is that it was enough
17 going in to match what was going out.

18 MR. BOSNIC: Yes.

19 MR. KAUFFMAN: For an operator, that's good. For
20 a thermohydraulics guy, he likes exact things. He is
21 probably going to back-calculate decay heat and develop a
22 decay heat rate curve and that sort of thing.

23 Sorry to interrupt.

24 MR. BOSNIC: I'm not sure if RCIC was inputting at
25 his maximum rate at that point or not, but level was rising



1 steadily, and pressure was dropping steadily. I was
2 concerned at that point that the cool-down rate was going to
3 be exceeded, or that the pressure was going down quicker
4 than I was comfortable with. The SSS, Mike Conway, has a
5 lot more experience up in the control room, though, so he
6 probably had a better feel for it than I did.

7 What I did was, I went and made a copy of the OFP,
8 or surveillance procedure, for cool-down rate, so that we
9 could plot that and trend that. I made that copy, gave that
10 to the CSO so he could start working on that, and he
11 assigned that job to one of the C operators. I think we
12 started getting cool-down rate data about 10 after, in that
13 time frame.

14 I also made a copy of our normal shutdown
15 procedures, so that we could start working through that in
16 conjunction.

17 MR. VATTER: Was there a guy plotting the cool-
18 down, putting points on a graph or something like that?

19 MR. BOSNIC: We log it. We log steam pressure.
20 In this event, initially we were using the steam pressure
21 from the PAM recorders to plot cool-down rate for the first
22 at least 20 minutes of the event, 30 minutes.

23 MR. VATTER: So you log times and pressures.

24 MR. BOSNIC: Times and pressures, yes. In the
25 back of the surveillance procedure, there are essentially



1 steam table numbers, giving you saturation temperature for
2 pressures.

3 MR. VATTER: Did we get a copy of that?

4 MR. KAUFFMAN: I haven't requested it yet. We can
5 request it.

6 MR. HELKER: Would you like to request it?

7 MR. VATTER: As long as we haven't got it, yes.

8 MR. HELKER: I will provide the copy of that --
9 the one that they used, correct?

10 MR. VATTER: That's right. The data that they
11 recorded.

12 MR. KAUFFMAN: I'd like to backtrack just for a
13 second. When you were doing your tour of the control room,
14 did you notice where people were stationed around the
15 panels? You mentioned, for example, that there was
16 somewhere stationed to monitor the panel indicators for
17 level and pressure. Were there other people stationed,
18 continually monitoring any certain parameters that you
19 noticed?

20 MR. BOSNIC: Well --

21 MR. KAUFFMAN: I guess specifically what I'm
22 interested in is, was there someone --

23 MR. BOSNIC: There was somebody monitoring
24 pressure and level.

25 MR. KAUFFMAN: Okay.



1 MR. BOSNIC: That's both round PAM recorders. I
2 don't know if that was the same person who was running RCIC;
3 it's likely that it was, since they had water level control.

4 MR. KAUFFMAN: Sure.

5 MR. BOSNIC: The CSO was just giving general
6 direction from the center.

7 MR. KAUFFMAN: Did you go back to the back-panel
8 APRM indications. If so, was there somebody there?

9 MR. BOSNIC: I didn't walk back to the APRMs.

10 MR. KAUFFMAN: Okay.

11 So you made the copy of the normal, of the
12 shutdown procedure. People were plotting cooldown rate.

13 MR. BOSNIC: Right. So we had cooldown rate being
14 plotted. The shutdown procedure I gave to the CSO. I knew
15 he wouldn't initially use it but as soon as more operators
16 showed up they started doing the normal shutdown things.

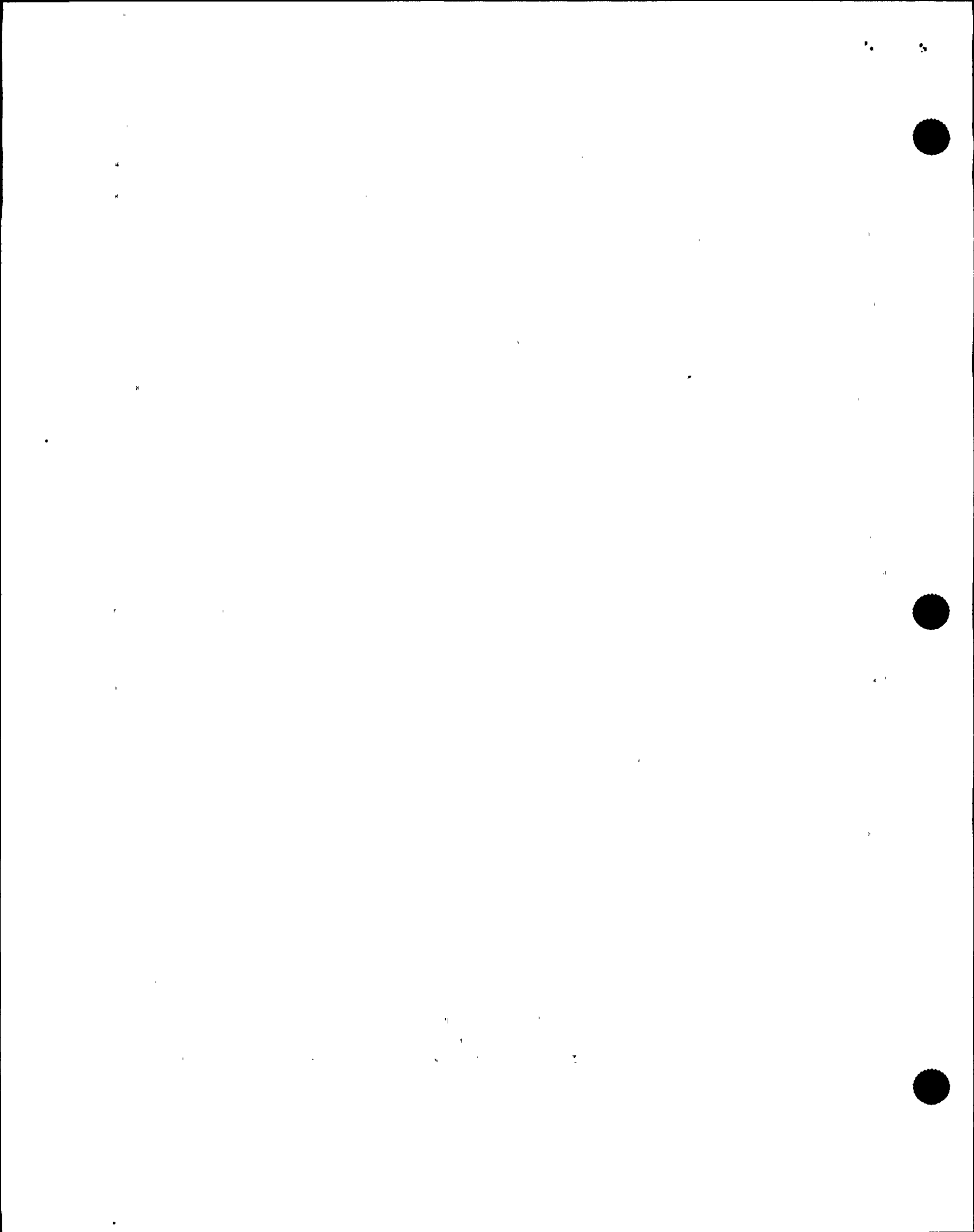
17 MR. KAUFFMAN: About how many people were in the
18 control room at this point in time? If you can't give me a
19 number, maybe you can say "a lot" or "not many more than
20 normal."

21 I am just trying to get a feel for how many.

22 MR. BOSNIC: Half a dozen to ten.

23 MR. KAUFFMAN: Had people been dispatched into
24 the plant at this time to do local actions?

25 MR. BOSNIC: The CSO and the SSS were directing



1 that and so I didn't hear that.

2 MR. KAUFFMAN: Okay, but there probably were extra
3 people out there then?

4 MR. BOSNIC: There are, yes. There are five other
5 auxiliary operators doing something at this time.

6 The reactor operators were all in the control room
7 if I remember correctly. My shift was just coming in so we
8 were picking up another three reactor operators and another
9 five auxiliary operators.

10 MR. KAUFFMAN: Okay.

11 MR. BOSNIC: Let's see -- reactor pressure, time
12 frame of ten after 6:00 was around 700 pounds so that was
13 within 20 minutes of the scram. I know we normally look at
14 maintaining about 450 pounds to not exceed our 100 degrees
15 an hour cooldown rate.

16 Didn't occur to me immediately that RCIC was
17 suppressing the reactor pressure due to the fact that it
18 spraying in the steam dome region.

