

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
 Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
 Interview of: 'AARON' ARMSTRONG

Docket No.

LOCATION: Scriba, New York

DATE: Monday, August 19, 1991

PAGES: 1 - 27

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Exhibit 3-1 (continued)

-3-

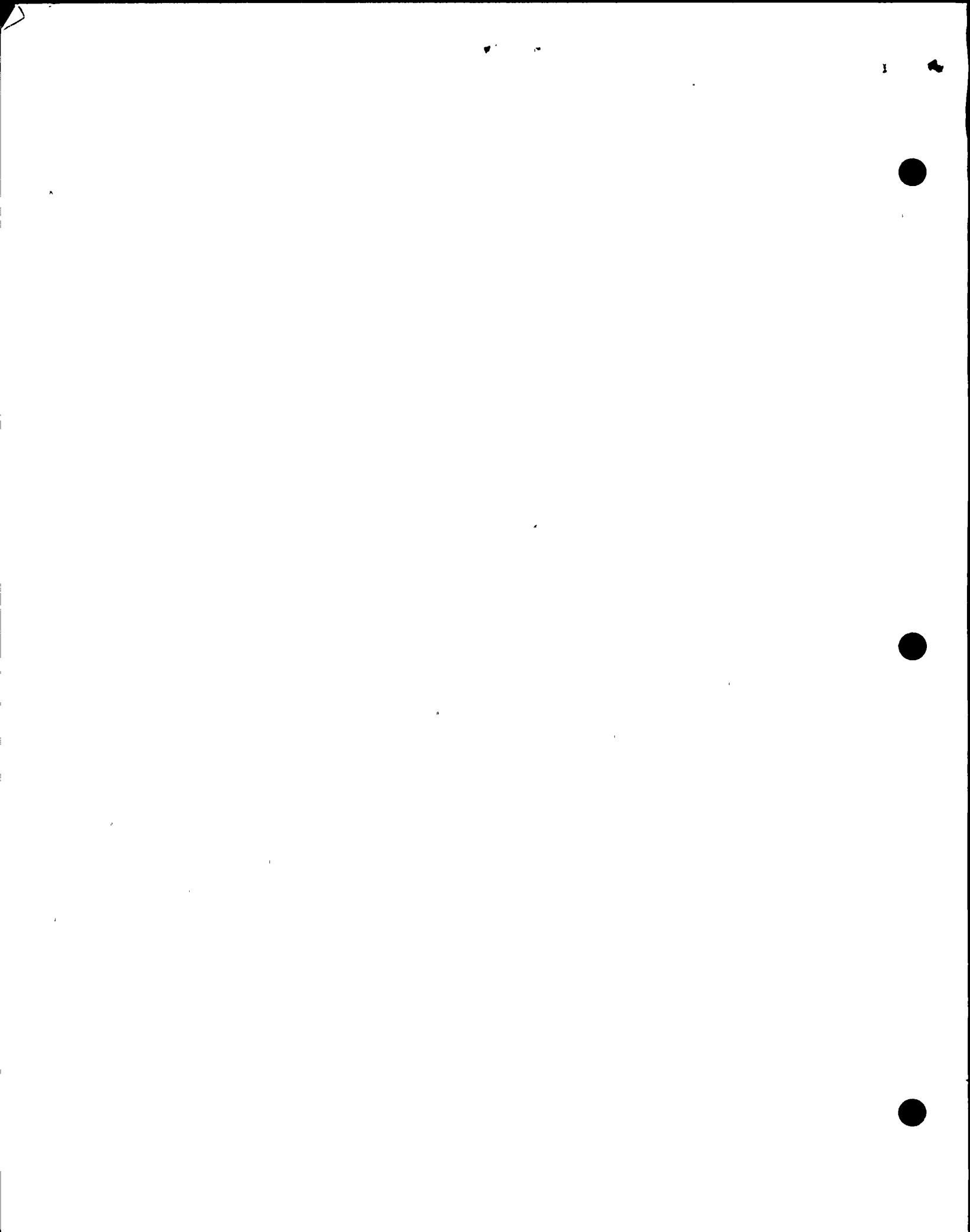
ADDENDUM TO INTERVIEW OF AARON ARMSTRONG NAOC
(Name/Position)

Page Line Correction and Reason for Correction

~~18~~ ²⁴

24 3 Remove the word "Transfer" and put in its place
"train us on". I don't believe I said "transfer"

Page 1 of 1 Signature Aaron W. Armstrong Date 8/21/91



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
INCIDENT INVESTIGATION TEAM

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Interview of :
AARON ARMSTRONG :
(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 1:23 p.m.

PRESENT FOR THE IIT:
John Kauffman, NRC
William Vatter, INPO



P R O C E E D I N G S

[1:23 p.m.]

1
2
3 MR. KAUFFMAN: It's August 19, 1991, at 1:23 p.m.
4 We're in the Nine Mile Point, Unit Two, admin building, to
5 conduct an interview concerning the August 13 event at Nine
6 Mile Point Two. My name is John Kauffman. I'll be leading
7 the interview. I'm with NRC.

8 MR. VATTER: I'm Bill Vatter. I'm from INPO, on
9 loan to the IIT.

10 MR. ARMSTRONG: Aaron Armstrong, nuclear
11 operator C.

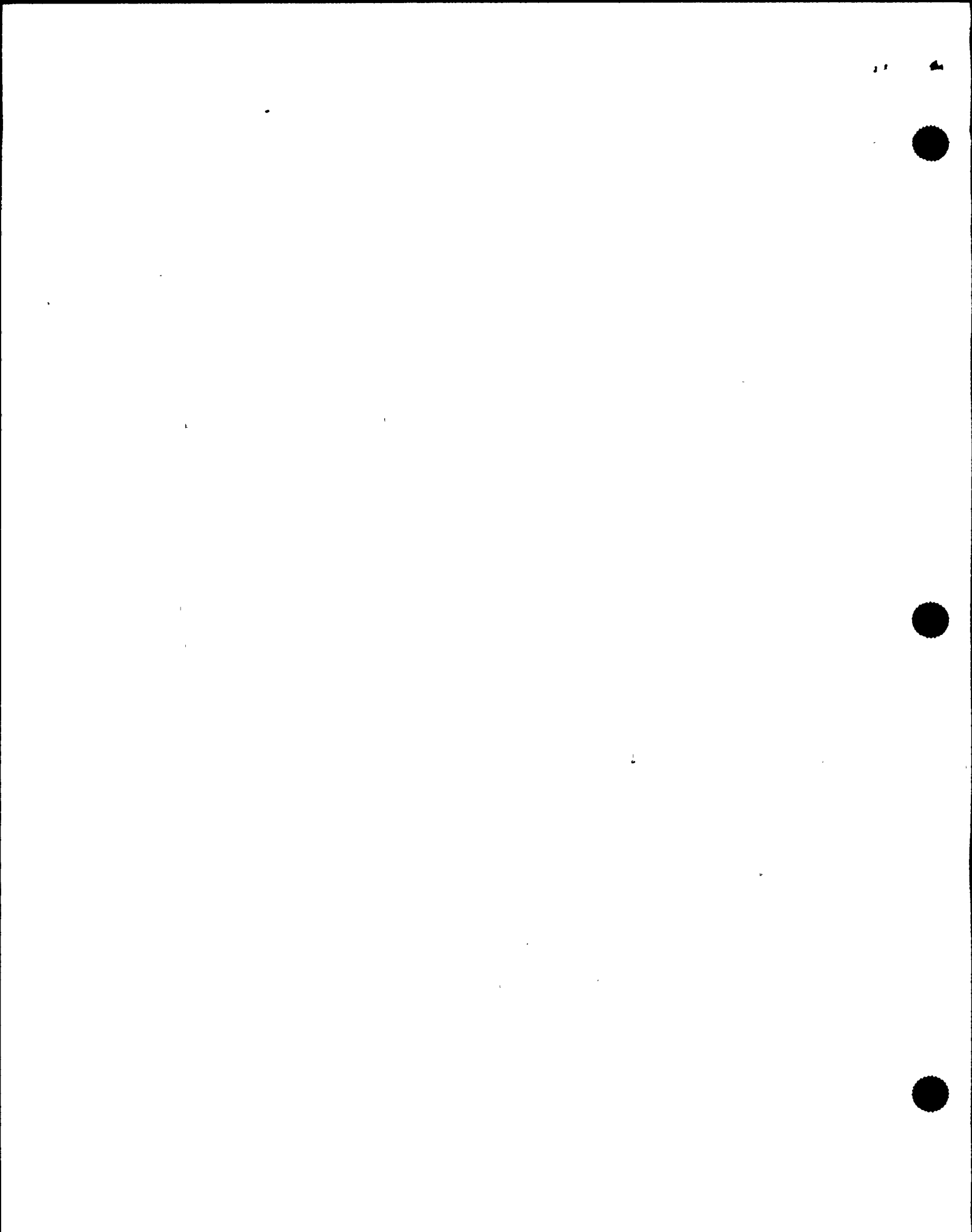
12 MR. KAUFFMAN: Aaron, I'd like to start the
13 interview by having you just tell us a little bit about your
14 education, background, and your career path to where you are
15 now.

16 MR. ARMSTRONG: I graduated from high school and
17 went into the Navy nuclear power program, where I was a
18 machinist's mate for six years. Then I started with Niagara
19 Mohawk soon afterwards, and I've been a nuclear auxiliary
20 operator for the last two and a half years, until now.

21 MR. KAUFFMAN: You were on midnight shift of the
22 day of the event, correct?

23 MR. ARMSTRONG: That's correct. I was on midnight
24 shift.

25 MR. KAUFFMAN: I'd like you to tell us a little



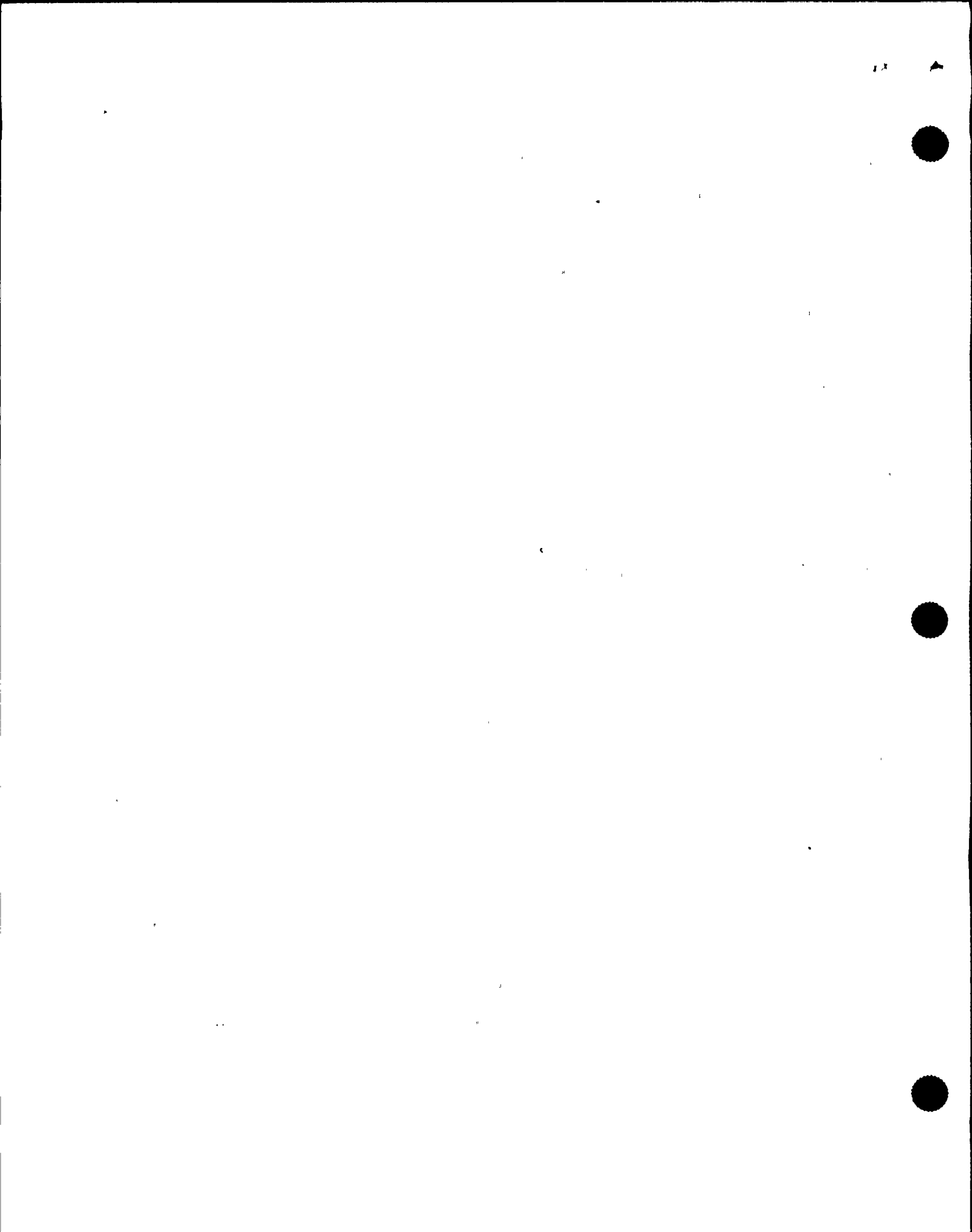
1 bit about the plant conditions before the event, what kind
2 of equipment was out of service, and the power to the best
3 of your recollection. Then run us through the event, the
4 alarms you saw and the indications you saw and the actions
5 that you and the rest of the crew took.

6 MR. ARMSTRONG: Okay. As far as I can recall, we
7 were at 100 percent power when we took the transient. As
8 far as major equipment that were out, I don't know of any
9 major plant equipment that was not running. That particular
10 night, I had the turbine building rounds. I was responsible
11 for taking care of the turbine building equipment. It was
12 pretty much a basic night, nothing new or abnormal.

13 MR. VATTER: Does the turbine building routine
14 also include any other service building stuff, the switch
15 gear rooms?

16 MR. ARMSTRONG: No, sir. We have a person
17 specifically assigned to the control building or switch gear
18 building, a different time. We rotate through those rounds.

19 At the time that we took the transient, I was in
20 the process of changing a nitrogen bottle for our hot water
21 heating system. We pressurize our hot water heating system
22 with nitrogen. The expansion tank, that's where I was at
23 when we took that transient. I knew we took it at that time
24 because I could hear a loud bang, and then the lights went
25 off.



1 MR. VATTER: Do you know what that bang was?

2 MR. ARMSTRONG: No, I really don't know what it
3 was. It was almost like something was tripping or a check
4 valve slammed, that type of noise.