19 That could have been the reason pressure dropped
20 as quickly as it was.

21 Also we started the MSIVs were open and so we're
22 losing 1 to 2 percent steam flow down the steam drains.

23 I didn't look at the bypass valve position --

24 MR. VATTER: Excuse me. You said that RCIC was
25 spraying in the steam dome region?



1 MR. BOSNIC: Yes.

2 MR. VATTER: Is that the normal place that RCIC
3 comes in here?

4 MR. BOSNIC: Yes. RCIC sprays right into above
5 the dryers.

6 MR. VATTER: It varies upon performing -- go
7 ahead, excuse me.

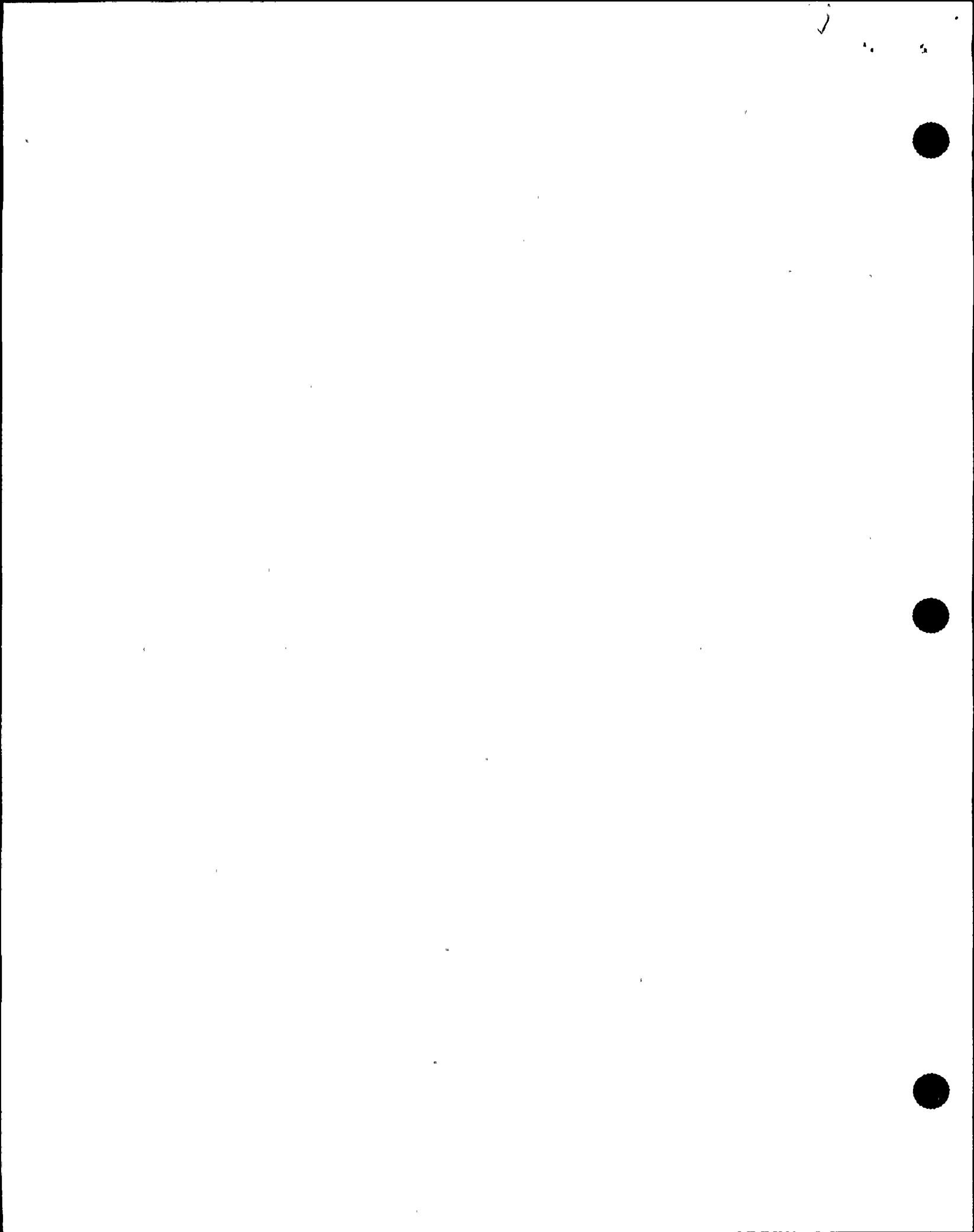
8 MR. BOSNIC: It's that type of thing that will
9 collapse in the steam up there and cause pressure to drop a
10 little faster than a normal scram.

11 Let's see. I took a look around. At this point I
12 figured I'd try to do a little diagnosis and see if I could
13 figure out what we'd lost, so I pulled out the OP for DC
14 distribution and was trying to figure out the power supply
15 to the alpha level, narrow range level record or level
16 instrument.

17 Mike Conway and Mike Eron had remembered somewhere
18 along the way that when we lost the UPS we'd lose some of
19 the annunciators at that point and so they -- Mike Conway
20 and Eron, they keyed in on it quicker than I did that there
21 may be a UPS problem. So they ordered somebody, I think it
22 was Dave Hanczyk, to go down and check the UPS's.

23 That was pretty early on. That was about that
24 6:05 - 6:10 time frame.

25 At 6:22 the annunciators came back on and there



1 was a lot of -- I mean a lot of annunciators came in due to
2 the scram, the full core display came back on. The rod
3 sequence control system was back on and I walked over and
4 took a quick scan to see what the rod positions were. I
5 didn't count them but I noticed there were gaps in the red
6 lights indicating that some of the rods weren't in, by
7 indication.

8 MR. VATTER: Rod sequence control, display of
9 bottom lights that you are referring to?

10 MR. BOSNIC: Bottom lights?

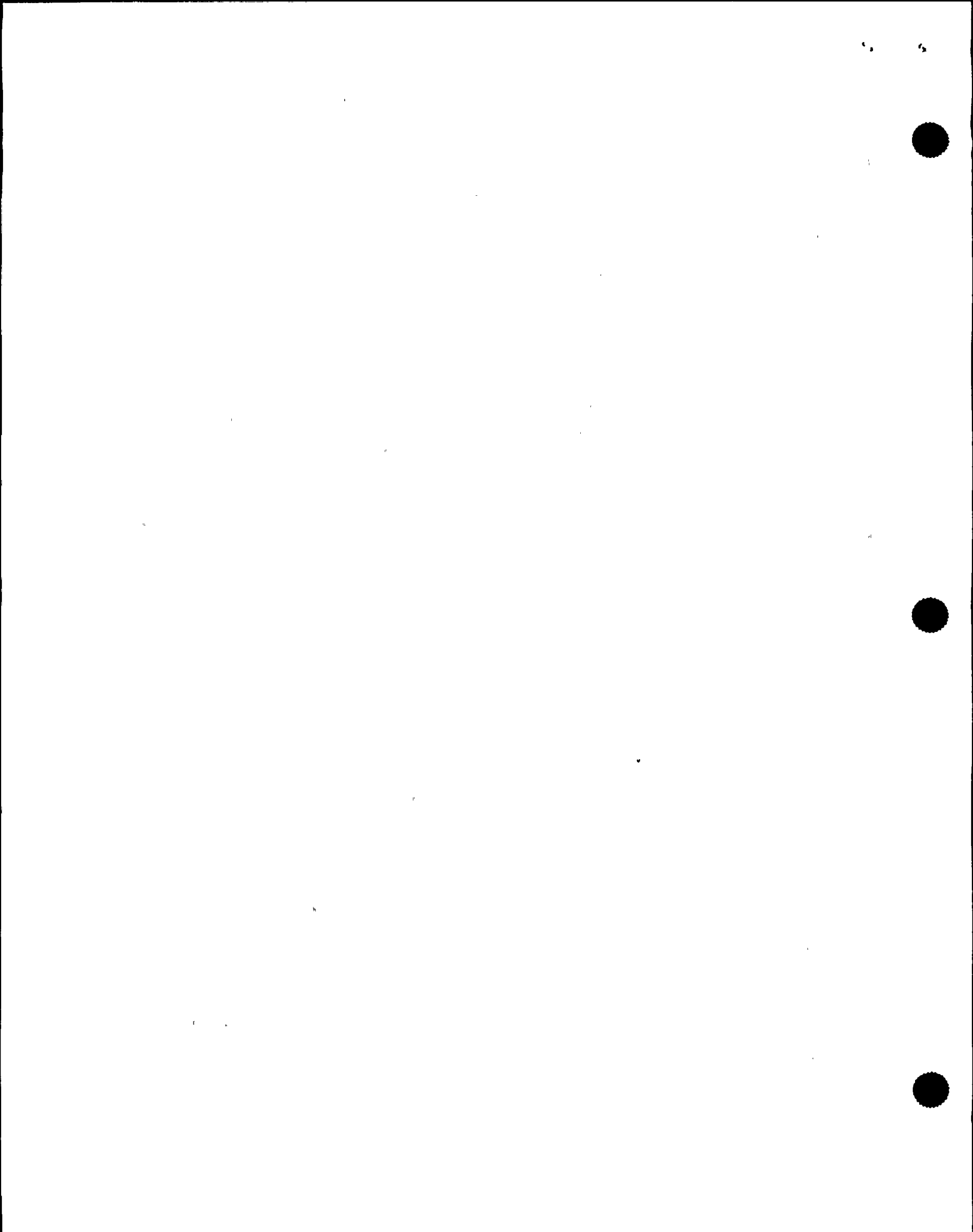
11 MR. KAUFFMAN: Smaller --

12 MR. BOSNIC: Smaller, that's correct, with the red
13 lights.

14 MR. VATTER: Could I ask you to back up for just a
15 second?

16 When you said you thought it was Dave Hanczyk that
17 was sent to take care of the UPS's, do you recall exactly
18 what was said to him or can you give me the -- could you say
19 again what it was that you heard transpire over the UPS's?

20 MR. BOSNIC: I don't remember the exact words but
21 I remember Mike telling one of the RO's, I think it was
22 Dave, to look and check out the UPS's. I don't know if he
23 said verify they're operating or to restore power if they
24 weren't or what. I'm not sure what exactly he said but I
25 know he sent somebody down to the UPS's.



1 MR. VATTER: Okay, but you don't know whether he
2 was given instructions to inspect and report --

3 MR. BOSNIC: No.

4 MR. VATTER: -- or turn them on if they're off
5 or --

6 MR. BOSNIC: I don't know the direct order he
7 gave, no.

8 MR. VATTER: Okay, thank you. Excuse me.

9 MR. BOSNIC: But they did -- at 6:22 and then they
10 came back and reported to Mike that they had put the UPS's
11 on their maintenance supply. I didn't know that at this
12 time though.

13 I found this out a little bit later.

14 So all the rods weren't indicating "in." There
15 were two or three RO's up at 603 trying to determine rod
16 position by various means -- full core display, by the 4
17 core selector and the report that I heard was that six rods
18 weren't, you know, at the end of that the six rods still
19 weren't indicating full in.

20 MR. VATTER: Was there another place that they
21 might have been recording other than on those displays, like
22 for example rod worth minimizer could look at them.

23 MR. BOSNIC: They could look at the minimizer or at
24 least the minimizer will give you how many rods aren't in.
25 It will give you a number. It will say the rod's not in, 1,



1 2, 10, whatever.

2 MR. VATTER: Of those six rods, could any of them
3 be seen on some other indications, or were there six rods
4 that had --

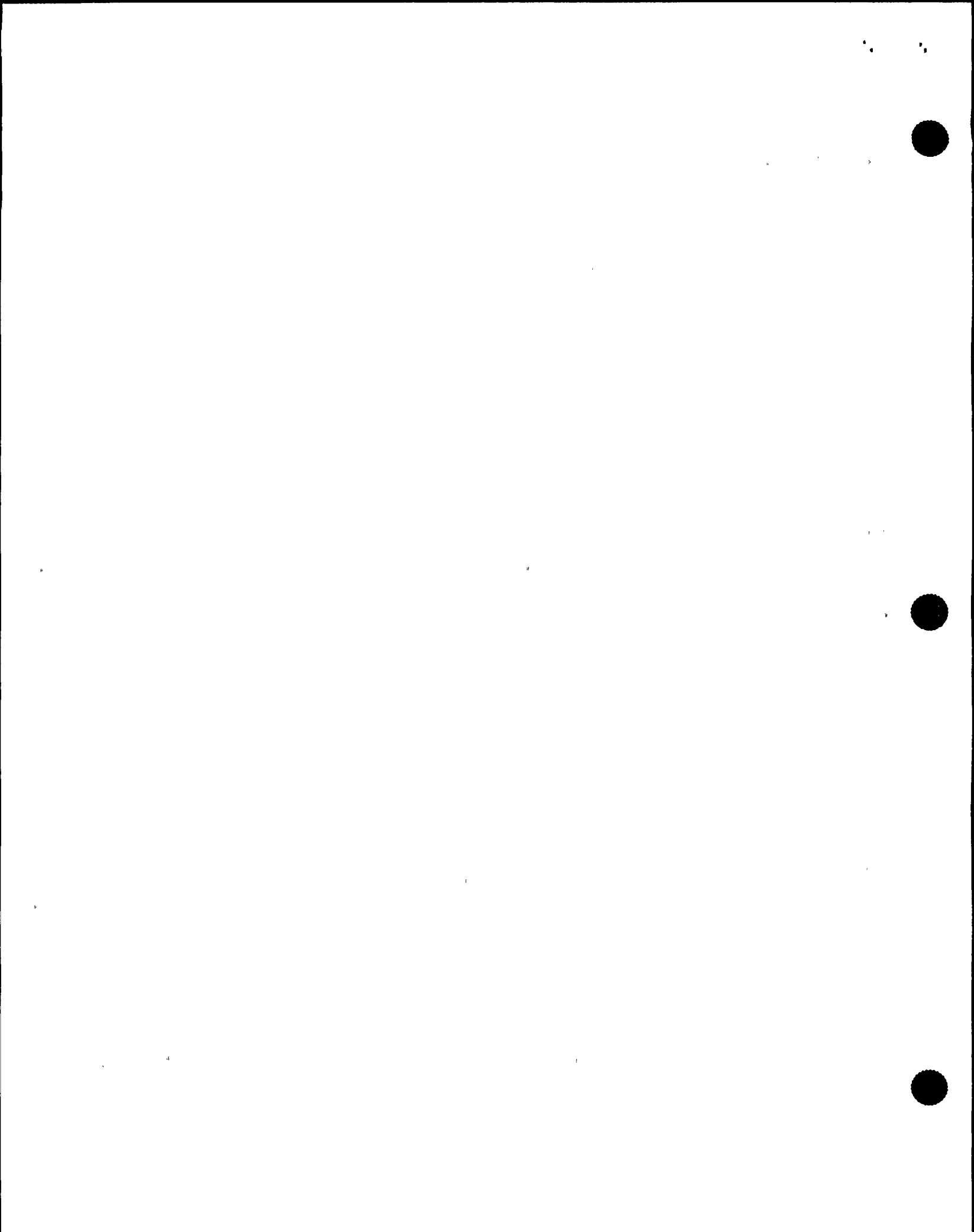
5 MR. BOSNIC: My impression was they checked all
6 the possible indicators. They checked the process computer.
7 They had checked displays and they still couldn't find
8 position indication for six rods.

9 MR. VATTER: The six rods had no indication on any
10 available instrument?

11 MR. BOSNIC: That's right. That was my
12 impression. That was after they did, you know, some
13 research for every five minutes or whatever to actually look
14 for indications, to try to find it.

15 Let's see, also I missed something. Back --
16 initially when I was walking the panels down one thing I did
17 notice is on 602 that the recirc pumps, the 3 and 4 EOP, end
18 of cycle recirc pump trip breakers were tripped. I looked
19 up at pump speed and pump speed indicated downscale on both
20 pumps but the 1 and 2 breakers were closed in, indicating
21 that the slow speed pump breakers were actually shut so the
22 pumps were probably at slow speed and it was an indication
23 problem.

24 MR. VATTER: The pump speed indication that you
25 were referring to typically goes downscale when you have a



1 shift like that?

2 MR. BOSNIC: No, it should have been indicating.

3 MR. VATTER: Okay, so that was probably a failed
4 indication?

5 MR. BOSNIC: Yes. That is what I perceived it as
6 because I did have the 1 and 2 breakers closed in.

7 MR. VATTER: I am a little confused as to the time
8 now.

9 MR. BOSNIC: This was about in the 6:00 time
10 frame, when I was walking the panels looking at narrow range
11 level and 603, early on.

12 MR. VATTER: Before they got these UPS's on the
13 maintenance supply?

14 MR. BOSNIC: Correct.

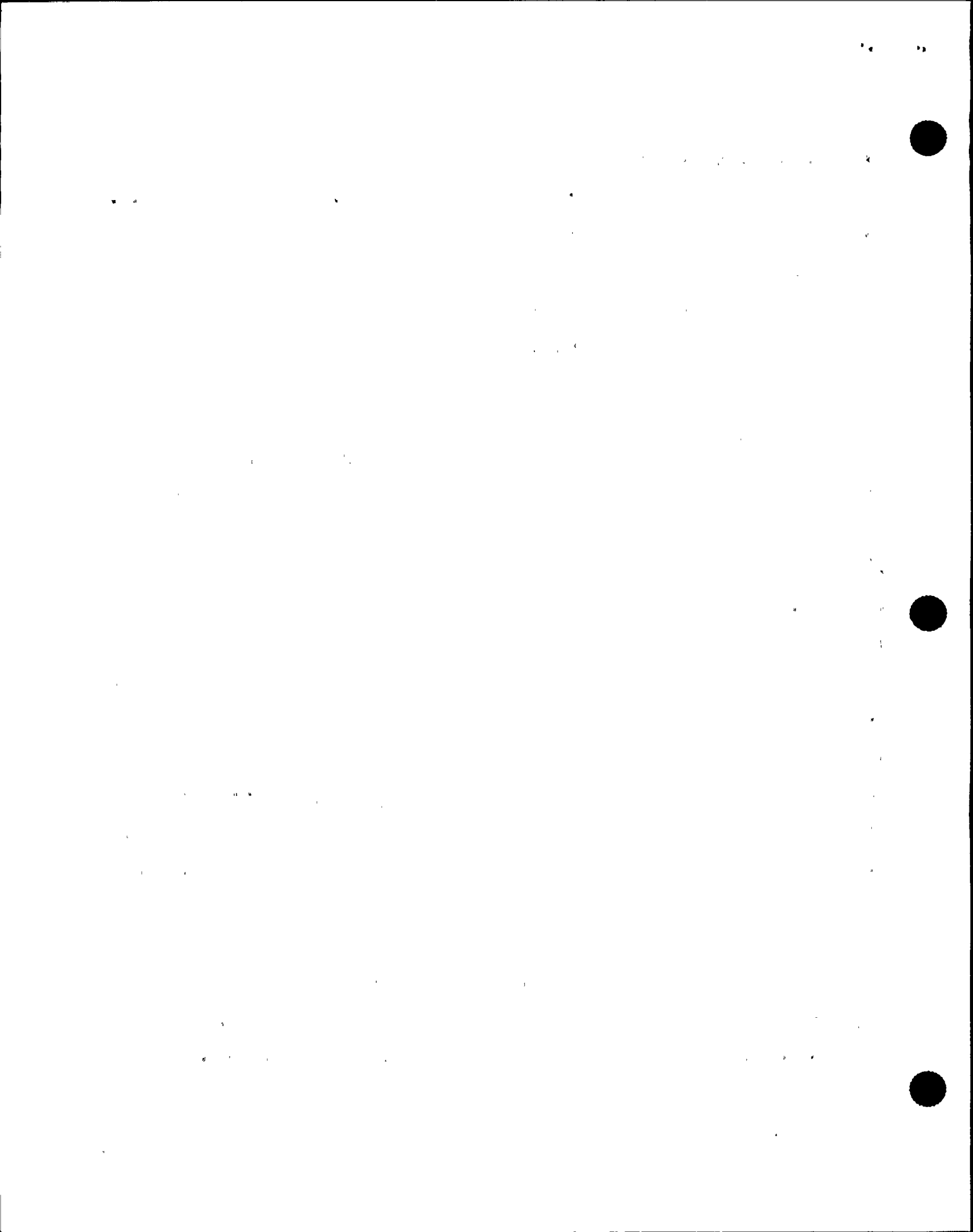
15 Also back then I had noticed that the Group 9 had
16 an isolation signal was on 602 at the same time,
17 background.

18 MR. VATTER: What's on the Group isolation?

19 MR. BOSNIC: Sorry, we have indication lights for
20 the isolations for Group 8 and 9 on 602 and that light was
21 on indicating Group 9 is isolation.

22 MR. VATTER: What things go on --

23 MR. BOSNIC: That's the containment purge. It was
24 already shut at the time period. From the notes that I
25 jotted, I am not sure if that was before the annunciators



1 came back on or after.

2 At this point I guess it was around between 0630
3 and 0645 time frame I guess somebody asked me if I would
4 talk with the NRC on the hot line, since they wanted to talk
5 to somebody with a little more experience than the
6 communications aide had. So I picked up the NRC phone and
7 started answering questions for the NRC.

8 Let's see --

9 MR. KAUFFMAN: About how long did those
10 discussions take?

11 MR. BOSNIC: With the NRC? I was on the phone for
12 about two hours so I missed a lot of the fine points going
13 around the control room and I was just more or less
14 answering questions at that point.

15 MR. VATTER: What time did you start getting on
16 the phone with them?

17 MR. BOSNIC: It was around, I'd say around 6:45
18 time frame.

19 I remember that the NRC phone was real staticky.
20 It was real hard to hear as usual. I was talking -- there
21 were quite a few different individuals on the phone. I had
22 the control center, the OPS officer, the Region I
23 administrator was on. There was quite a few individuals
24 asking a lot of questions. Their concern primarily appeared
25 to be the stability of the plant, the level pressure which I



1 think I gave them a indication that the plant was in a
2 relatively stable condition. We still had a good indication
3 of pressure and level. We'd established by then that the
4 cool down rate had been stopped and controlled. Level was
5 in good status. ECCS systems were still on standby. We
6 still had all our vital power.

7 Initially they were asking which indication we had
8 lost and I didn't know. All I could tell them was it
9 appears that our vital instrumentation is still operating.