5 MR. VATTER: Have you heard a turbine trip before?

6 MR. ARMSTRONG: I'd guess it was a turbine trip,
7 but I was out in the aux service building, so I couldn't
8 tell you if that's what it was or not. I just heard a loud
9 noise, and then the lights went off.

10 MR. KAUFFMAN: Where were you when the lights went
11 out?

12 MR. ARMSTRONG: Right in the aux service building.
13 The hallways that go to Unit One from Unit Two. At that
14 point -- I don't feel I'm qualified to tell you exactly what
15 that noise was, because I really was not in the plant. I
16 did hear a noise, but I'm not sure exactly what it was.

17 MR. VATTER: I don't think that I understand
18 exactly where you were. That long hallway that goes
19 alongside the Unit Two turbine building -- where everybody
20 goes heading for the lunchroom.

21 MR. ARMSTRONG: Yes, sir. Right there, if you
22 notice, just past the coat rack, there is a rack of four
23 nitrogen bottles right there that we use for our hot water
24 heating system. That's where I was standing, right there,
25 when we took the shutdown there.



1 When I heard that noise, I just stopped what I was
2 doing and went to the control room. I didn't hear any
3 announcements or anything, but I just figured, since the
4 lights went on and I heard a noise, that we took a trip --
5 either a turbine trip, or we scrambled, or something, so I
6 immediately went to the control room from there. From that
7 point, I was directed by my SSS, who was Mike Conway, to go
8 down to the normal switch gear and check the UPS 1-series.

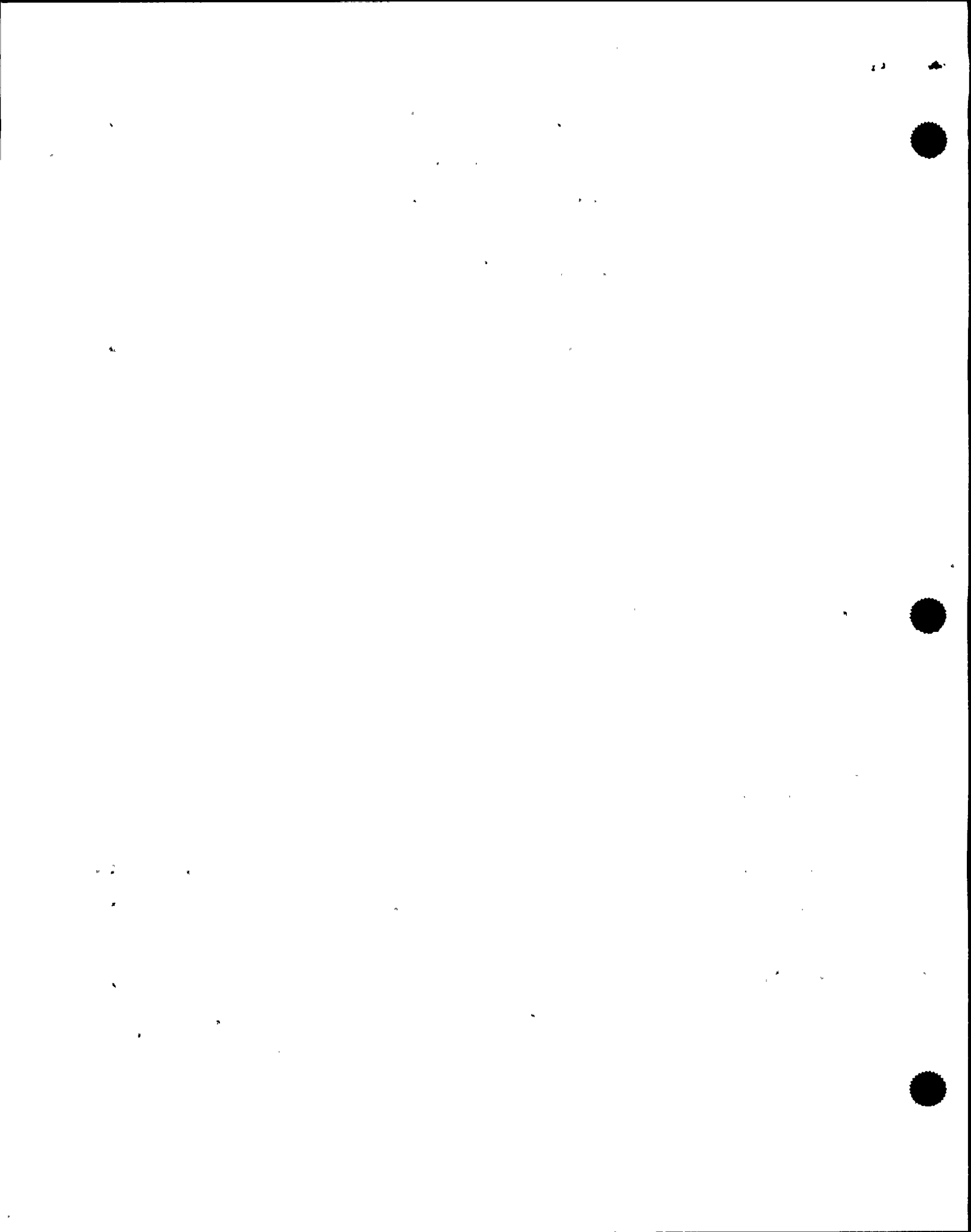
9 MR. VATTER: What door did you come in the control
10 room by?

11 MR. ARMSTRONG: I came in the back door.

12 MR. VATTER: What was going on when you came in?

13 MR. ARMSTRONG: When I came in -- it was actually
14 very strange -- it was quiet. I knew something wasn't quite
15 right, because there was no noise. I didn't hear any
16 annunciators; usually when we take a scram -- I've been in
17 the control room for a scram before -- it gets quite loud,
18 sometimes, with people talking and the annunciators; but
19 when I actually walked from the panels into the main part of
20 the control room, everybody was just standing there, staring
21 at a blank board. It almost looked like they were still in
22 shock. I didn't know exactly what had happened. I was
23 probably in the control within a minute after it happened,
24 or less.

25 MR. VATTER: Who did you see when you walked in?



1 MR. ARMSTRONG: I saw the CSO, who was Mark Davis.

2 MR. VATTER: Where was he?

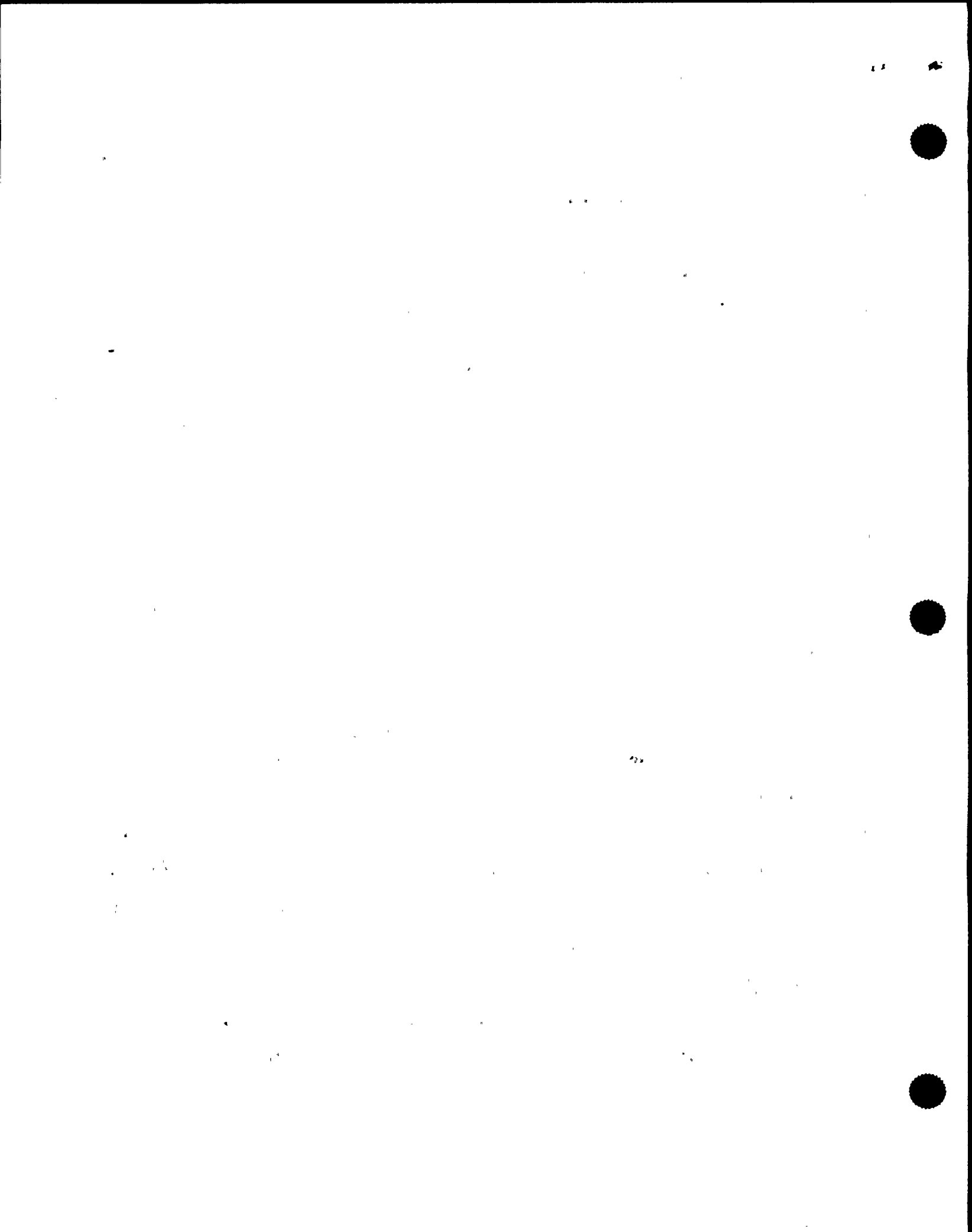
3 MR. ARMSTRONG: He was standing right in front of
4 the 603 panel, looking at the full-core display -- which
5 there wasn't any -- and that's what really took me by
6 surprise. He just kind of looked like he wasn't sure what
7 had happened or how we were going to go from there at that
8 point. I probably wasn't in the control room more than a
9 minute or two when I was directed by the SSS to immediately
10 go to the UPS.

11 MR. VATTER: Who else did you see when you came
12 in?

13 MR. ARMSTRONG: All I remember seeing was a CSO
14 and an SSS and the assistant SSS.

15 MR. VATTER: And you didn't see them doing
16 anything?

17 MR. ARMSTRONG: At that time they were not
18 manipulating anything, to my knowledge. I saw the CSO
19 standing there, and he wasn't manipulating anything. I'm
20 not sure if there was another RO in there at a panel or not.
21 The only panel I remember looking at was the 603 panel, or
22 the full-core display, just to see if all the lights were in
23 for a scram, and there were none. As soon as I walked in
24 there, the SSS snagged me and sent me down there, so I
25 really wasn't in there very long to see if anybody was doing



1 anything or not.

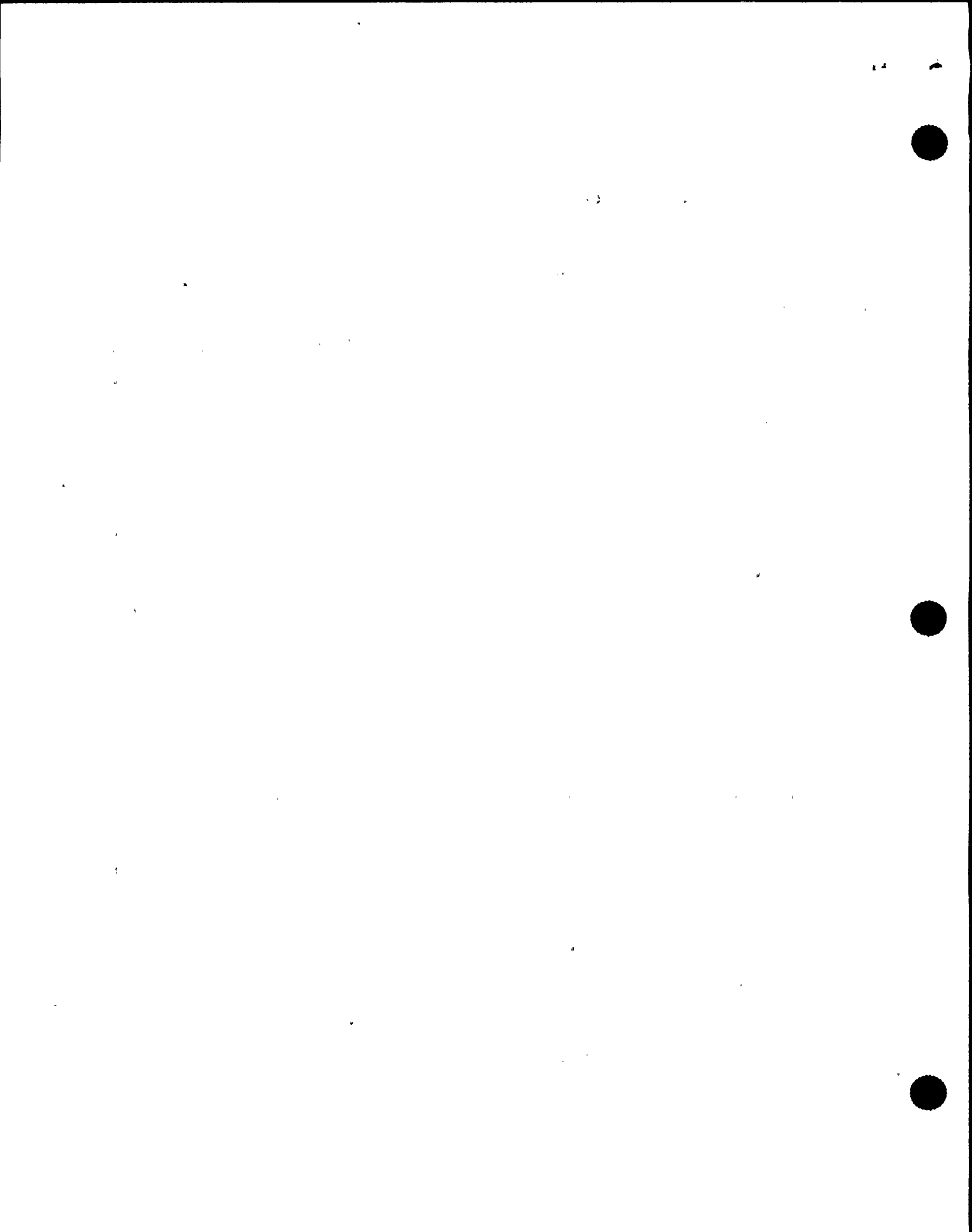
2 MR. VATTER: What did he tell you to do when you
3 went to the UPS?

4 MR. ARMSTRONG: He told me just to check and see
5 if they had tripped and if any lights were in. Basically he
6 wanted a report of their status, so I immediately left the
7 control room, and I went to the UPS's to try to get a status
8 of them and see what was the matter. But when I got down
9 there, I did see that all the UPS's had tripped; all but one
10 of them had the trip light in; out of the four UPS 1-series
11 down in the bottom of them switch gear, one of them didn't
12 have the trip light in, but I checked its output voltage and
13 saw it was not sending any voltage out, so I knew it was
14 basically tripped -- it was not sending us any power.

15 At that time I picked up a Gaitronics to call the
16 control room and found out that they weren't working. I
17 forgot they come off the UPS's. So we had no Gaitronics
18 communications. Basically, I had no communications at all
19 from where I was at to the control room, so I had to leave
20 that area, go all the way up to the control room, report to
21 the SSS what I found.

22 MR. VATTER: You didn't try to do anything with
23 the UPS?

24 MR. ARMSTRONG: No, sir. I was not given any
25 direction to do anything. He wanted a status and the status



1 only.

2 MR. VATTER: Okay.

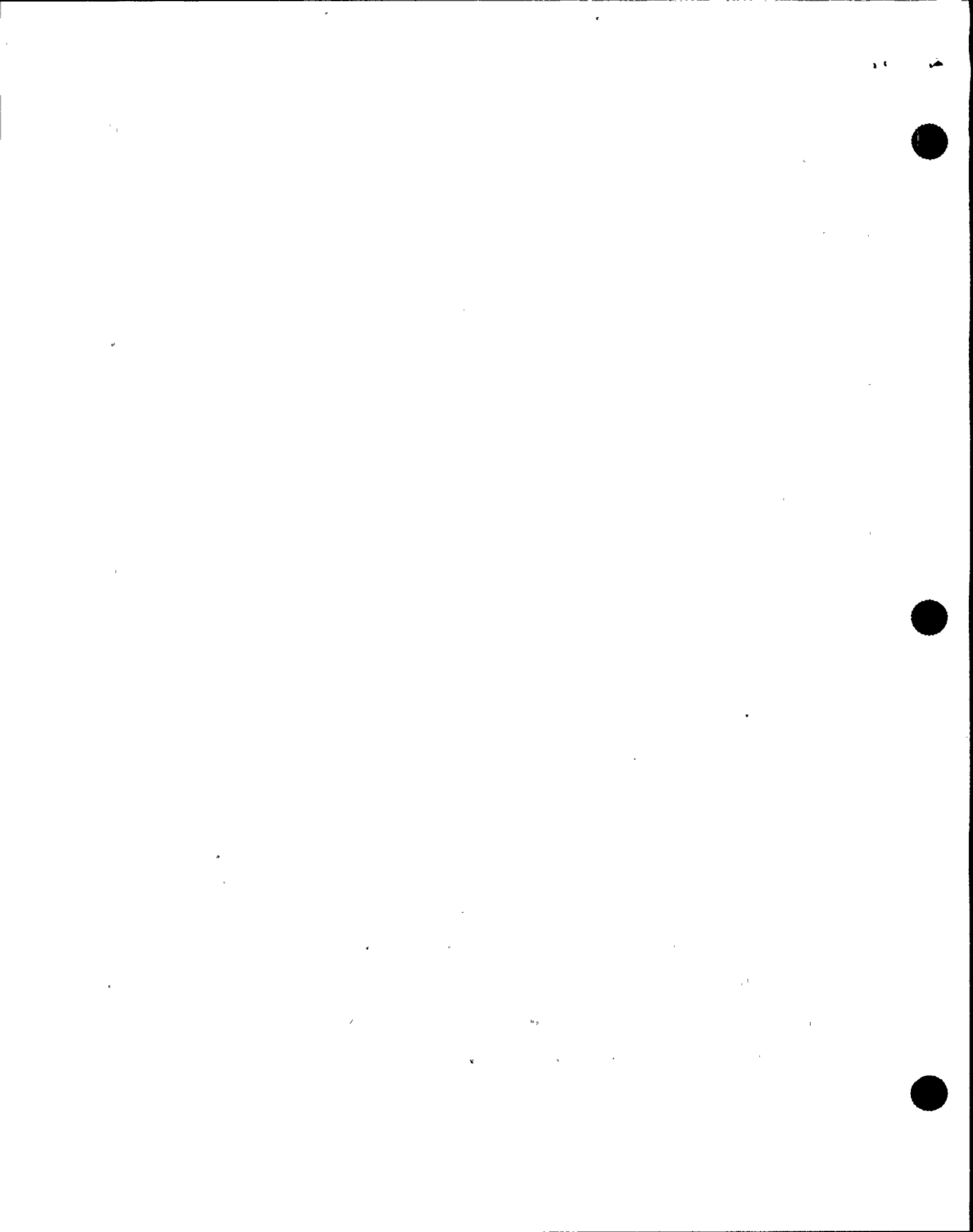
3 MR. ARMSTRONG: I ran to the control room -- I
4 believe both the assistant and the SSS were there -- and I
5 gave them the status of the UPS's. The assistant SSS, Mike
6 Eron, directed me at that time to go back down to the UPS's
7 and see if we could figure out what happened to them and try
8 to get them back on line. That was the time Phil MacEwen
9 went down with me, and shortly behind me were two ROs -- two
10 or three ROs came down. We had a couple other shifts coming
11 on at that time, and I don't think I was down at the UPS's
12 myself for more than three or four minutes. We didn't get
13 anything started on, because I could not find the procedure
14 to restart the UPS's from the condition they were in.

15 MR. VATTER: Can we back up just a bit?

16 MR. ARMSTRONG: Sure.

17 MR. VATTER: Mike Eron told you, then, to go down
18 and to -- specifically what did he tell you to do that
19 second trip downstairs?

20 MR. ARMSTRONG: I couldn't quote you the exact
21 word, but I think he told me to see if there was a way I
22 could get the UPS's back in service, to see if we could
23 power up our annunciators and our full-core display. That's
24 the best of my knowledge. It was pretty fast and quick at
25 the time. I believe he told me to go back down and try to



1 restart the UPS's.

2 MR. VATTER: So you understood that to be
3 instructions to turn them on if you could figure out a way.

4 MR. ARMSTRONG: Basically, yes.

5 When I went down there, another non-licensed
6 operator, Phil MacEwen, the guy who's under my name there,
7 he went down with me, and we had the procedure open and were
8 trying to find the correct procedure to start the UPS's.

9 MR. VATTER: Where did you look for a procedure?

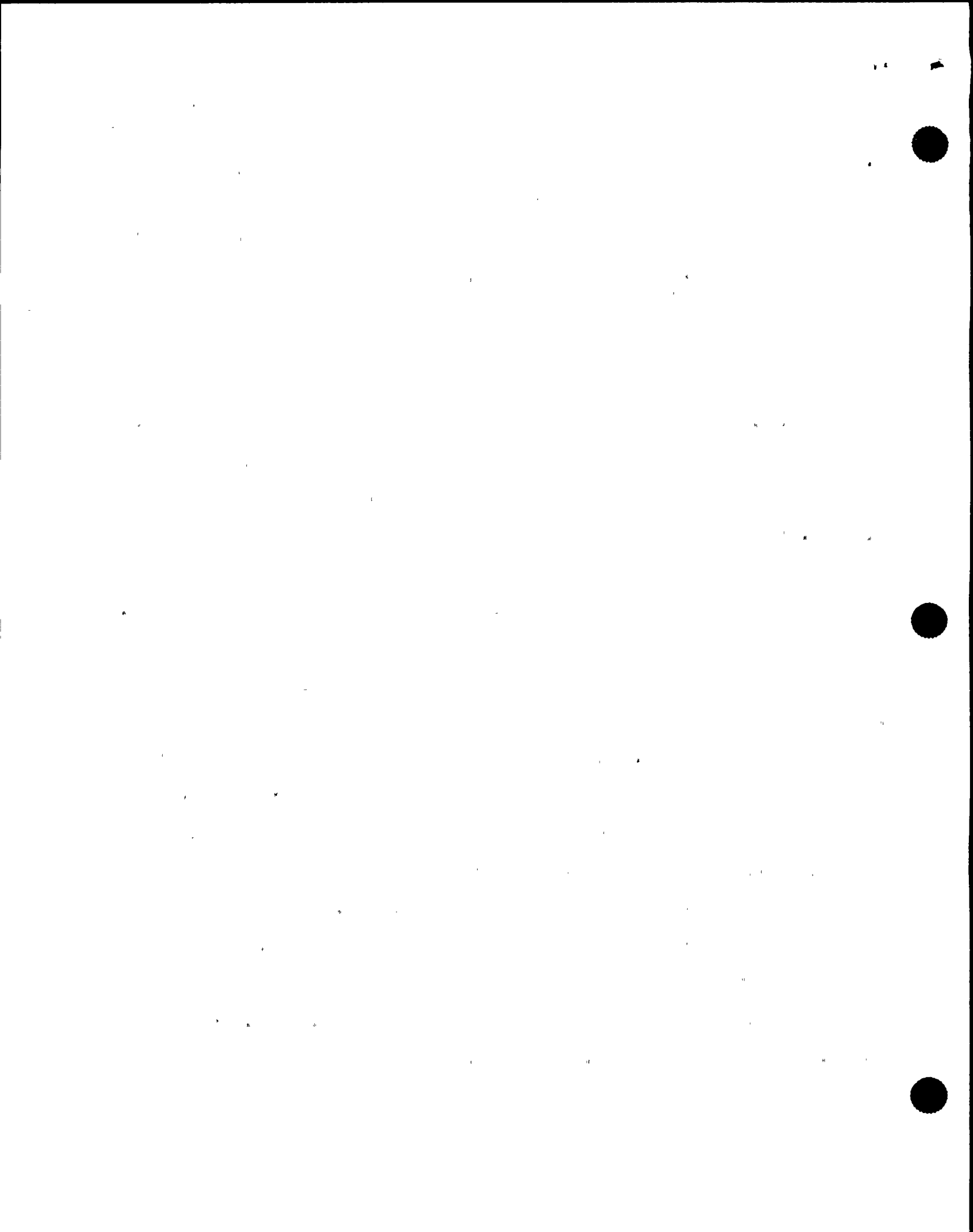
10 MR. ARMSTRONG: There's a procedure holder right
11 on the outside of the UPS.

12 MR. VATTER: How many procedures are there?

13 MR. ARMSTRONG: Number of books? This just had
14 one book there, but it went through all the UPS. It wasn't
15 a specific procedure for UPS 1-series. It covered all the
16 UPS's and different electrical -- I think it was more of an
17 electrical procedure; it really wasn't a UPS -- I can't even
18 remember the number of the procedure, to tell you the truth.

19 MR. VATTER: So it wasn't written specifically for
20 the UPS that you were going to try to get started.

21 MR. ARMSTRONG: It was in there, but it wasn't --
22 what am I trying to say -- it wasn't a specific procedure
23 for UPS-1 on that thing. It also had the UPS 2-series on
24 that thing, the UPS 3-series, and other procedures in the
25 body of that procedure. It wasn't like you could open it up



1 and the first page would start UPS-1. It was quite a
2 lengthy, thick procedure.

3 MR. VATTER: So you had to hunt for the section
4 that applied.

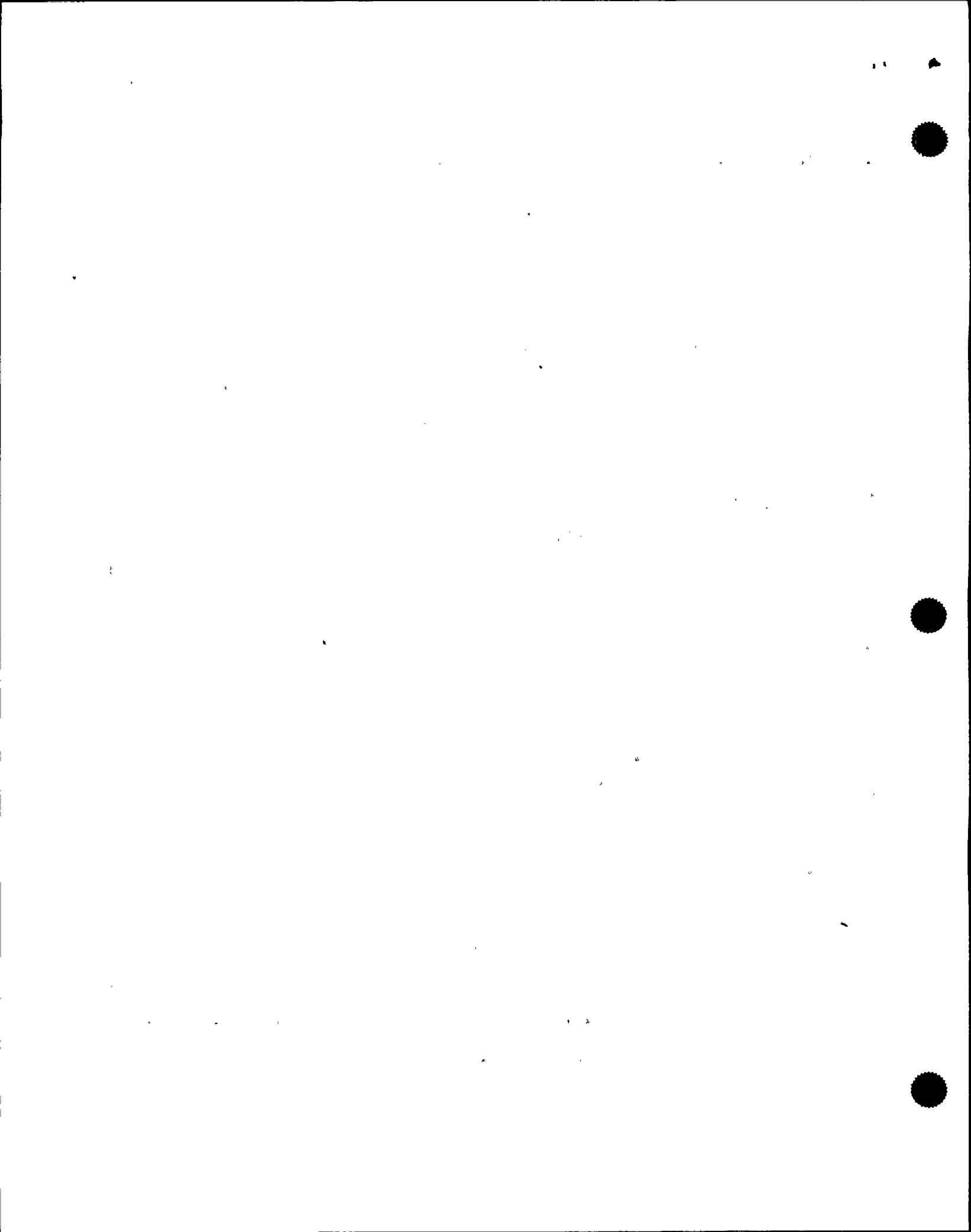
5 MR. ARMSTRONG: Yes, I did.