10 They were asking questions like why we initially
11 classified the site area emergency and it's just due to the
12 EOP or the EAP attachment two, and that was classified -- I
13 guess I can go back to that.

14 The classification was made at 6:00.

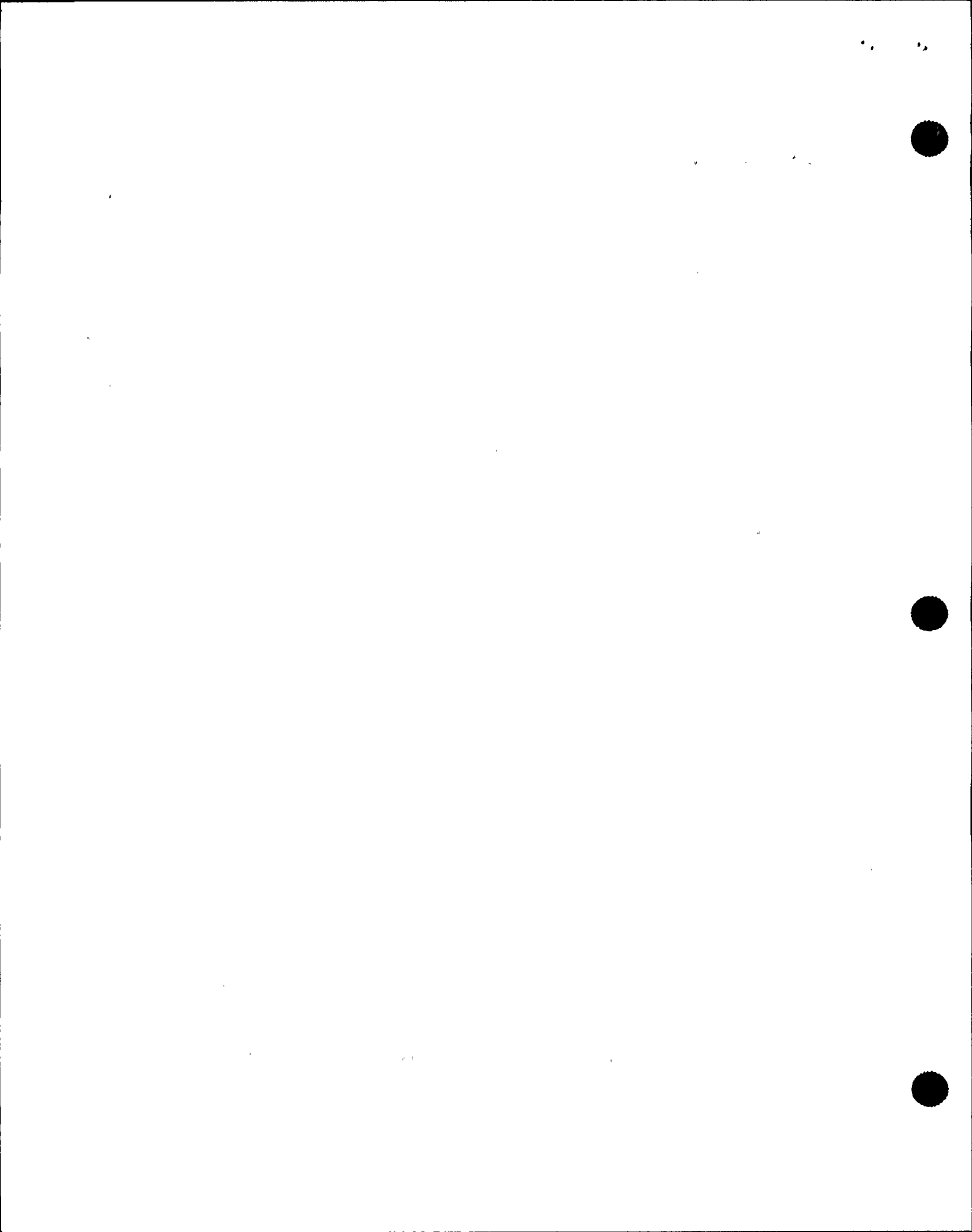
15 MR. HELKER: All of your ENS phone calls are
16 taped, right, so you can go back and look at those?

17 MR. KAUFFMAN: Yes. We may have some followup
18 about the ENS, not the specifics but one of the things the
19 IIT looks at is --

20 MR. VATTER: The AIT or the IIT?

21 MR. KAUFFMAN: IIT -- is the impact the NRC had on
22 this and we're going to ask for your thoughts about what
23 impact, if any, that being on the phone had on the response
24 to the incident.

25 In other words, if we are asking stupid questions



1 and bothering you and distracting your resources, we want to
2 know that. If it was no problem, we want to know that too.

3 MR. BOSNIC: Okay. I think it wasn't, it didn't
4 impact at all due to the fact that I was an extra SRO who
5 had come in to relieve.

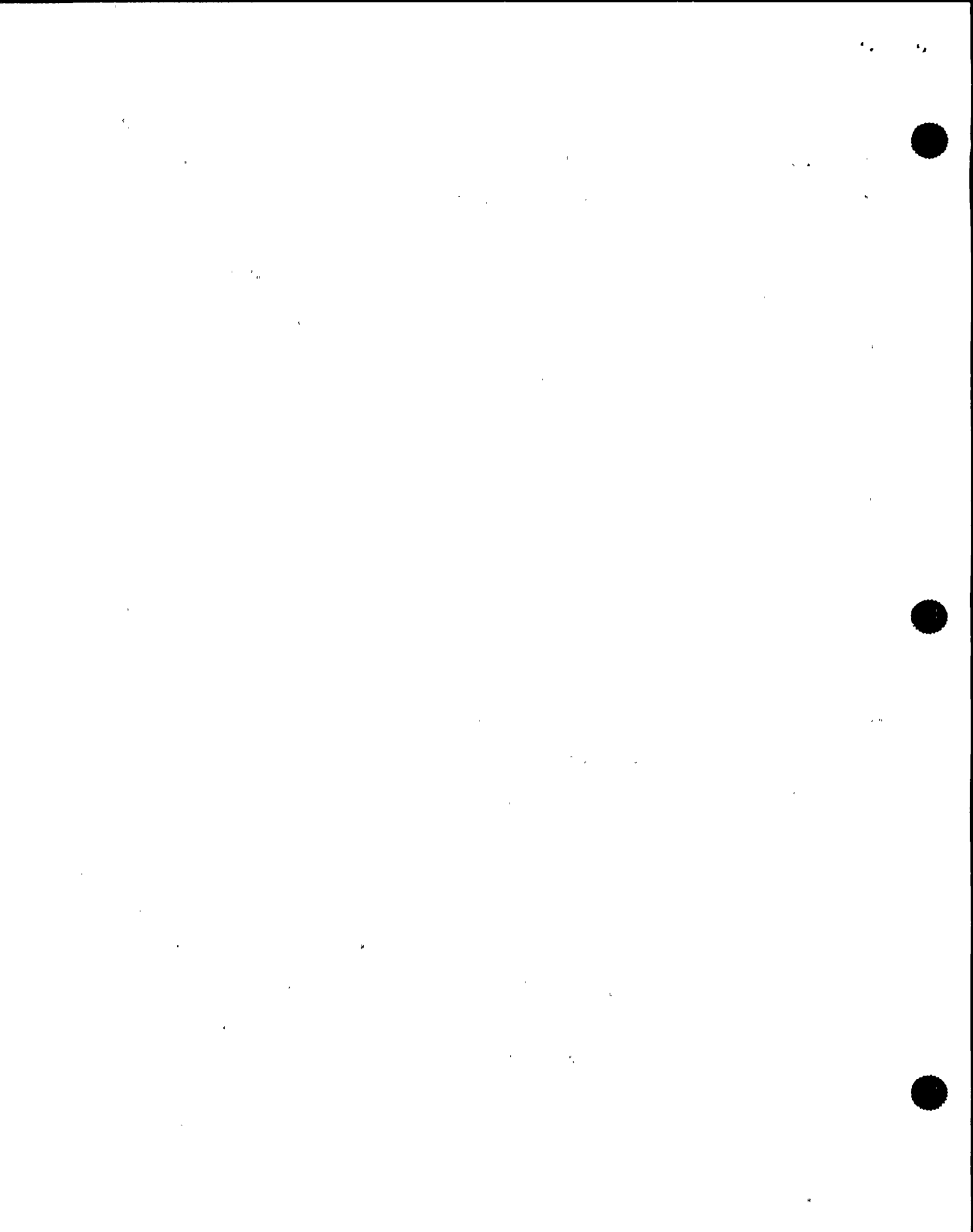
6 By that time Jerry Helker was in the control room.
7 I think Al deGracia and Davy Wilson.

8 Some other SROs or previous SROs had walked in the
9 control room so there was quite a bit of manpower to be
10 utilized so it didn't hurt the situation at all that I was
11 on the phone.

12 MR. KAUFFMAN: Were any questions asked that
13 perhaps got asked to the TSC/OSC that you are aware of and
14 maybe they went and chased getting answers to those
15 questions rather than maybe doing what they thought they
16 needed to be doing? You don't know?

17 MR. BOSNIC: You know, I don't know anything that
18 was happening in the TSC/OSC. Primarily for the -- until
19 about 8:00 I would say I was the only one giving NRC
20 information.

21 Still, you know, at this point we're still not
22 sure, you know, what had been lost until there was -- I'm
23 sure there are going to be some questions on, you know, the
24 data. It kept changing, somebody asking, well, now what did
25 you lose? My initial impression was that we had lost the



1 majority of our indication and a little bit later I said no,
2 we had only lost the balance of plant indication from the
3 UPS's.

4 Then when we found, well, and also as soon as we
5 had found the transformer problem they were curious to hear
6 that, that being maybe the initiating event was the
7 transformer. That's why that information was passed along
8 to them very quickly.

9 Going back to about 6:00 time frame the
10 classification, I know that was classified by the SEPC using
11 the guidelines and the emergency site -- the SSS became the
12 site emergency director and he classified it and the CSO
13 called over to Unit 1 to make the alarm and announcements
14 since there appeared to be a problem with our Gaitronics due
15 to the UPS loss.

16 The only other key think I think is important is
17 the second level drop. There may be questions concerning it.
18 While we were swapping over from it, as we were inputting
19 RCIC, RCIC raised the water level up to Level 8 at some
20 point. You know, I'm not sure of the time. It may have
21 been logged.