6 MR. VATTER: Okay.

7 MR. ARMSTRONG: About the time I was finished
8 hunting through, one of the licensed operators showed up; it
9 was Dave Hanczyk. He thought he knew where it was, but we
10 found the UPS 1-series, but it wasn't applicable to the
11 state the UPS was in now; this was like a startup of a UPS
12 that had been shut down; it really wasn't a startup of a UPS
13 that had completely tripped off line, so we really didn't
14 have any procedure to tell us exactly what to do in this
15 situation. At least I didn't think it was specific for
16 the --

17 MR. VATTER: Were there other sections of the
18 procedure that maybe would have worked better?

19 MR. ARMSTRONG: Not that I could find -- or myself
20 or Dave Hanczyk could find at the time. They gave us -- I
21 don't want to say they come out and told us to do it as
22 quickly as possible, but we felt quite a sense of urgency to
23 get these things running. With our quick brief through the
24 procedure, the closest thing we could find to it was that
25 one blurb on starting them up from just being shut down, and



1 it really wasn't applicable to the status that the UPS was
2 in.

3 MR. VATTER: So what did you do then?

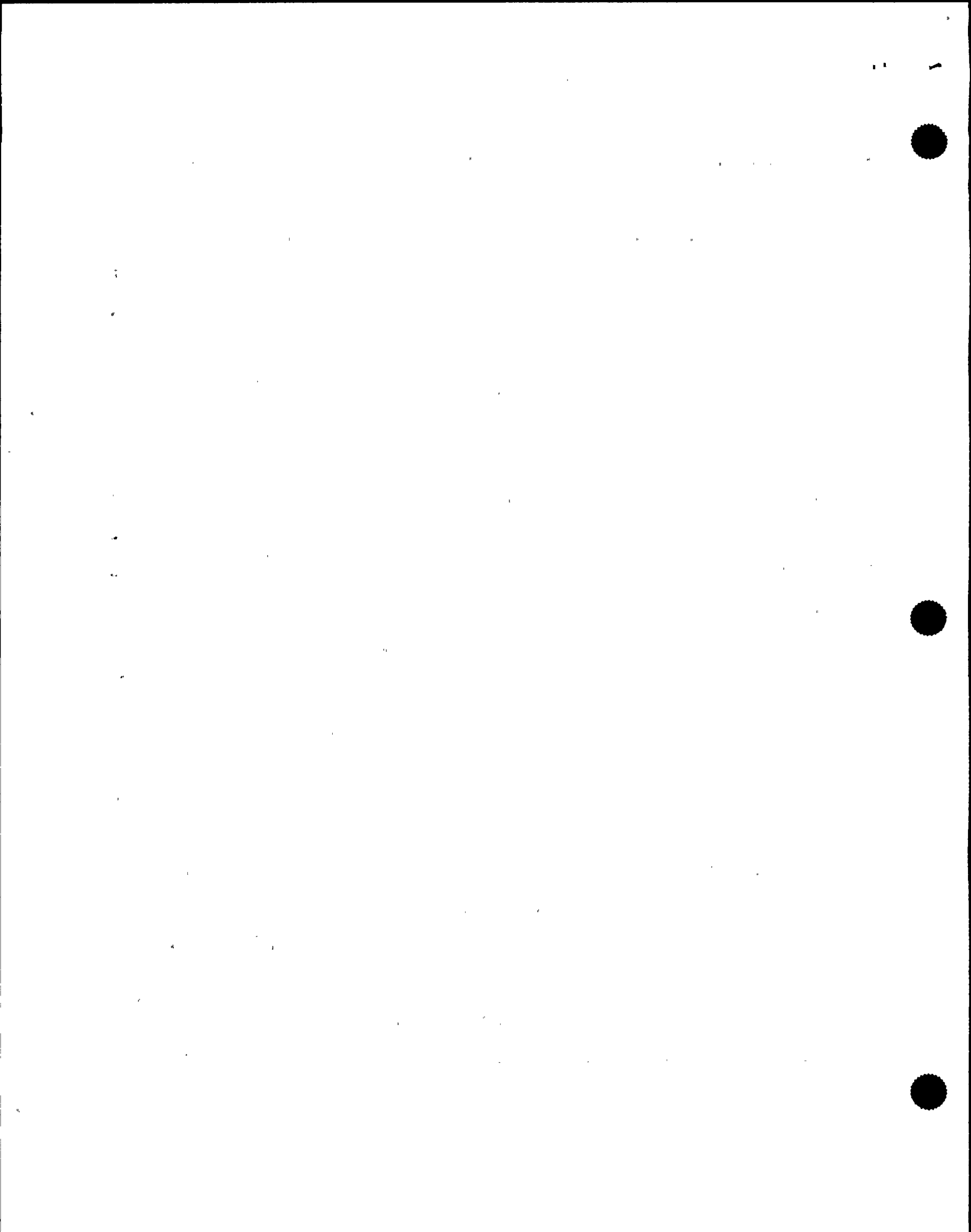
4 MR. ARMSTRONG: Well, we really kind of punted for
5 a minute, didn't know what to do for sure. At that time we
6 had probably two other licensed operators -- both of them
7 were CSOs -- that showed up, and they basically told us that
8 we can get them back on line by going from the maintenance
9 power. I had never been trained on opening the panel up,
10 and inside the panel there's a box you open up, and there's
11 an actual breaker that you can manually close in to make the
12 UPS's run off the maintenance supplies. They directed us to
13 do that.

14 MR. VATTER: Were you working right with Dave?

15 MR. ARMSTRONG: Yes, I was.

16 MR. VATTER: Was that Dave's idea to do that?

17 MR. ARMSTRONG: I'm not sure if that was Dave's or
18 those two other licensed operators'. I don't know if it was
19 a combined effort or if it was just Dave's, but I do
20 remember that they gave us the direction to go ahead and
21 open those boxes. There's a box inside there -- I'm not
22 sure if you've seen it before, but it's got a position
23 indication. It said the breakers were open -- open or
24 off -- but there's no breaker on the outside. I didn't even
25 know how to get into it. There's a little catch bar



1 underneath it; Dave Hanczyk did show me that. We had to
2 pull that little catch bar and pull the box open; then you
3 had a breaker that you could close in right there to close
4 the maintenance supply in. We just went around and did the
5 other three after that one was done.

6 MR. VATTER: Did you try to start the UPS in the
7 normal start-up mode, even though you didn't have the --

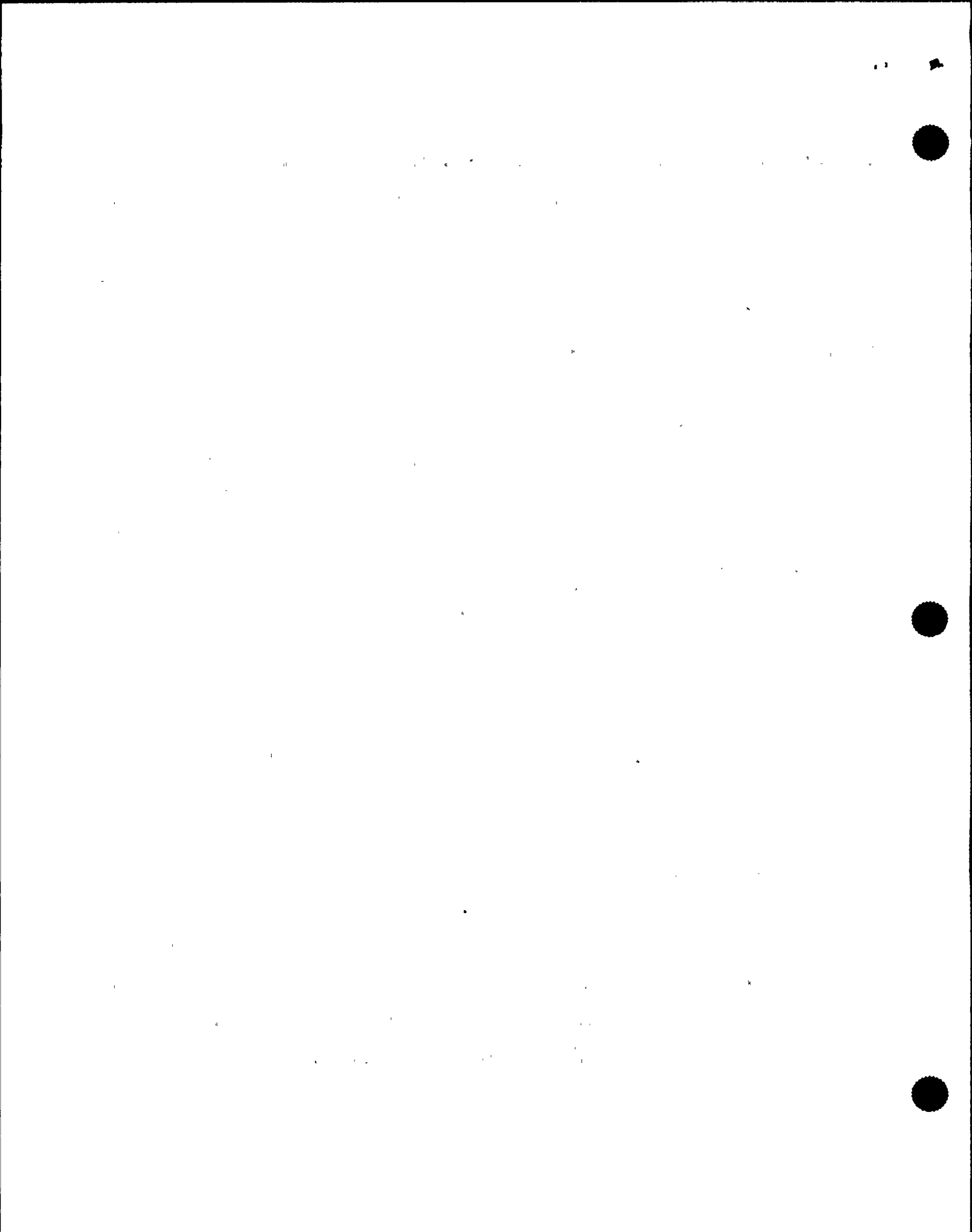
8 MR. ARMSTRONG: We got to the procedure, and Dave
9 Hanczyk was reading the procedure. He was going down step
10 by step, like we were starting it up. It says close in CB-
11 2 and then I think it says close in CB-1. But then he got
12 down to the next step, and he said, Wait a minute; this
13 doesn't do what we want to do, basically.

14 MR. VATTER: Were you doing those steps as he read
15 them?

16 MR. ARMSTRONG: Yes, I was.

17 He basically backed out of that. We reopened the
18 breakers that we closed. We closed two breakers, the CB-2
19 and, I think, the CB-1, because they were trip-free when we
20 got down there -- and he was reading the procedure and he
21 had us close those breakers in. When we found out that the
22 procedure wasn't applicable to what we were doing, he had to
23 stop and go back and reopen those breakers that we closed.

24 I think that's right about the time that the other
25 licensed operators showed up down there, and then they



1 figured, About the only thing we're going to be able to do
2 is to get them on maintenance and get some power to them and
3 to close that CB-4.

4 MR. VATTER: Was there a procedure for putting
5 them on maintenance?

6 MR. ARMSTRONG: There was a procedure for putting
7 them on maintenance -- I'm not sure, to tell you the truth.
8 I really don't know. My experience with the UPS's are very,
9 very limited. It's just not something we do as non-licensed
10 operators very often at all. I'm sure I couldn't even tell
11 you for positive that there was one to put them on
12 maintenance supply.

13 I know people have talked about putting them in
14 maintenance before, but usually, whenever we do any kind of
15 UPS work, we've got electrical people down there with us to
16 do it.

17 MR. VATTER: Okay.

18 So how did you put them on maintenance, then?

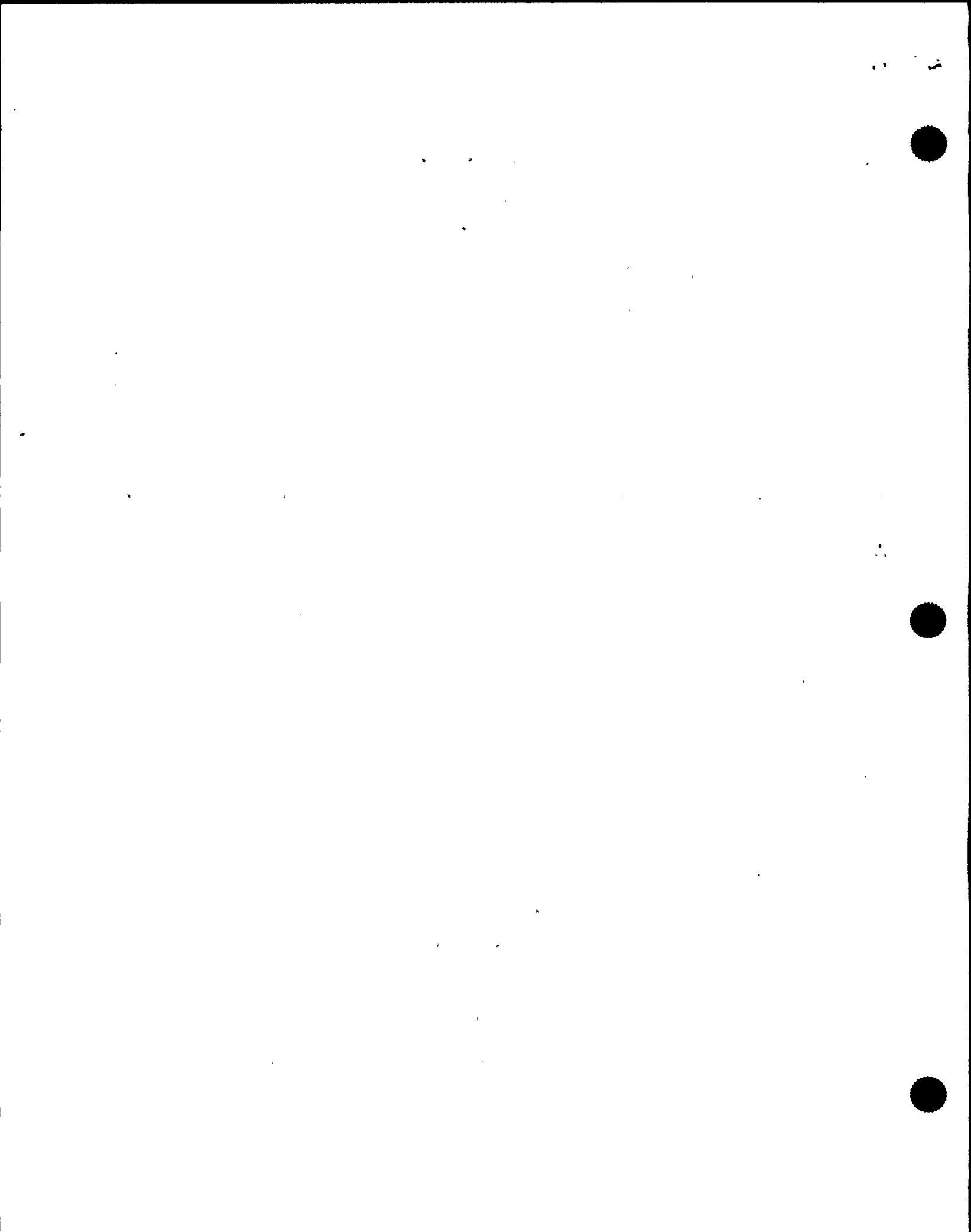
19 MR. ARMSTRONG: All we did was shut circuit
20 breaker 4, which cuts in right from the maintenance supply.

21 MR. VATTER: Which one did you do first?

22 MR. ARMSTRONG: I think it was CB-1 and CB-2 that
23 we tried first -- circuit breaker 1 and 2.

24 MR. VATTER: But that didn't work.

25 MR. ARMSTRONG: No, it did not work.



1 MR. VATTER: Then you reopened those breakers --

2 MR. ARMSTRONG: That's correct.

3 MR. VATTER: -- and then you --

4 MR. ARMSTRONG: That's when, I think, Dave talked
5 to the other two licensed operators that came down and
6 decided, since we did have AC power -- we could see that
7 there was AC power coming into the UPS -- if we just shut
8 the maintenance breaker, they should work; it should give
9 power out. That was when they directed us to open that box,
10 and Dave showed me how to open up that little breaker box
11 down there, and I closed the breaker -- I believe it's
12 circuit breaker 4.

13 MR. VATTER: Which UPS was that that you were
14 doing that to?

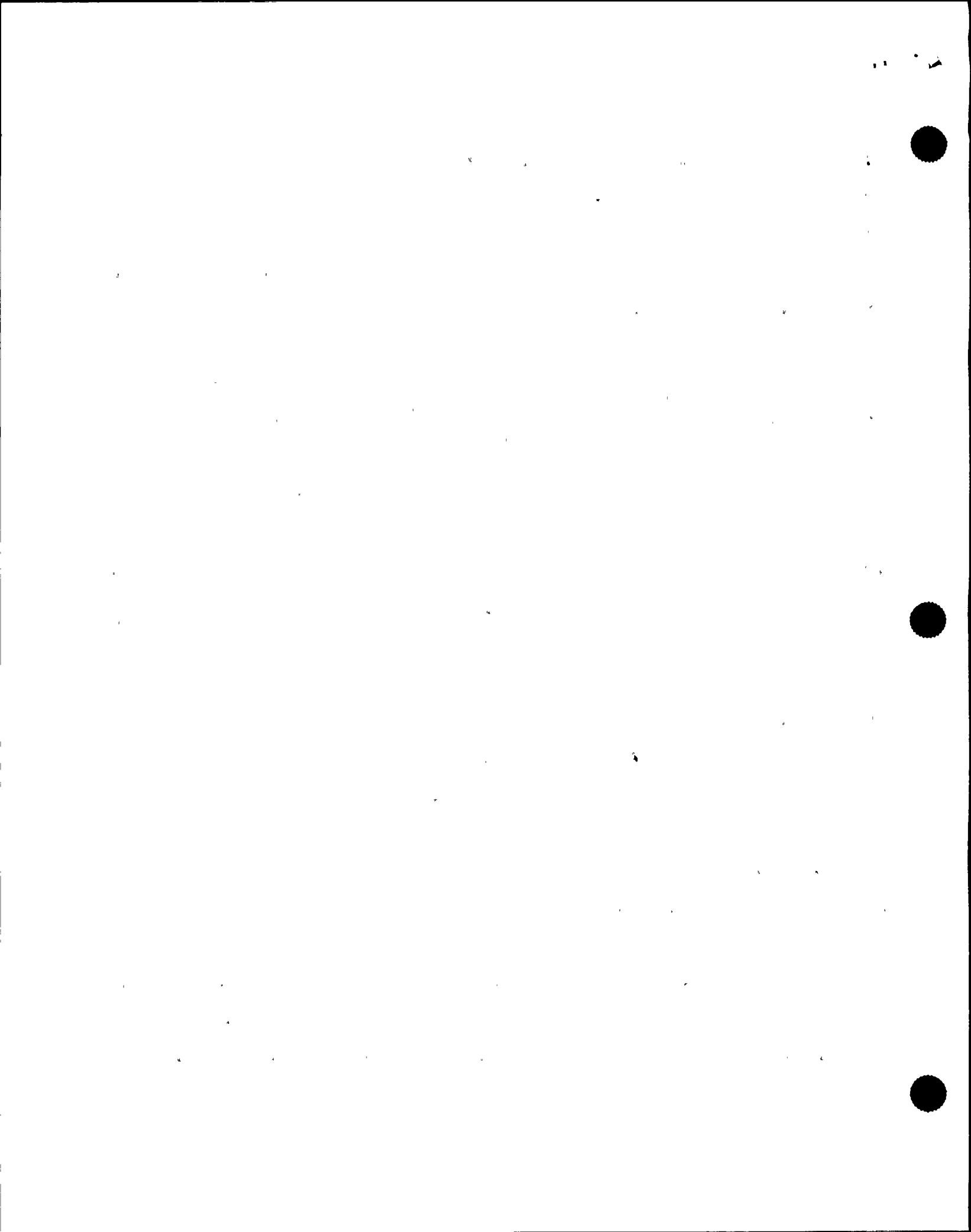
15 MR. ARMSTRONG: That was 1-Delta, the first one we
16 did.

17 MR. VATTER: Okay.

18 MR. ARMSTRONG: I believe when you walked into the
19 room it was the first one on the right; I think that's 1-
20 Delta.

21 MR. VATTER: And that seemed to get going okay
22 then.

23 MR. ARMSTRONG: Yes. We saw that we had output
24 voltage after that. To be quite honest, I didn't know if we
25 were doing what was right, but I did see we had AC input



1 coming in, and when we closed the breaker we had output
2 coming out. As soon as we got that first one closed, I
3 started hearing Gaitronics announcements, so we did power up
4 some of the Gaitronics, so I knew we must be getting power
5 back up on the controller.

6 MR. VATTER: Things were getting better.

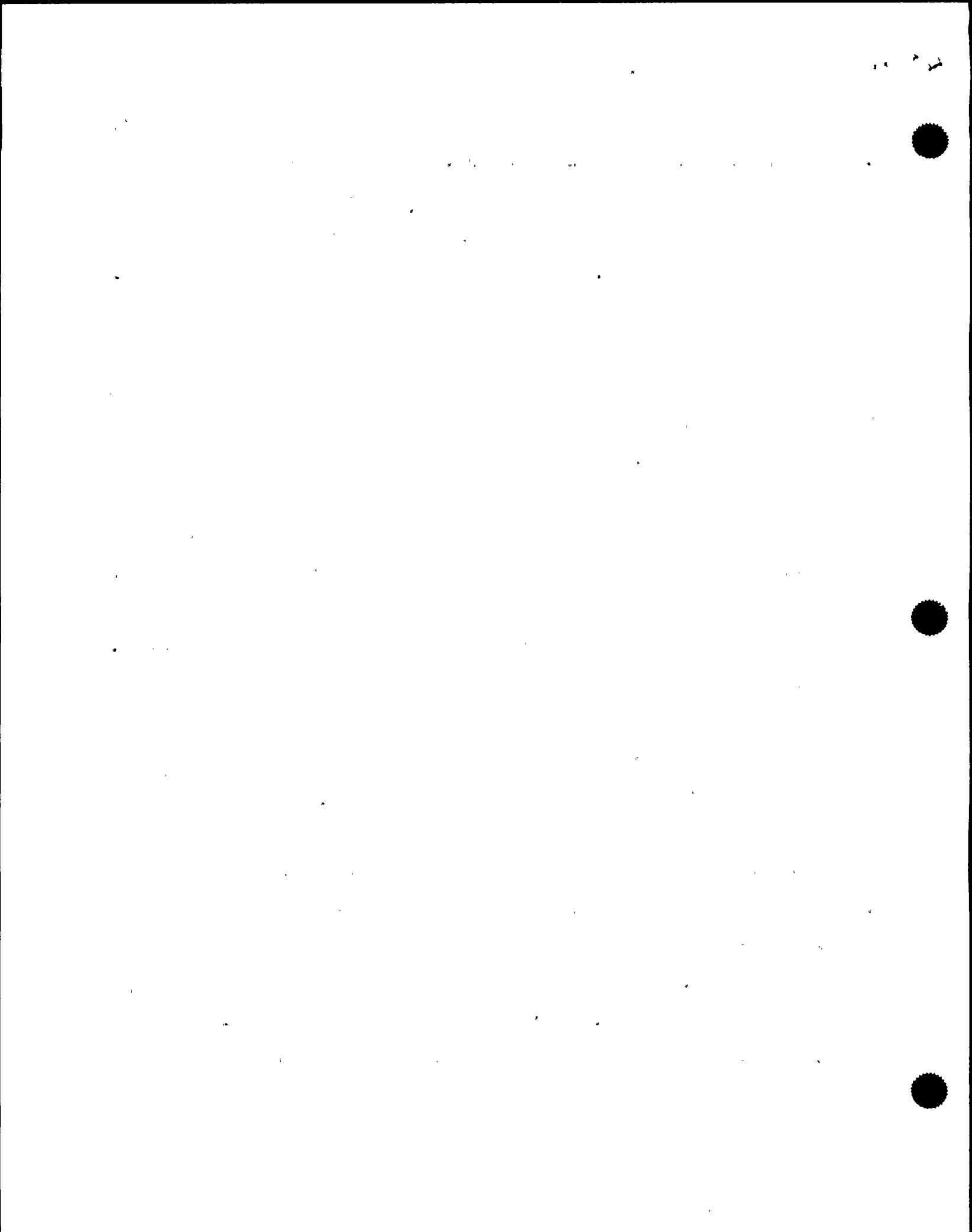
7 MR. ARMSTRONG: Whatever we did must have helped,
8 so then we went on and did the other three remaining UPS's.

9 MR. VATTER: So you did the other three by
10 yourself or with Dave?

11 MR. ARMSTRONG: At that time, there were probably
12 four or five non-licensed operators down there and three or
13 four licensed operators. I think I helped on one of the
14 other ones, and the other two were gotten by other people.
15 I know some of the other non-licensed operators were down
16 there, but I couldn't tell you for sure who closed in what
17 breaker and what UPS. I know I did help on the 1-Delta, and
18 then I went over to one of the other ones -- I think it was
19 Bravo -- and I think Phil MacEwen actually did that one, but
20 I helped him get the box open, and he closed that one in.

21 MR. VATTER: If Dave had not been there to show
22 you how to close in that CB-4, do you think you would have
23 been able to figure it out?

24 MR. ARMSTRONG: I don't think so. I really don't,
25 because the training we received as far as the non-licensed



1 operators goes is, they basically trained us to mimic --
2 that's on the front of the board -- where the power sources
3 come from. There's a little mimic around the front of the
4 board telling you where the power is coming from, how the
5 UPS works, but I've never had any practical training on
6 that. We've been taken right down to the UPS and told, This
7 is where the breakers are, and how to -- I've had the basic
8 training. I can start a UPS up -- we've been through
9 that -- but to actually start one up like we did I've never
10 been trained for; I've never had to actually manually shut
11 one of those breakers in there. I guess I might have
12 figured it out, but not fast enough for what they needed. I
13 would have had to get some help.

14 MR. VATTER: There was one more UPS in another
15 room that --

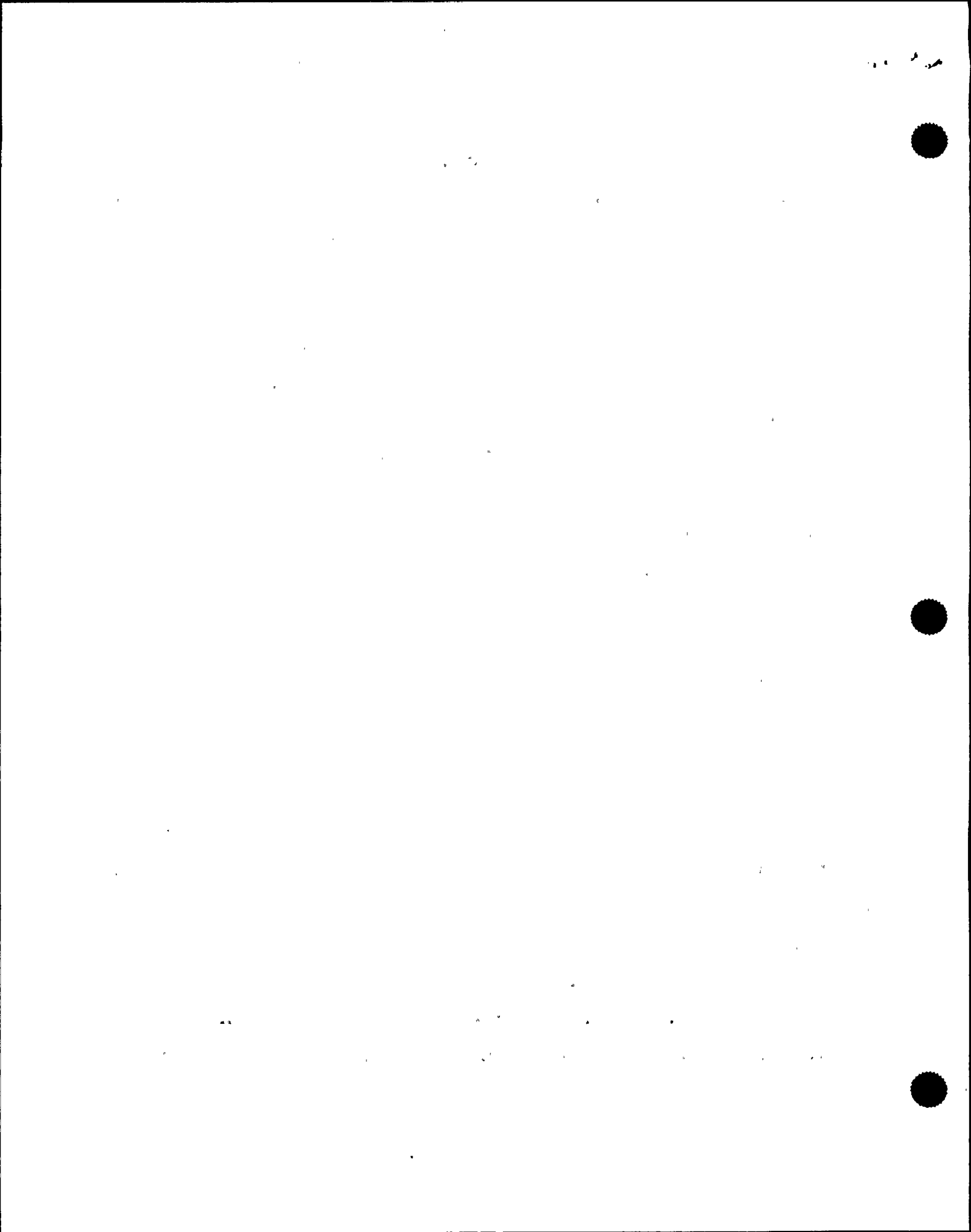
16 MR. ARMSTRONG: Yes, 1G. That's in the control
17 building.