22 MR. VATTER: How did they know it was at Level 8?

23 MR. BOSNIC: Because the RCIC injection valve went
24 shut and by this time we had our indications back so they
25 had the Level 8 water level trips come in.



1 MR. VATTER: With alarms and all that other stuff.

2 MR. BOSNIC: I think this was after the 6:22.

3 MR. KAUFFMAN: At some point I figured you got
4 relieved of the NS Communicator position by the TSC or by
5 someone else. How long did you maintain the NS
6 Communicator?

7 MR. BOSNIC: I maintained the NS communications
8 until probably about 8:00 o'clock time frame, for well over
9 an hour.

10 MR. KAUFFMAN: Right. Did you give it back to then
11 the normal Communicator?

12 MR. BOSNIC: Yes. Looks like we reached Level 8
13 at 6:15 so that was the full at 6:22 so the indication they
14 would have had would have been the RCIC injection valve
15 shutting.

16 MR. VATTER: Who was monitoring water level?

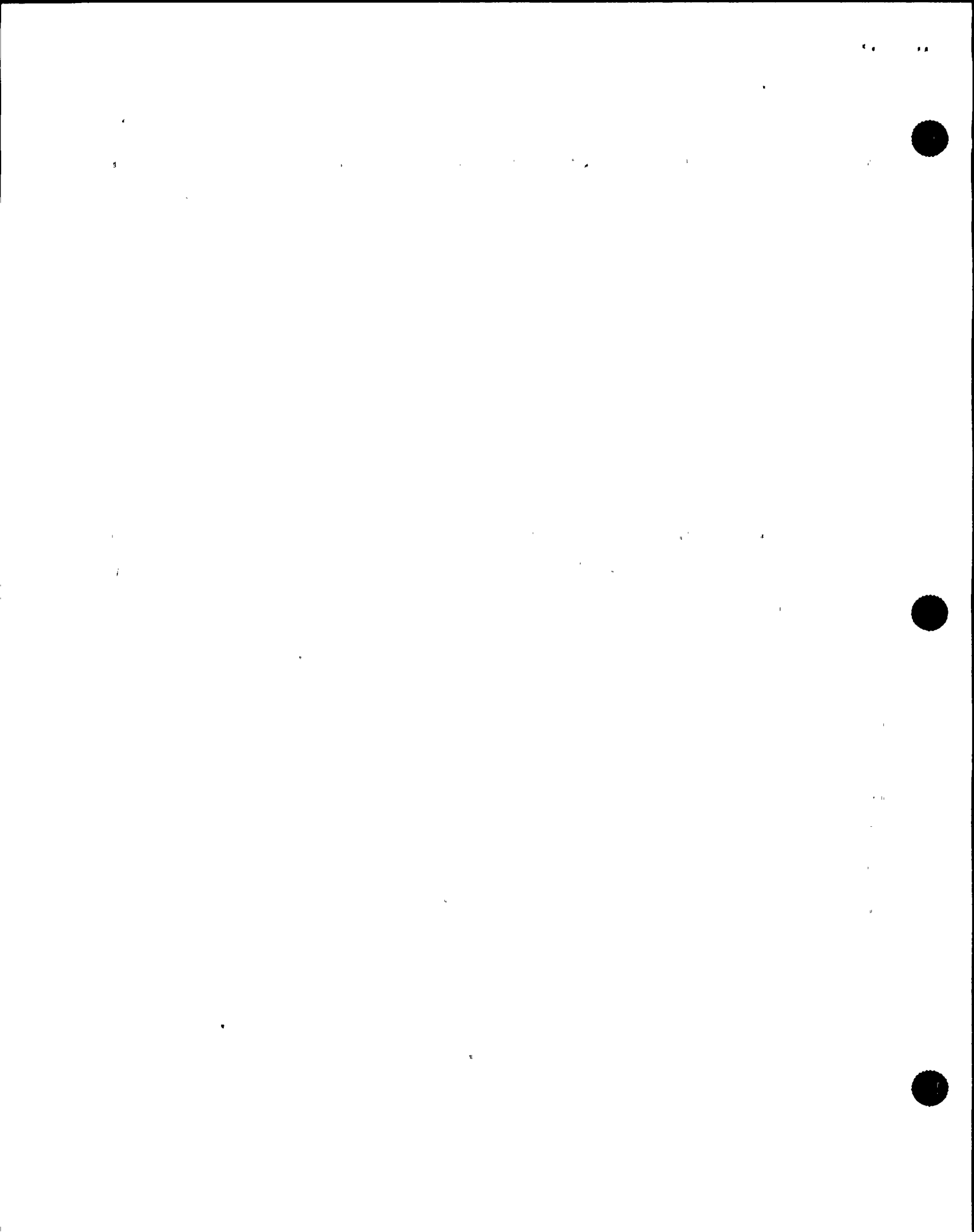
17 MR. BOSNIC: Brian Hilliker was running RCIC so I
18 assume that he was monitoring level at the same time.

19 MR. VATTER: And he is a licensed reactor
20 operator?

21 MR. BOSNIC: That's correct.

22 MR. VATTER: So he would have know where Level 8
23 was?

24 MR. BOSNIC: Yes, and it looks like they knew
25 level was rising because they were putting RCIC tank to tank



1 right before that, which means they were stopping injection
2 to the vessel and recircing the water from the CST back to
3 the CST.

4 MR. VATTER: You think that they were stopping the
5 injection to the vessel before you got to the Level 8?

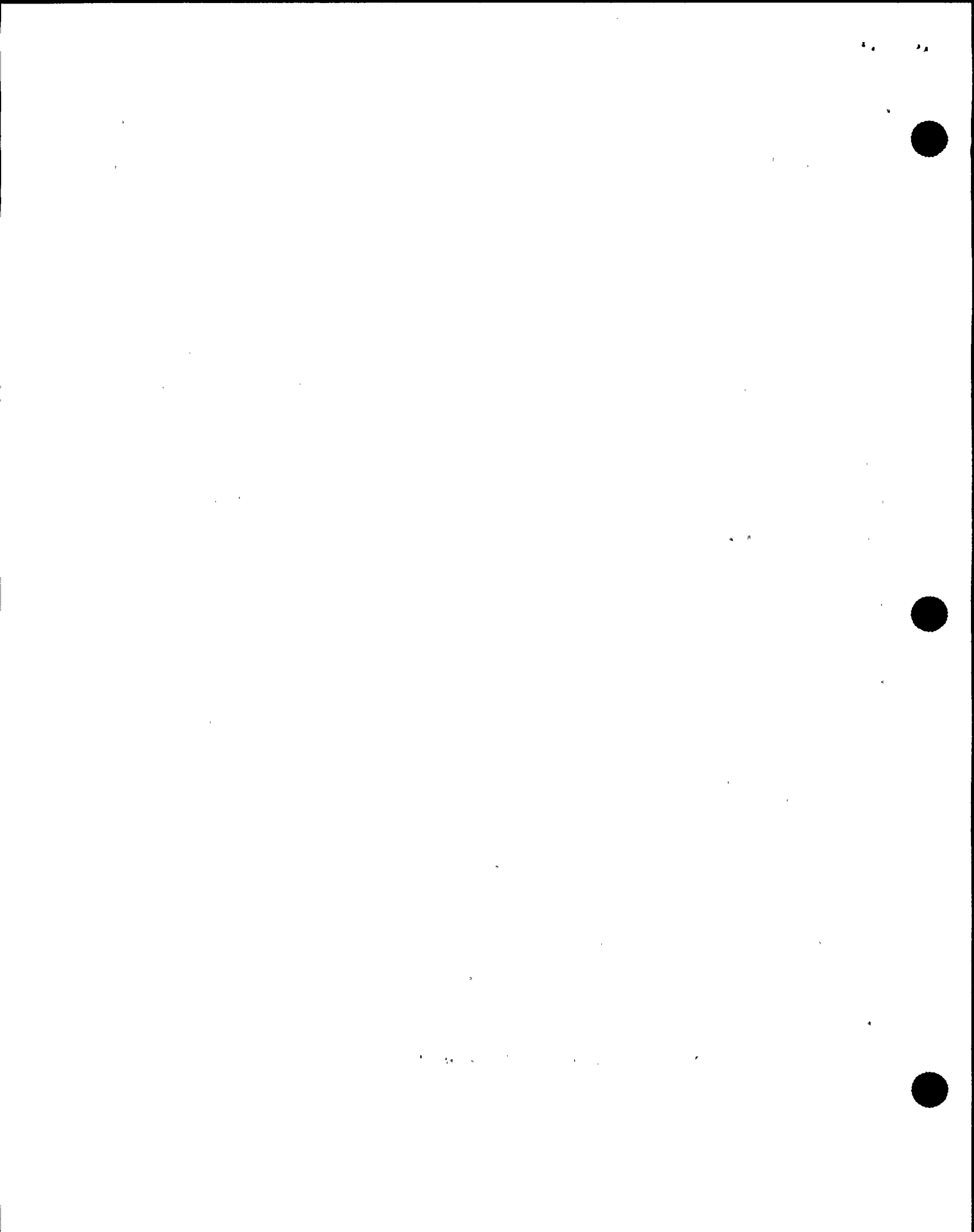
6 MR. BOSNIC: Yes, they were. They were trying not
7 to hit, not to reach Level 8 but water level just kept
8 sliding up.

9 At that point I note -- I wasn't, I didn't see any
10 of it but I know that there were two operators working with
11 the feed and condensate system over there, trying to do
12 something with the line. I'm not sure what.

13 They were taking actions to prevent the Level 8
14 and then after they reached Level 8, level started to drop
15 and drift slowly down, as the steam was going down the
16 bypasses. There would be some small amount of steam load.

17 They finally, what they tried to do at this point
18 is swap over control of water level to the condensate system
19 since pressure was by this time around 650 pounds, 600-650
20 pound pressure, so the condensate booster pump discharge is
21 sufficient to supply water at that point.

22 What they were trying to do and what they
23 eventually accomplished was to put water level on the
24 condensate, condensate booster pump through the LV137, which
25 is - that is our preferred method of water level control



1 during the shutdown. We are essentially back in a normal
2 lineup.

3 MR. VATTER: That's an automatic level control
4 valve, 147 valve?

5 MR. BOSNIC: Yes. By the end of this in about
6 9:00 time frame I noticed it was in automatic. I don't know
7 when it got there.

8 MR. HELKER: It can be controlled either in
9 automatic or manually?

10 MR. VATTER: Don, I have kind of perspective about
11 this water level. I am not sure it's accurate. Maybe I
12 could just talk with you a little bit about it.