18 MR. VATTER: Who took care of that?

19 MR. ARMSTRONG: That I'm not sure. I know before
20 Dave Hanczyk got down to where I was, he did check that one
21 and saw that it was tripped, but I don't know who restarted
22 it. That I don't know.

23 MR. VATTER: Okay. What did you do next?

24 MR. ARMSTRONG: I guess after we got those
25 restarted, I went back up to the control room. I believe it



1 was at that point that they told me to go to the off-gas
2 panel, because they wanted to restart off-gas. I was
3 directed by Dave Hanczyk at that time to go to the off-gas
4 panel and reset the off-gas and get off-gas back in service.

5 MR. VATTER: What was happening at off-gas?

6 MR. ARMSTRONG: Basically, it had isolated. We
7 didn't have any recombiner trains in service or freeze-out
8 dryers; it was completely isolated.

9 MR. VATTER: Why was that?

10 MR. ARMSTRONG: I'm not positive why it did, to
11 tell you the truth.

12 MR. VATTER: It probably had something to do with
13 the UPS.

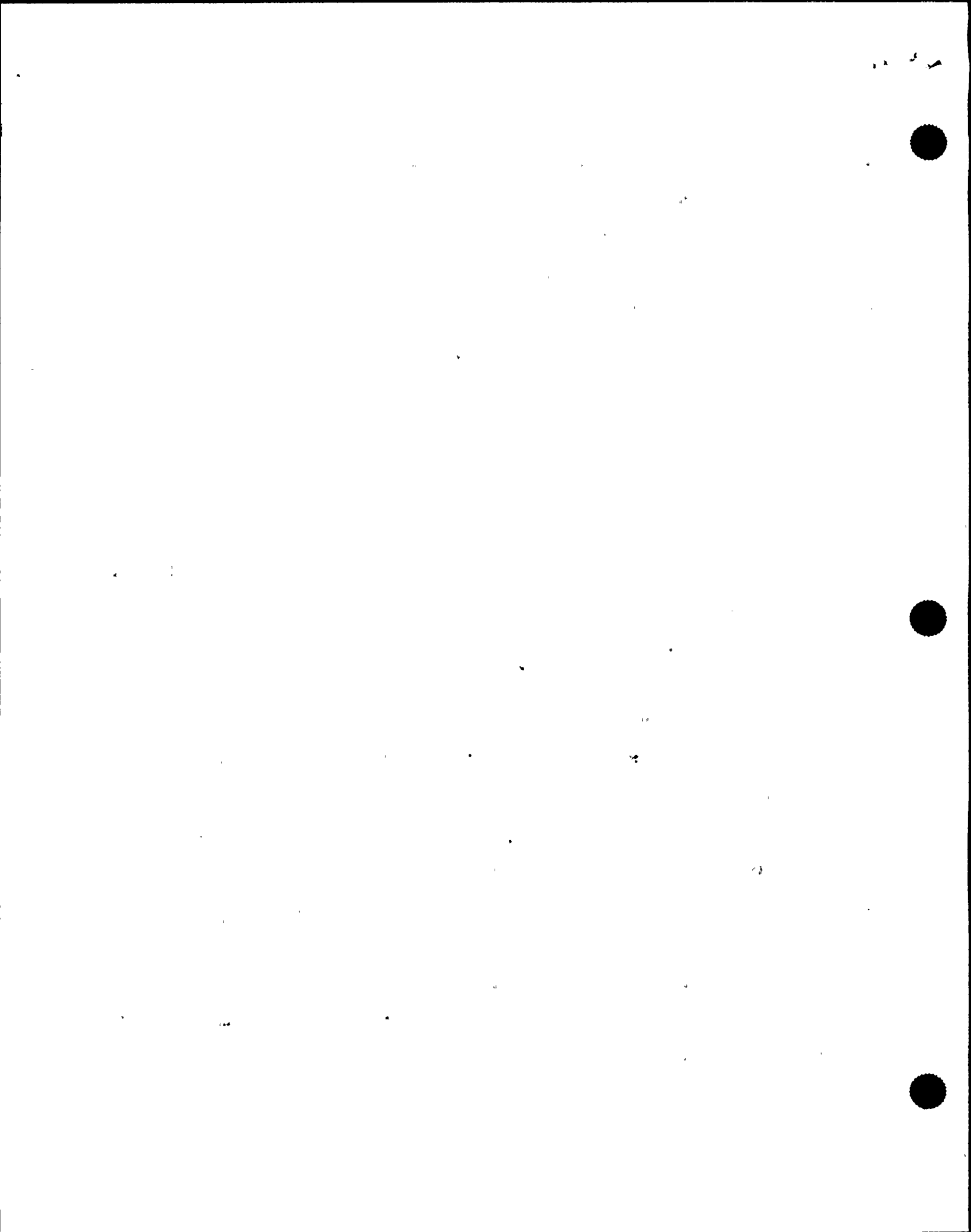
14 MR. ARMSTRONG: I'm just making an assumption. I
15 really don't know, to tell you the truth.

16 MR. VATTER: Okay.

17 MR. ARMSTRONG: But when I got up to the off-gas
18 panel, before I touched any buttons or anything, I was
19 called by the control room and told not to reset off-gas,
20 not to get off-gas going, because we had high-radiation
21 alarms in and I was supposed to immediately leave the
22 turbine building.

23 MR. VATTER: High-radiation alarms on what?

24 MR. ARMSTRONG: They didn't even tell me. They
25 told me they had high-radiation alarms, not to restart off-



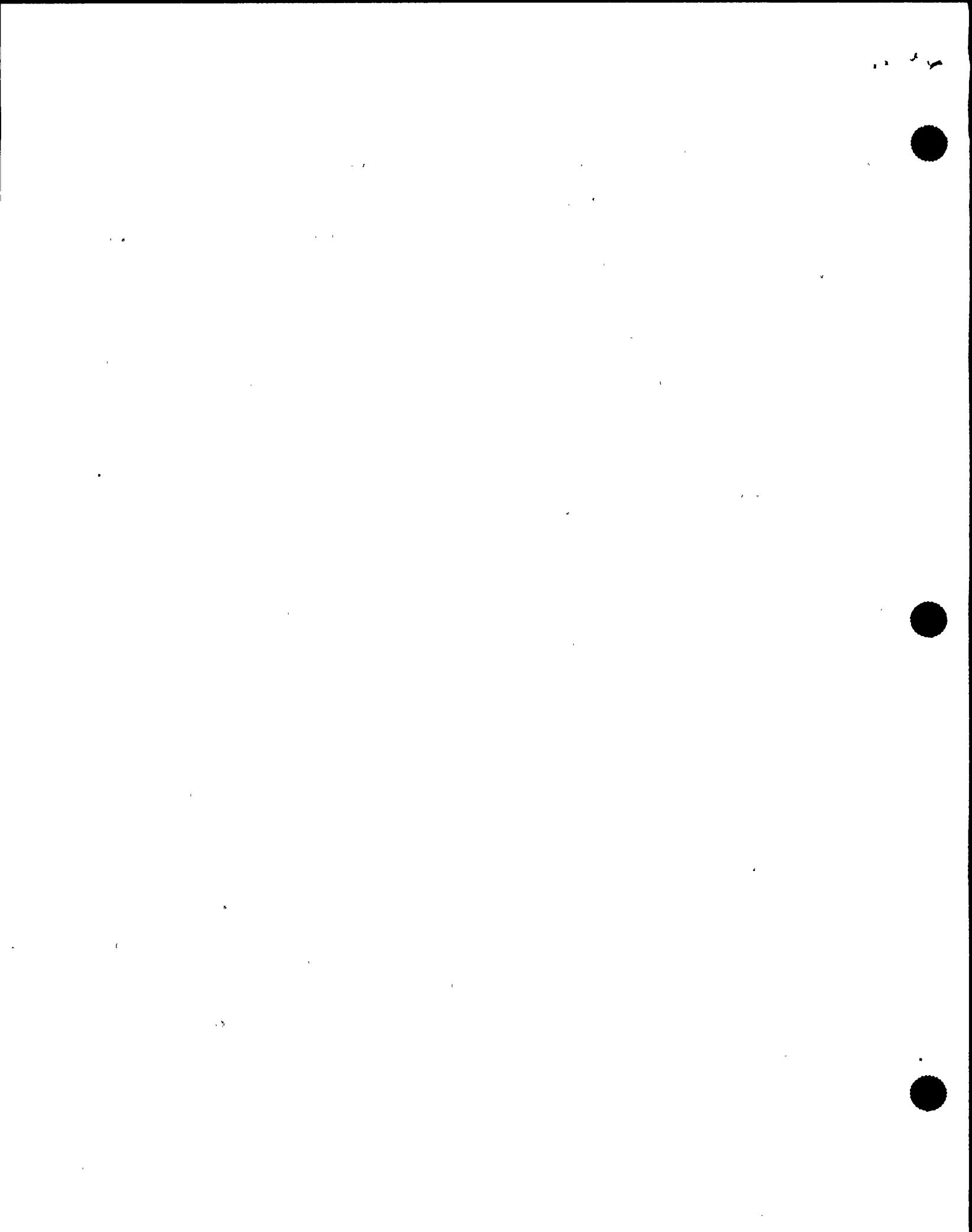
1 gas. It was a pretty quick communication; they didn't
2 explain; I didn't ask any questions. They just told me they
3 had high-radiation alarms. I didn't know that until I saw
4 when I came back one of the CAMs going off on 250, heavy-
5 radiation area monitor -- or alarms -- there, but when I was
6 up at the off-gas panel, they just told me we had high-
7 radiation alarms and to not start off-gas and to leave the
8 turbine building immediately.

9 MR. VATTER: Did you understand from that that the
10 high radiation was in the turbine building?

11 MR. ARMSTRONG: Yes. That's all I did say. I
12 don't know if I stated that. They said they had high-
13 radiation alarms going off in the turbine building and to
14 not start off-gas and to leave the turbine building
15 immediately.

16 On my way out, I did get called again to put the
17 feed pump lube oil motors in start. When the feed pumps
18 trip, their lube oil pumps will only run in auto for so
19 long, and then they trip, unless you put them in start.
20 They called me and asked me on my way out to put B and C
21 feed pumps lube oil switches in start, which I did.

22 Then I guess I saw one other non-licensed operator
23 and gave him the message that we had to leave the turbine
24 building. Then I left the turbine building and went back up
25 to the control room.



1 MR. VATTER: Was there any announcement on the
2 Gaitronics about that?

3 MR. ARMSTRONG: I can't remember if there was or
4 not.

5 MR. VATTER: But you got it from that phone call.

6 MR. ARMSTRONG: Yes, I did.

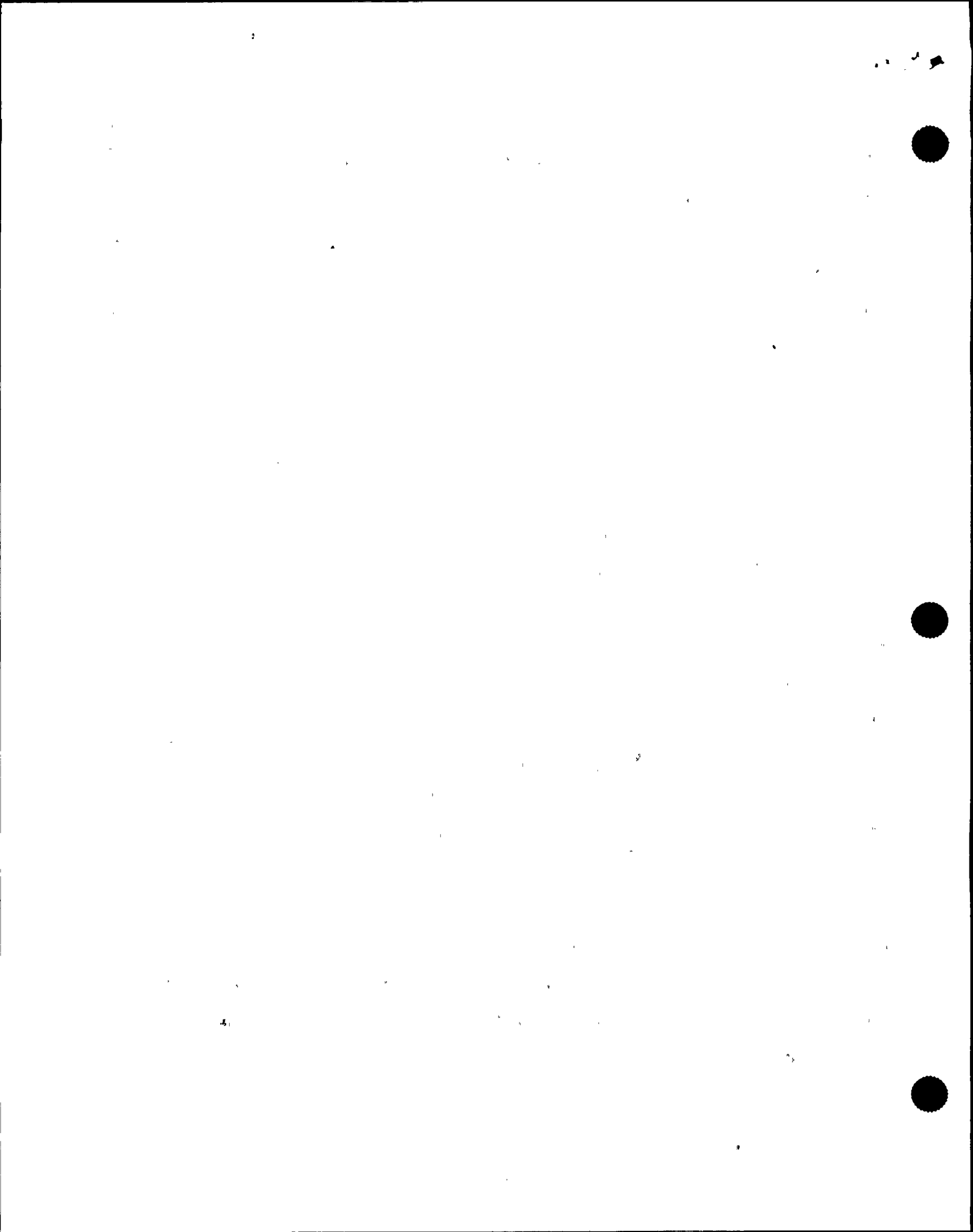
7 MR. VATTER: Okay.

8 MR. ARMSTRONG: It was a short time after that, I
9 guess, that we had permission to go back in the turbine
10 building, because they sent two non-licensed operators down
11 to restart the condensate booster pump, or a condensate
12 booster pump, and they sent me to the condensate
13 demineralizer panel just to check flow through the
14 condensate demineralizers when they started the booster
15 pump.

16 MR. VATTER: What about off-gas? Who took care of
17 that?

18 MR. ARMSTRONG: As far as I know, nobody did.
19 They never had sent me back up there. I don't know if they
20 had somebody else go back up there or not.

21 I witnessed them start the booster pump and
22 checked my flows on the demineralizers and noticed that they
23 were low, that we really had very low flow through both
24 demineralizers for we should have with the booster pump
25 running.



1 MR. VATTER: Why did you need to be at the
2 demineralizer panel when they started the booster pump?

3 MR. ARMSTRONG: Just to verify flow through the
4 demineralizers, to make sure we didn't need to put another
5 demineralizer on -- just basically to make sure we got flow
6 in our DP across them.

7 MR. VATTER: What type of demineralizer is that?

8 MR. ARMSTRONG: Condensate.

9 MR. VATTER: Precoat or deep bed?

10 MR. ARMSTRONG: I guess you would call it a deep
11 bed. I don't think it's a precoat.

12 MR. VATTER: Great big tank?

13 MR. ARMSTRONG: Yes.

14 When I noticed the flows were low, I left the
15 turbine building and went up to the control room and told
16 one of the licensed operators, who wasn't on our shift -- it
17 was Bob Spooner -- that we had real low flows through the
18 condensate demineralizers. He went and checked the panels
19 and said the bypass was open; that's why. At that time, I
20 took it that they didn't know that the bypass was open,
21 because he seemed to be surprised when I told him he only
22 had so much flow going through the demineralizers.

23 After that, I don't really think I had any other
24 functions in the plant during this transient. We had two
25 other shifts in by that time, and they were trying to get



1 those guys out and give us a break. To my recollection, I
2 can't remember having any other function in the plant.

3 MR. VATTER: What time did you finally get to go
4 home?

5 MR. ARMSTRONG: Shortly after 11 o'clock in the
6 morning, so we were here for 12 and a half, 13 hours by the
7 time we left.

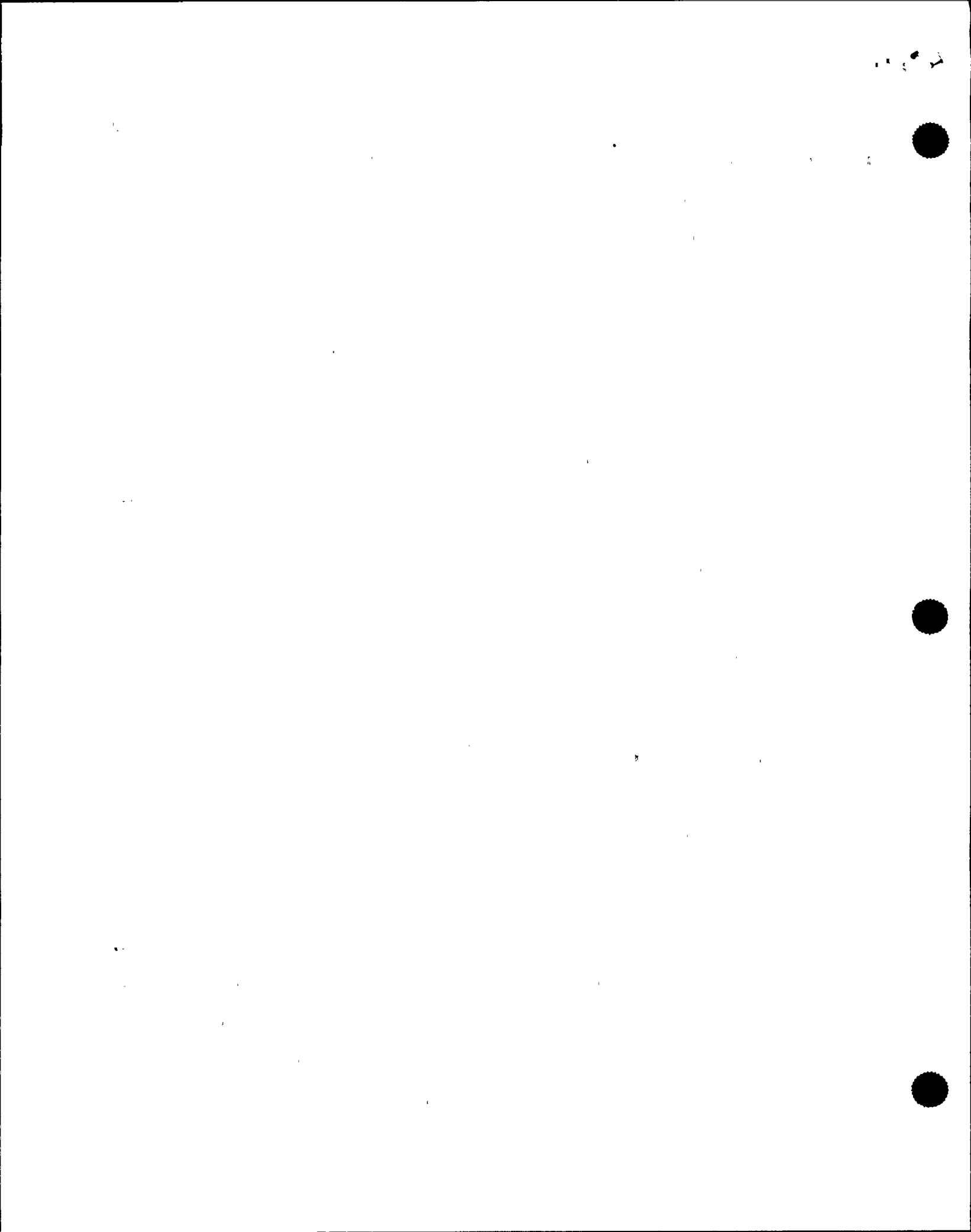
8 MR. VATTER: What do you think we ought to know
9 about the event that you haven't told us?

10 MR. ARMSTRONG: There's nothing really I can think
11 of. I've told you about everything I can remember.

12 MR. VATTER: Do you think things went well?

13 MR. ARMSTRONG: I think things could have gone
14 smoother; things could have been better if I had more -- I
15 personally feel I could have done better if I had better
16 training on the UPS's. I could have gotten the control
17 power, annunciators and stuff, back sooner.

18 I don't think it's personal to myself. There were
19 a lot of other people down there, non-licensed operators and
20 licensed operators, that really weren't comfortable with the
21 UPS's. They teach the theory, but they really didn't teach
22 any practical part on those UPS's. We did get power back,
23 and that part of it was good, but I think we could have done
24 it a lot sooner and maybe made the SSS's and the reactor
25 operator's jobs a lot easier if we could have got that done



1 quicker.

2 MR. VATTER: If you had known more about the
3 UPS's -- for example, if you had known exactly what to do --
4 would you have been able to do it your first trip down to
5 them?

6 MR. ARMSTRONG: If I was directed to do so. My
7 first trip to the UPS's was not to get them going; they just
8 wanted a status. My second trip down, I don't think I would
9 have had to wait for a reactor operator or a licensed
10 operator to show up if I was given a direction to get them
11 back on line. With more training, I could have got them
12 back on line and felt comfortable about it.

13 MR. KAUFFMAN: With all the things you need to
14 know in your job, do you think it -- Well, we could say
15 that everybody should be trained on everything and know how
16 everything works. With all the things that you need to
17 learn, would you classify this as something pretty important
18 to be trained on?

19 MR. ARMSTRONG: Up to this event, I wouldn't
20 have -- UPS's are not something we usually deal with a
21 whole lot. They pretty much run. If we have to take one
22 down, if we get an alarm then we call the control room and
23 let them know and we WR it and get maintenance done on it.
24 That's about the only time you see one shut down or put in a
25 different mode: when there's a problem with it.

11-11-68



1 Myself personally have not been involved with
2 actually having to take one off line for maintenance. There
3 are a few non-licensed operators that have and knew about
4 that circuit breakers and how to get that panel open to get
5 into that one, but I would say the vast majority of us
6 didn't know. As it turned out, those UPS's were -- training
7 would be very important.

8 MR. VATTER: What else could be different, besides
9 UPS training? Procedure? Is there some area for help
10 there?

11 MR. ARMSTRONG: Definitely. That UPS procedure --
12 I was told that the UPS procedure was already in the
13 process of being rewritten, I believe by Bob Crandall. I
14 think that's the one I had to take down there and show; he
15 was the one investigating the UPS's there. I was told that
16 he was already in the process of rewriting them and giving
17 up more guidance for such circumstances that we were in at
18 the time. I would say that would be definitely a high
19 priority, to get those. Because it was tough even to find
20 it; anything remotely close to something we needed was very
21 difficult to find in that procedure.

22 MR. KAUFFMAN: What you had to do sounded really
23 pretty simple: make sure that all the breakers were open
24 and then shutting that --

25 MR. ARMSTRONG: It was actually very simple.

11 2 19



1 Either if we had training on it or it was in a procedure,
2 that could have made our life a lot easier. I don't think
3 they can transfer every situation, but hopefully these
4 incidents we can at least learn something from and fix it.

5 MR. KAUFFMAN: That's really where my previous
6 question was coming from before: There are all kinds of
7 situations and things you could be trained on, and I guess
8 in hindsight this one popped up, that it would be a good
9 one, but I guess we discussed that it wasn't intuitive, that
10 it wasn't important until it jumped up and happened.

11 MR. ARMSTRONG: Quite frankly, the way I
12 understood UPS's, they couldn't do what they did. I thought
13 that they were always going to be in service; that's the way
14 we were trained. They were uninterruptable power supplies;
15 I didn't know they had a trip-free mode where the logic
16 screwed up. I was not even trained on that. I was always
17 under the assumption that, if we lost one power, it would
18 automatically go to the other power or back to battery, so I
19 was quite bewildered when I went down there and saw that we
20 had AC input when nothing was going out, we had no power at
21 all from them.

22 MR. KAUFFMAN: I have some I guess related
23 questions. The plant went to a site area emergency pretty
24 early on in the event. How is your accountability and those
25 sorts of functions taken care of? What did you do for

11



1 accountability?

2 MR. ARMSTRONG: When they called a site area
3 emergency, we all carded into the control room, which is our
4 evacuation assembly area, and, as far as I understood, once
5 we punched into the control room, we were accounted for.
6 Right after we carded in, we were still sent out on jobs to
7 do, so we were carded back out, but I was under the
8 assumption that, once we carded in after the emergency was
9 declared, we were accounted for.

10 We were asked some time later -- I couldn't tell
11 you exactly what time, but later on in the morning there, we
12 had to go back in and repunch in to the control room again,
13 so evidently that first time we did not get accounted for;
14 or, if we did get accounted for, it wasn't caught for some
15 reason.

16 MR. KAUFFMAN: When you get sent out into the
17 plant, did you have health physics techs?

18 MR. ARMSTRONG: At the time I was being sent out,
19 we hadn't turned over to the TSC and OSC yet; we were still
20 under command from the SSS. At that time we did not have
21 to. By the time they were manned up, they were starting to
22 send people out from other shifts now, giving us a break,
23 and those people did have to go out with a health physics.
24 That part seemed cumbersome to their job, to a point. They
25 had to go over to Unit One and meet their damage control



1 team and then go back to Unit Two to do their function that
2 the SSS wanted them to do. I was listening to some of the
3 communications; there seemed to be quite a bit of confusion.

4 MR. KAUFFMAN: The emergency preparedness aspects
5 aren't really a focus for the Incident Investigation
6 Team --

7 MR. ARMSTRONG: Right.

8 MR. KAUFFMAN: -- but we ask questions a little
9 bit on how it impacted your direct activities that you were
10 doing. We're not going to pursue it in any great detail.

11 Was there anything in this event that you thought
12 really helped the crew or you do well in carrying out your
13 tasks?

14 MR. ARMSTRONG: I would say the performance of my
15 SSS and my assistant SSS helped me, because they seemed to
16 maintain their coolness. Nobody -- In fact even the
17 licensed operators, my CSO, nobody got excited, and
18 basically made their communications a lot more clear and
19 concise because they weren't screaming and yelling and
20 running around. Everybody seemed to know exactly what to
21 do, and it made it very easy for them to direct us to do the
22 jobs that they needed done. I would say that would probably
23 be the biggest thing that helped me.

24 MR. KAUFFMAN: Okay.

25 Bill?

11-11-68



1 MR. VATTER: No.

2 MR. KAUFFMAN: Neither one of us have any more
3 questions. I'll give you an opportunity, if you'd like, to
4 say anything or talk about anything that we haven't
5 discussed or brought up. If so, fine. If not, we're done.

6 MR. ARMSTRONG: I don't have anything further to
7 add that I can think of.

8 MR. KAUFFMAN: Okay. That concludes the
9 interview.

10 [Whereupon, at 1:58 p.m., the interview was
11 concluded.]