13 My understanding is that the feed pumps tripped
14 simultaneous with the reactor scram or pretty near close, is
15 that right?

16 MR. BOSNIC: That's my impression too, yes.

17 MR. VATTER: At which time there was no water
18 going to the vessel?

19 MR. BOSNIC: That's correct, other than CRD.

20 MR. VATTER: CRD was going to the vessel and
21 that's about 63 gallons a minute, ballpark?

22 MR. BOSNIC: Right.

23 MR. HELKER: 63 gallons a minute is the normal
24 cooling water supply flow rate.

25 MR. KAUFFMAN: If you research it, I think you'll



1 find it's probably at 400 right after the scram.

2 MR. HELKER: I believe that to be probably
3 correct.

4 Would you like me to look that up for you?

5 MR. KAUFFMAN: Sure. Typically it's something in
6 training. Evidently it's covered in training.

7 MR. VATTER: At any rate the CRD cooling flow is
8 not nearly enough water after a scram?

9 MR. BOSNIC: No.

10 MR. VATTER: My impression is that the concern of
11 the operators was not immediately focused on getting a
12 source of water. There were other things more demanding,
13 like all these lights were out and they didn't know what was
14 going on and trying to figure that out.

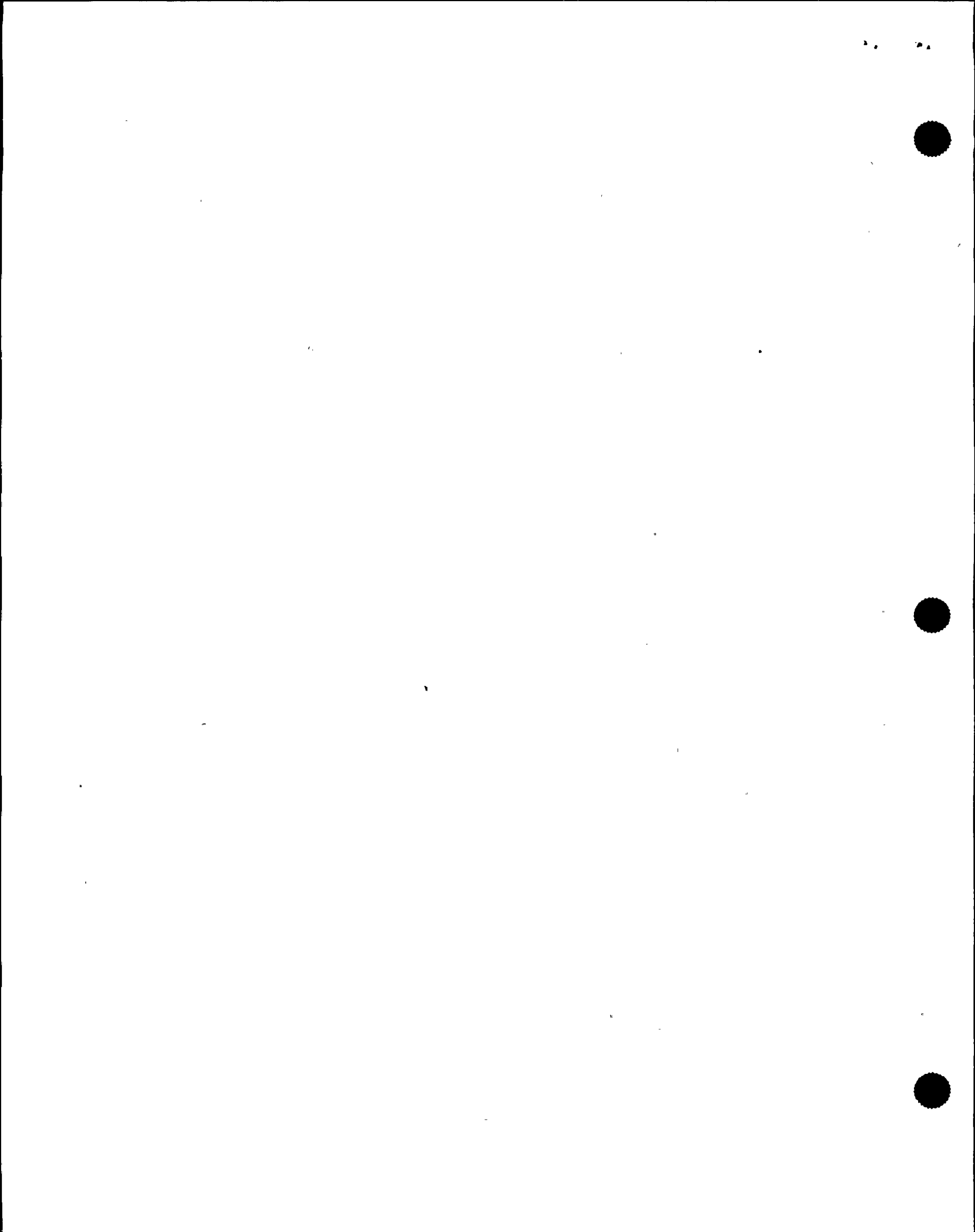
15 MR. BOSNIC: No, I wouldn't say that. I would say
16 the water level was their initial concern and their primary
17 concern because that is the only thing I have heard, you
18 know, initially during the event was water level was being
19 called off, so they were monitoring that constantly.

20 MR. VATTER: Okay. Yet RCIC wasn't started until
21 right about the time that you reached Level 3, which was --

22 MR. HELKER: Approximately one minute prior to,
23 according to the sequence that we got developing.

24 MR. VATTER: So that was about?

25 MR. BOSNIC: We're talking probably six or seven



1 minutes after the scram occurred.

2 MR. VATTER: Is that a normal time that it takes
3 to get RCIC going?

4 MR. BOSNIC: It doesn't take much time at all to
5 get RCIC going. I mean RCIC initiation is push button,
6 right, arm and depress and RCIC should start up and start
7 injecting.

8 I couldn't tell you why, you know, why it didn't
9 happen until that point, you know, why they waited for water
10 level to get to 165 or whatever when they initiated it. I
11 don't know.

12 MR. VATTER: Is it preferred to keep water level
13 above Level 3 following the scram?

14 MR. BOSNIC: Yes.

15 MR. VATTER: Okay, so --

16 MR. BOSNIC: But I couldn't tell you that if a
17 scram from 100 percent power whether or not manual
18 initiation or RCIC immediately would stop the Level 3 or
19 not. I don't know.

20 From training I almost would expect water level to
21 reach Level 3 following a scram from 100 percent power.

22 In my opinion, that's expected almost.

23 MR. VATTER: That's based upon the simulator.

24 MR. BOSNIC: The simulator and talking to the
25 other operators who have experience with a scram.



1 MR. VATTER: And then, when RCIC was started,
2 there was a little bit of difficulty in manual control --

3 MR. BOSNIC: In automatic.

4 MR. VATTER: -- in automatic control, so they went
5 to manual.

6 MR. BOSNIC: Yes.

7 MR. VATTER: And then they were feeding until just
8 before it got to level 8.

9 MR. BOSNIC: They fed it back into the normal
10 band, and then water level step kept rising. I'm not sure
11 what actions the operator took to secure feed -- to stop
12 feeding the reactor and raising water level.

13 MR. VATTER: It's not desirable to get to level 8.

14 MR. BOSNIC: No, it is definitely no.

15 MR. VATTER: Then, about that time, they went on
16 water level control from the condensate booster pump.

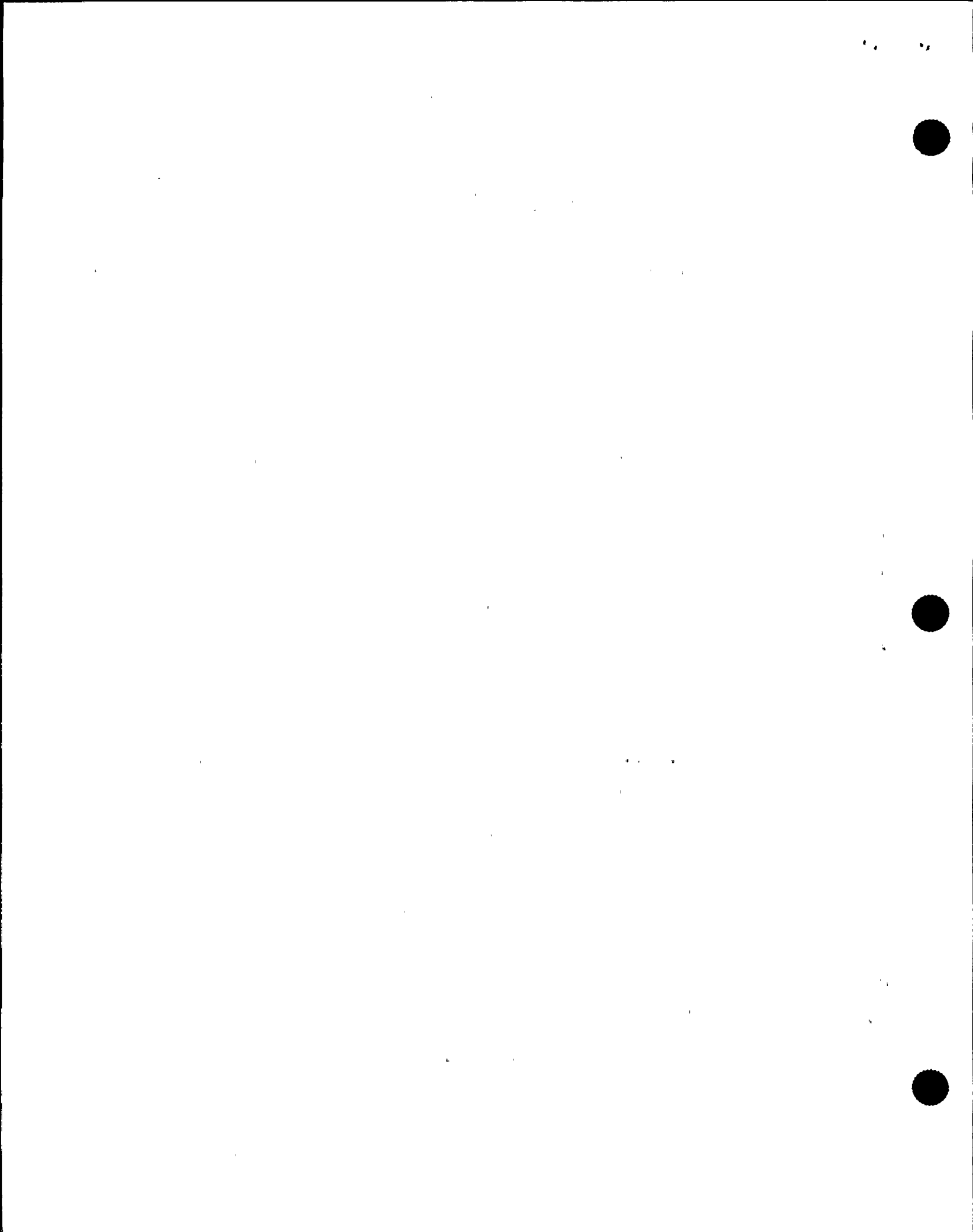
17 MR. BOSNIC: There was a transition in there.
18 Once the RCIC injection valve went shut, the water level
19 was dropping, and at some point -- the lowest I heard water
20 level was 140 inches. It was a slow drop.

21 MR. VATTER: It went down below level --

22 MR. BOSNIC: -- three again. That's correct.

23 MR. VATTER: And that wouldn't be desirable, would
24 it?

25 MR. BOSNIC: No. You want to avoid that, because



1 that would give us another scram.

2 MR. VATTER: And then water level was brought back
3 up.

4 MR. BOSNIC: Yes. At that point, they had gotten
5 a condensate pump, a booster pump, running and the LB-137 on
6 line.

7 MR. VATTER: And then it was pretty steady after
8 that.

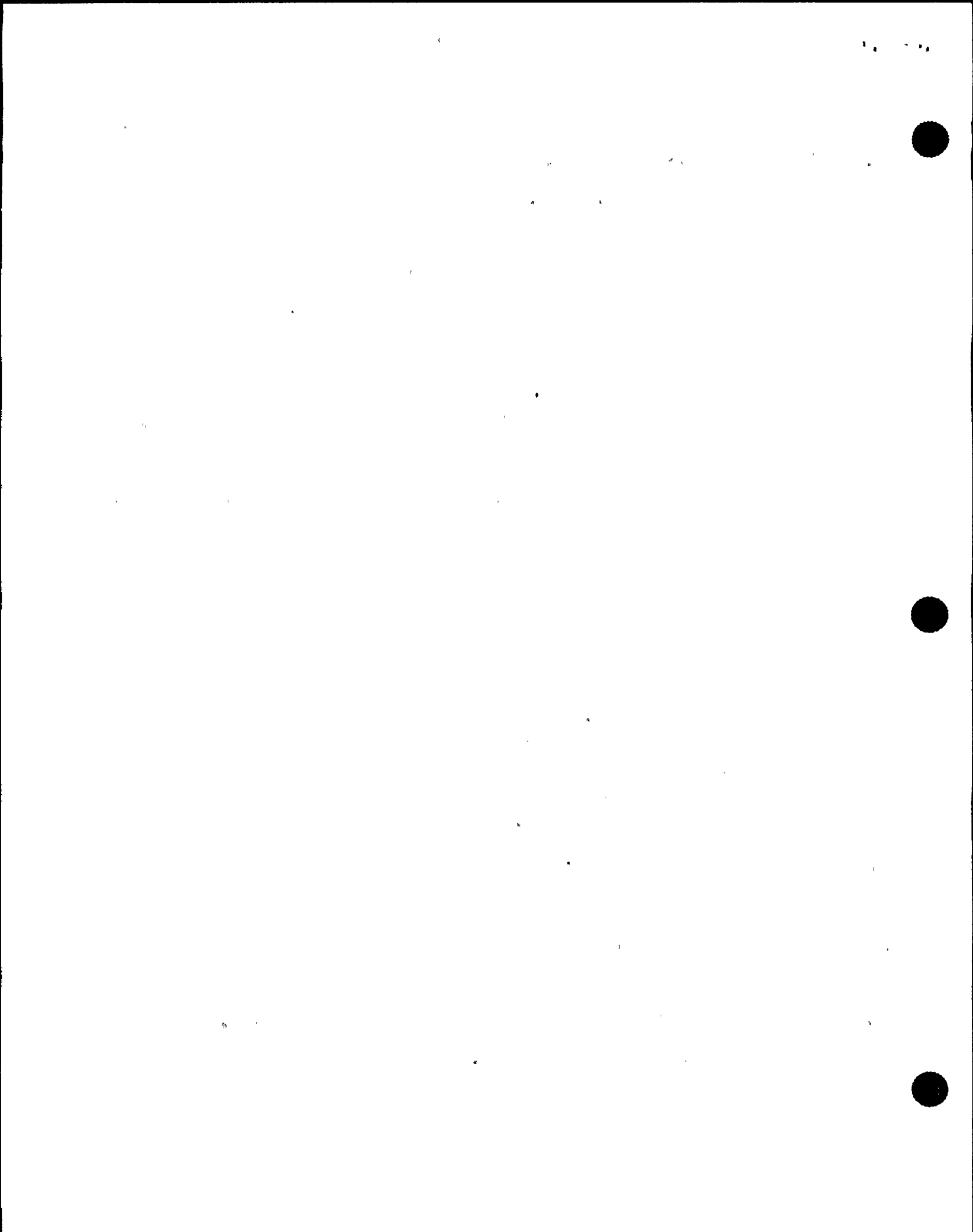
9 MR. BOSNIC: Yes. Pressure by this time was about
10 600 pounds or so, so I know they were concerned with feeding
11 the reactor quickly and dropping pressure and exceeding a
12 100-degrees-an-hour cool-down rate. They fed it very slowly
13 so that, if there was a level -- On the PAM recorders, it
14 probably looked like we took a long time restoring water
15 level. That was due to the pressure concern. We didn't
16 want to cool down the reactor quickly. We were trying to
17 hold pressure about 600 pounds or so.

18 I couldn't tell you why RCIC wasn't reinitiated to
19 stop the level drop. I just don't know.

20 MR. KAUFFMAN: As a side question, how many trips
21 of the real plant, not training, not simulator --

22 MR. BOSNIC: None. This is my first. I wasn't
23 even there for the first two minutes of it.

24 MR. KAUFFMAN: Bill, do you have more questions
25 related to the sequence of events?



1 MR. VATTER: I don't think so.

2 Did we get a copy of the control room log?

3 MR. KAUFFMAN: I got that turned over from the
4 AIT.

5 MR. VATTER: Okay. I haven't read that yet.

6 You were keeping a log, also?

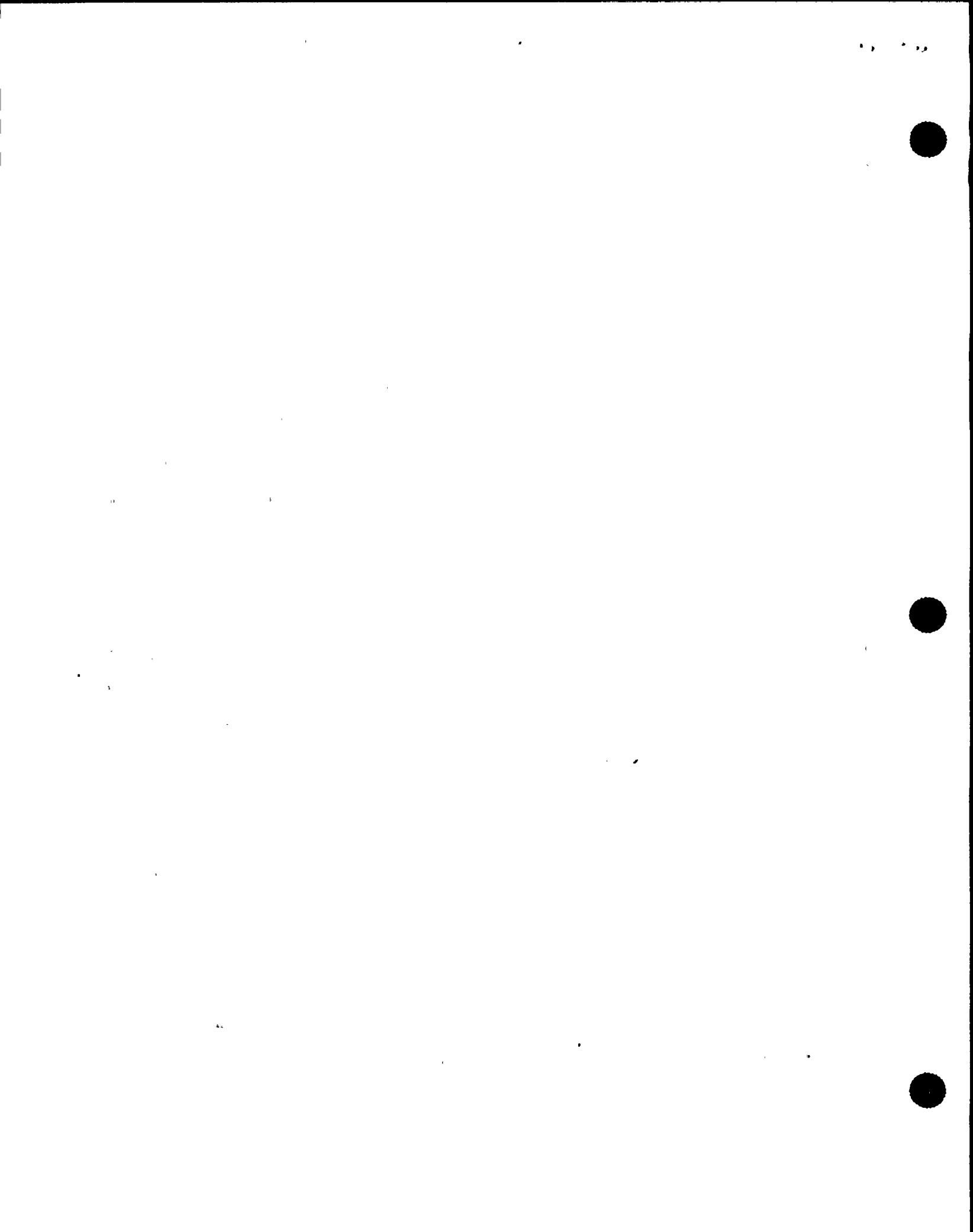
7 MR. BOSNIC: Yes. I was taking notes. We had
8 assigned Brian Hilliker -- no, it was Mike Garbus, I think,
9 and he was taking all the actions, following a certain
10 point. The CSO was taking notes. The SSS had some notes.
11 I took all the notes and constructed the log to get the
12 sequence of events in there as best I could. I put that
13 together.

14 MR. VATTER: I would like to ask you a little bit
15 more about the difficulty in getting rod positions for those
16 six rods.

17 MR. BOSNIC: Okay.

18 MR. VATTER: Is that typical, that some rods are
19 hard to figure out where they are following a scram, or is
20 that associated with this event, unique to this event?

21 MR. BOSNIC: I don't know. This is the first
22 scram I've gone through, so I can't really give you any
23 insight into that. I think there could be a -- We do have
24 some rod position indication problems. Over the last three
25 or four months, we've had a couple ESL entries on certain



1 positions' not working.

2 MR. VATTER: Do you recall what actions they took
3 to recover the rod position indication?

4 MR. BOSNIC: No, I don't, but, following a certain
5 time frame, I got another report back that all rods
6 indicated full in, and I wrote that down. I know that made
7 it into the log. I know I passed the information on. I was
8 on the phone with NRC at that time, and everybody was
9 concerned with that: where are the rods. That was the
10 0700. It looks like somebody finally said, Hey, we finally
11 have all rods indicating full in. That report actually came
12 in, and there was -- Let's see.

13 At 6:30, we wrote down that all the rods except
14 six, and then there was another time period in there when we
15 had -- I think we went from six to none, because somebody
16 walked a piece of paper and said, These are the six rods not
17 indicating right now, so I saw that there were six.

18 MR. KAUFFMAN: After you got relieved as NS
19 communicator, what were your activities following that
20 point?

21 MR. BOSNIC: At that point -- I guess that was
22 around the 9:00 time frame, 9:30 -- I started going through
23 the panels. I got the log back together, and I started
24 going through my relief process. I took over the shift at
25 about -- I want to say about the 10:30 time frame I



1 relieved.

2 By that time period, we were solidly into the OP-
3 101 shutdown procedure. Essentially, as soon as the
4 annunciators came back on at 6:22, it was a normal scram, so
5 we were taking just normal reactor scram procedure and
6 shutdown procedure.

7 MR. KAUFFMAN: One of the questions I'd like to
8 ask is, I'd like you to think and brainstorm about things
9 that went well. If you could tell me the reason why you
10 thought they went well, whether it was lots of people, good
11 training, luck, the right people happened to be there, or
12 whatever.

13 Similarly, in a minute we're going to turn that
14 question around and ask you if there were any difficulties
15 encountered or things you would like to have had that you
16 didn't, to turn around and give any thoughts or suggestions
17 that could have made the response better or easier.

18 MR. BOSNIC: Good things: The SSS and assistant
19 did a real good job. The control room, throughout the
20 initial part of the event, was real quiet and real
21 deliberate. What they were concerned with, I thought, were
22 the right things: level, pressure, and power. I think the
23 training process is real good, in that they emphasize: when
24 you get into your EOPs or have a problem, those are the
25 parameters that you're most concerned with.



1 I think the SSS and assistant, and maybe the
2 CSO -- I don't know who all was involved in the decision,
3 but somebody, but one of those three people did a real good
4 job troubleshooting or determining what the cause was of our
5 problems, and that was the UPS's. Whoever it was that
6 initially diagnosed that and then sent the operators down to
7 restore that condition, I think that was the turning point.
8 If that had been delayed, it just would have complicated
9 things.

10 MR. KAUFFMAN: Is that covered a lot in training?
11 Did the people know that from the side?

12 MR. BOSNIC: I think there was a past experience,
13 where we lost one of the UPS's and lost annunciators. I
14 think people remember that.

15 MR. KAUFFMAN: What kind of training have you had,
16 training on UPS's and loss of instrumentation?

17 MR. BOSNIC: There are some areas. We do
18 primarily loss of DC buses. Every week, especially lately,
19 there has been more of a push on electrical plant training
20 and electric hazards, so we'll see at least a couple of
21 those every week that we're over in training.

22 MR. KAUFFMAN: Those are typically the loss of one
23 bus, the partial losses -- not a big loss of five buses all
24 at once. Is that fair to say?

25 MR. BOSNIC: No. I wouldn't say that. I would



1 say that some of the scenarios are loss of battery 1A or
2 battery 2, just loss of a single DC bus, loss of a single
3 AC. There are scenarios that are loss of an entire major
4 switch gear, 001, 003. There are simulator scenarios on
5 loss of the offsite lines. There is full loss of offsite
6 power. The scenarios, they range from loss of one bus to
7 loss of all the buses, including diesels and safety buses.

8 MR. KAUFFMAN: Okay.

9 MR. BOSNIC: I think the diagnosis of the UPS
10 really helped out quite a bit. Whoever came up with that
11 minimized the problems we were having.

12 The fact of how the plant's laid out, that the
13 safety-related buses were totally distinct from just
14 balance-of-plant buses, is a good thing. The safety-related
15 systems were all intact throughout the casualty. Diesel
16 generators never had to start. The safety-related systems
17 were up operating, giving us the parameters that we needed.
18 It seemed like the fact that we didn't have our balance-of-
19 plant instrumentation really didn't cause as many problems
20 as I would have thought.

21 MR. KAUFFMAN: The biggest problems seemed to be,
22 where are the rods?

23 MR. BOSNIC: That was the big one, yes.

24 Other than that, we still had level-pressure
25 control, and that's what we were maintaining. We still had



1 power from the back panels. Not having the rod positions,
2 not knowing where they were, was kind of compensated by
3 knowing the other parameters. If you know what power powers
4 into the source range, then you have a pretty good feel that
5 most of the rods, if not all the rods, are in.

6 The time period that it happened, at 6 a.m., when
7 a whole new shift of operators was coming in, was
8 fortunate. That way, we essentially had double the people
9 here very quickly, so that helped out. I think there were
10 more than enough people to handle the casualty and the
11 shutdown. It worked out quite well, I thought.

12 MR. KAUFFMAN: Any things you'd like to see
13 better? I picked up that the ENS phone connection was one.

14 MR. BOSNIC: I'd like to see that change to maybe
15 a fiber optics SPRINT system or something.

16 MR. KAUFFMAN: As an aside, I think they are
17 exploring changing the method they use and fiber optics is
18 something they are looking at.

19 MR. BOSNIC: It doesn't make sense to have a
20 staticky phone line in today's day and age. I mean, I
21 don't know, it seems like we could do better.

22 MR. KAUFFMAN: As an aside we'll do a little bit
23 of self-justification of the NRC here. When that big
24 earthquake hit California a couple of years ago in the Bay
25 Area, the ENS lines stayed up, so it might be old and it



1 might be an antique but --

2 MR. BOSNIC: It works.

3 MR. KAUFFMAN: It came in handy at least once.

4 MR. BOSNIC: Seemed like there were a lot of
5 people on the ENS line, not that it caused a problem. It's
6 just that we ended up repeating a lot of things a lot of
7 times.

8 MR. KAUFFMAN: In drills I've been an ENS
9 communicator on the other end, so I understand.

10 MR. BOSNIC: I don't know if there is any way we
11 can -- I mean I don't think it hurt anything.

12 MR. KAUFFMAN: Okay.

13 MR. BOSNIC: I thought it was pretty good and it
14 kind of worked out nice that I was talking to the NRC
15 because I could -- I had more, I had a lot better input than
16 the regular communications aide would have had and I didn't
17 have to tie up the SSS -- so it freed up, you know, their
18 own party to do that.

19 MR. KAUFFMAN: How did you get your information?
20 From where you were standing could you see the indications
21 or listen or did you get questions and send somebody out to
22 get the answer?

23 MR. BOSNIC: Mostly I would walk up and look
24 myself. I had to ask the SSS a few questions but I probably
25 didn't disturb him more than five or six times during the



1 event.

2 There were things like, you know, did we, are the
3 UPS's on maintenance supply? The reports were coming to him
4 and not me.

5 MR. KAUFFMAN: Can you think of any other things
6 that caused problems or could have been better? I know that
7 some other people told us for example on some of the EOP
8 legs they had a little different exit criteria and it would
9 have been nice to have been able to transition from the EOPs
10 at certain times and not worry so much about the cooldown
11 when it was apparent that most of the rods were in and they
12 were pretty sure they were shut down but didn't know for
13 sure.

14 MR. BOSNIC: I have been very pleased with the way
15 the EOPs work from training. I don't know how Mike Conway
16 was, you know, where he was in the legs and any problems he
17 had I don't know but I know overall I liked the EOPs.

18 MR. VATTER: Did you have, from what you were
19 doing did you have the ability to see whether the EOP was
20 going smoothly? Or were they perhaps getting bogged down in
21 trying to figure out what to do at particular places?

22 MR. BOSNIC: It didn't appear that they were.
23 Most of the time when I looked at the SSS he was standing,
24 either talking to somebody or looking at indication. It
25 didn't appear that he was struggling, you know, looking



1 trying to make decisions.

2 MR. VATTER: You know, NDOPs?

3 MR. BOSNIC: His lines looked pretty clear. I
4 wouldn't think there would be any serious EOP problems.

5 MR. VATTER: So the decisions on with regard to
6 the EOP were pretty clear to the guys that were making them?
7 The guidance wasn't hard to figure out -- they got to a step
8 and knew exactly what to do when they were at it?

9 MR. BOSNIC: I think so. You know, Mike Conway
10 would be the one to ask on that one. The phones are right
11 beside the EOP panel. It didn't appear that he was having
12 problems with them.

13 MR. KAUFFMAN: I'd just like to give you an
14 opportunity now if you have anything.

15 We have been asking the questions. If there is
16 anything you want to say here, get on the table or tell us,
17 you have that opportunity.

18 If not, the interview is over.

19 MR. BOSNIC: No, that would be fine.

20 [Whereupon, at 9:33 a.m., the taking of the
21 interview was concluded.]

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REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

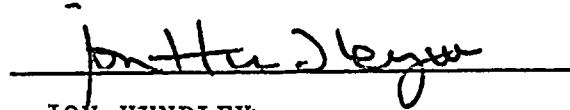
in the matter of:

NAME OF PROCEEDING: Int. of DON BOSNIC

DOCKET NUMBER:

PLACE OF PROCEEDING: Scriba, N.Y.

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.



JON HUNDLEY
Official Reporter
Ann Riley & Associates, Ltd.



1. The first part of the report

2. The second part of the report

3.

4. The final part of the report