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REPORTER'S CERTIFICATE

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

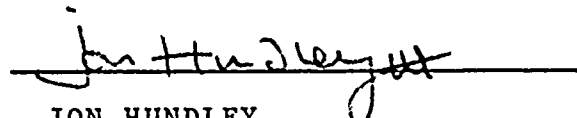
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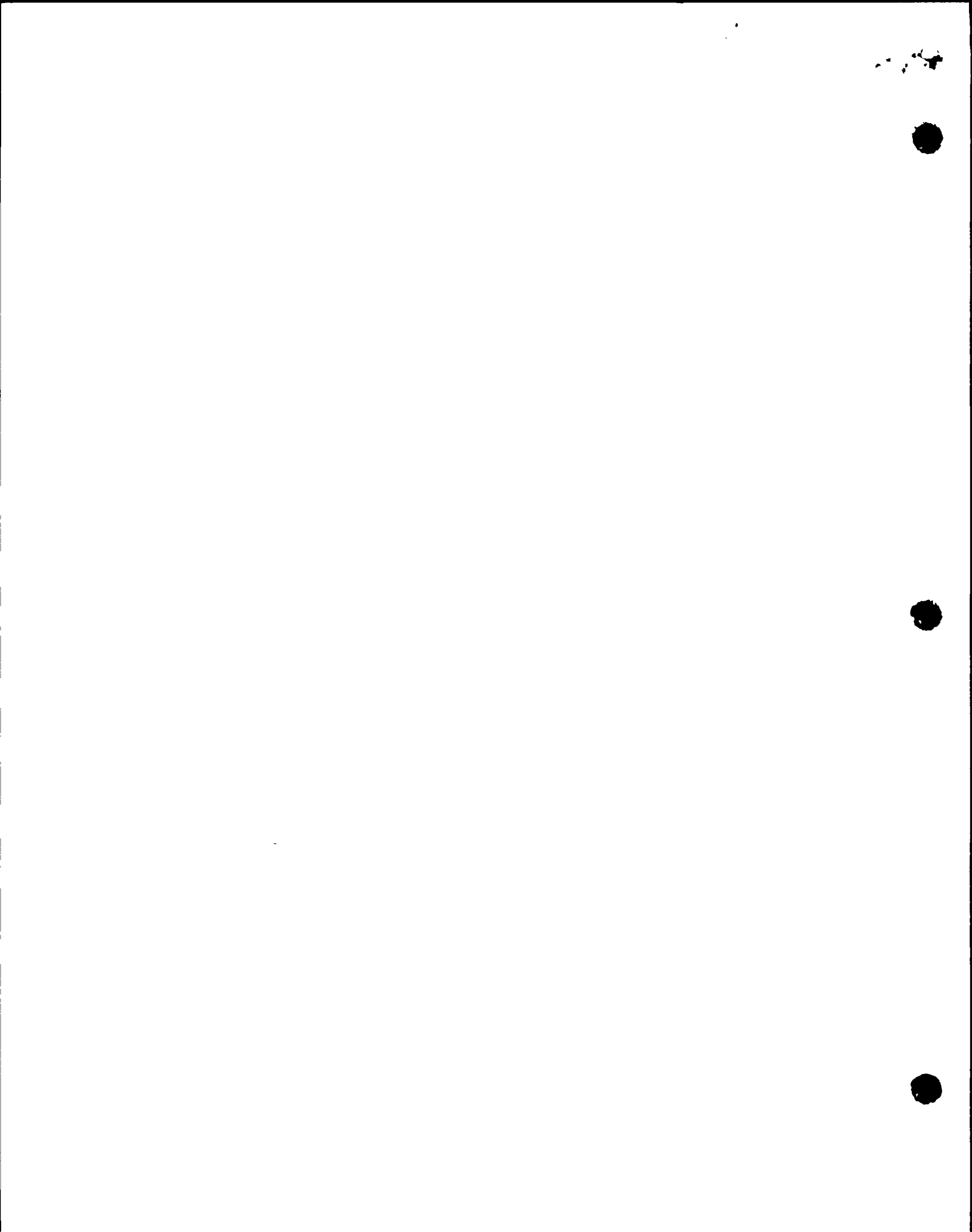
NAME OF PROCEEDING: Int. of AARON ARMSTRONG

DOCKET NUMBER:

PLACE OF PROCEEDING: Scriba, N.Y.

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JON HUNDLEY
Official Reporter
Ann Riley & Associates, Ltd.



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07-82A-91

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
Interview of: AARON ARMSTRONG

Docket No.

LOCATION: Scriba, New York

DATE: Monday, August 19, 1991

PAGES: 1 - 27

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Exhibit 3-1 (continued)

-3-

ADDENDUM TO INTERVIEW OF AARON ARMSTRONG NAOC
(Name/Position)

Page Line Correction and Reason for Correction

~~18~~ ²⁴

24 3 Remove the word "Transfer" and put in its place
"train us on". I don't believe I said "transfer."

Page 1 of 1 Signature Aaron W. Armstrong Date 8/21/91

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2/3/84



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
INCIDENT INVESTIGATION TEAM

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Interview of :  
AARON ARMSTRONG :  
(Closed) :  
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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 1:23 p.m.

PRESENT FOR THE IIT:  
John Kauffman, NRC  
William Vatter, INPO

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11 11



## P R O C E E D I N G S

[1:23 p.m.]

1  
2  
3 MR. KAUFFMAN: It's August 19, 1991, at 1:23 p.m.  
4 We're in the Nine Mile Point, Unit Two, admin building, to  
5 conduct an interview concerning the August 13 event at Nine  
6 Mile Point Two. My name is John Kauffman. I'll be leading  
7 the interview. I'm with NRC.

8 MR. VATTER: I'm Bill Vatter. I'm from INPO, on  
9 loan to the IIT.

10 MR. ARMSTRONG: Aaron Armstrong, nuclear  
11 operator C.

12 MR. KAUFFMAN: Aaron, I'd like to start the  
13 interview by having you just tell us a little bit about your  
14 education, background, and your career path to where you are  
15 now.

16 MR. ARMSTRONG: I graduated from high school and  
17 went into the Navy nuclear power program, where I was a  
18 machinist's mate for six years. Then I started with Niagara  
19 Mohawk soon afterwards, and I've been a nuclear auxiliary  
20 operator for the last two and a half years, until now.

21 MR. KAUFFMAN: You were on midnight shift of the  
22 day of the event, correct?

23 MR. ARMSTRONG: That's correct. I was on midnight  
24 shift.

25 MR. KAUFFMAN: I'd like you to tell us a little



1 bit about the plant conditions before the event, what kind  
2 of equipment was out of service, and the power to the best  
3 of your recollection. Then run us through the event, the  
4 alarms you saw and the indications you saw and the actions  
5 that you and the rest of the crew took.

6 MR. ARMSTRONG: Okay. As far as I can recall, we  
7 were at 100 percent power when we took the transient. As  
8 far as major equipment that were out, I don't know of any  
9 major plant equipment that was not running. That particular  
10 night, I had the turbine building rounds. I was responsible  
11 for taking care of the turbine building equipment. It was  
12 pretty much a basic night, nothing new or abnormal.

13 MR. VATTER: Does the turbine building routine  
14 also include any other service building stuff, the switch  
15 gear rooms?

16 MR. ARMSTRONG: No, sir. We have a person  
17 specifically assigned to the control building or switch gear  
18 building, a different time. We rotate through those rounds.

19 At the time that we took the transient, I was in  
20 the process of changing a nitrogen bottle for our hot water  
21 heating system. We pressurize our hot water heating system  
22 with nitrogen. The expansion tank, that's where I was at  
23 when we took that transient. I knew we took it at that time  
24 because I could hear a loud bang, and then the lights went  
25 off.



1 MR. VATTER: Do you know what that bang was?

2 MR. ARMSTRONG: No, I really don't know what it  
3 was. It was almost like something was tripping or a check  
4 valve slammed, that type of noise.

5 MR. VATTER: Have you heard a turbine trip before?

6 MR. ARMSTRONG: I'd guess it was a turbine trip,  
7 but I was out in the aux service building, so I couldn't  
8 tell you if that's what it was or not. I just heard a loud  
9 noise, and then the lights went off.

10 MR. KAUFFMAN: Where were you when the lights went  
11 out?

12 MR. ARMSTRONG: Right in the aux service building.  
13 The hallways that go to Unit One from Unit Two. At that  
14 point -- I don't feel I'm qualified to tell you exactly what  
15 that noise was, because I really was not in the plant. I  
16 did hear a noise, but I'm not sure exactly what it was.

17 MR. VATTER: I don't think that I understand  
18 exactly where you were. That long hallway that goes  
19 alongside the Unit Two turbine building -- where everybody  
20 goes heading for the lunchroom.

21 MR. ARMSTRONG: Yes, sir. Right there, if you  
22 notice, just past the coat rack, there is a rack of four  
23 nitrogen bottles right there that we use for our hot water  
24 heating system. That's where I was standing, right there,  
25 when we took the shutdown there.





1           When I heard that noise, I just stopped what I was  
2 doing and went to the control room. I didn't hear any  
3 announcements or anything, but I just figured, since the  
4 lights went on and I heard a noise, that we took a trip --  
5 either a turbine trip, or we scrambled, or something, so I  
6 immediately went to the control room from there. From that  
7 point, I was directed by my SSS, who was Mike Conway, to go  
8 down to the normal switch gear and check the UPS 1-series.

9           MR. VATTER: What door did you come in the control  
10 room by?

11          MR. ARMSTRONG: I came in the back door.

12          MR. VATTER: What was going on when you came in?

13          MR. ARMSTRONG: When I came in -- it was actually  
14 very strange -- it was quiet. I knew something wasn't quite  
15 right, because there was no noise. I didn't hear any  
16 annunciators; usually when we take a scram -- I've been in  
17 the control room for a scram before -- it gets quite loud,  
18 sometimes, with people talking and the annunciators; but  
19 when I actually walked from the panels into the main part of  
20 the control room, everybody was just standing there, staring  
21 at a blank board. It almost looked like they were still in  
22 shock. I didn't know exactly what had happened. I was  
23 probably in the control within a minute after it happened,  
24 or less.

25          MR. VATTER: Who did you see when you walked in?



1 MR. ARMSTRONG: I saw the CSO, who was Mark Davis.

2 MR. VATTER: Where was he?

3 MR. ARMSTRONG: He was standing right in front of  
4 the 603 panel, looking at the full-core display -- which  
5 there wasn't any -- and that's what really took me by  
6 surprise. He just kind of looked like he wasn't sure what  
7 had happened or how we were going to go from there at that  
8 point. I probably wasn't in the control room more than a  
9 minute or two when I was directed by the SSS to immediately  
10 go to the UPS.

11 MR. VATTER: Who else did you see when you came  
12 in?

13 MR. ARMSTRONG: All I remember seeing was a CSO  
14 and an SSS and the assistant SSS.

15 MR. VATTER: And you didn't see them doing  
16 anything?

17 MR. ARMSTRONG: At that time they were not  
18 manipulating anything, to my knowledge. I saw the CSO  
19 standing there, and he wasn't manipulating anything. I'm  
20 not sure if there was another RO in there at a panel or not.  
21 The only panel I remember looking at was the 603 panel, or  
22 the full-core display, just to see if all the lights were in  
23 for a scram, and there were none. As soon as I walked in  
24 there, the SSS snagged me and sent me down there, so I  
25 really wasn't in there very long to see if anybody was doing



1 anything or not.

2 MR. VATTER: What did he tell you to do when you  
3 went to the UPS?

4 MR. ARMSTRONG: He told me just to check and see  
5 if they had tripped and if any lights were in. Basically he  
6 wanted a report of their status, so I immediately left the  
7 control room, and I went to the UPS's to try to get a status  
8 of them and see what was the matter. But when I got down  
9 there, I did see that all the UPS's had tripped; all but one  
10 of them had the trip light in; out of the four UPS 1-series  
11 down in the bottom of them switch gear, one of them didn't  
12 have the trip light in, but I checked its output voltage and  
13 saw it was not sending any voltage out, so I knew it was  
14 basically tripped -- it was not sending us any power.

15 At that time I picked up a Gaitronics to call the  
16 control room and found out that they weren't working. I  
17 forgot they come off the UPS's. So we had no Gaitronics  
18 communications. Basically, I had no communications at all  
19 from where I was at to the control room, so I had to leave  
20 that area, go all the way up to the control room, report to  
21 the SSS what I found.

22 MR. VATTER: You didn't try to do anything with  
23 the UPS?

24 MR. ARMSTRONG: No, sir. I was not given any  
25 direction to do anything. He wanted a status and the status



1 only.

2 MR. VATTER: Okay.

3 MR. ARMSTRONG: I ran to the control room -- I  
4 believe both the assistant and the SSS were there -- and I  
5 gave them the status of the UPS's. The assistant SSS, Mike  
6 Eron, directed me at that time to go back down to the UPS's  
7 and see if we could figure out what happened to them and try  
8 to get them back on line. That was the time Phil MacEwen  
9 went down with me, and shortly behind me were two ROs -- two  
10 or three ROs came down. We had a couple other shifts coming  
11 on at that time, and I don't think I was down at the UPS's  
12 myself for more than three or four minutes. We didn't get  
13 anything started on, because I could not find the procedure  
14 to restart the UPS's from the condition they were in.

15 MR. VATTER: Can we back up just a bit?

16 MR. ARMSTRONG: Sure.

17 MR. VATTER: Mike Eron told you, then, to go down  
18 and to -- specifically what did he tell you to do that  
19 second trip downstairs?

20 MR. ARMSTRONG: I couldn't quote you the exact  
21 word, but I think he told me to see if there was a way I  
22 could get the UPS's back in service, to see if we could  
23 power up our annunciators and our full-core display. That's  
24 the best of my knowledge. It was pretty fast and quick at  
25 the time. I believe he told me to go back down and try to





1 restart the UPS's.

2 MR. VATTER: So you understood that to be  
3 instructions to turn them on if you could figure out a way.

4 MR. ARMSTRONG: Basically, yes.

5 When I went down there, another non-licensed  
6 operator, Phil MacEwen, the guy who's under my name there,  
7 he went down with me, and we had the procedure open and were  
8 trying to find the correct procedure to start the UPS's.

9 MR. VATTER: Where did you look for a procedure?

10 MR. ARMSTRONG: There's a procedure holder right  
11 on the outside of the UPS.

12 MR. VATTER: How many procedures are there?

13 MR. ARMSTRONG: Number of books? This just had  
14 one book there, but it went through all the UPS. It wasn't  
15 a specific procedure for UPS 1-series. It covered all the  
16 UPS's and different electrical -- I think it was more of an  
17 electrical procedure; it really wasn't a UPS -- I can't even  
18 remember the number of the procedure, to tell you the truth.

19 MR. VATTER: So it wasn't written specifically for  
20 the UPS that you were going to try to get started.

21 MR. ARMSTRONG: It was in there, but it wasn't --  
22 what am I trying to say -- it wasn't a specific procedure  
23 for UPS-1 on that thing. It also had the UPS 2-series on  
24 that thing, the UPS 3-series, and other procedures in the  
25 body of that procedure. It wasn't like you could open it up



1 and the first page would start UPS-1. It was quite a  
2 lengthy, thick procedure.

3 MR. VATTER: So you had to hunt for the section  
4 that applied.

5 MR. ARMSTRONG: Yes, I did.

6 MR. VATTER: Okay.

7 MR. ARMSTRONG: About the time I was finished  
8 hunting through, one of the licensed operators showed up; it  
9 was Dave Hanczyk. He thought he knew where it was, but we  
10 found the UPS 1-series, but it wasn't applicable to the  
11 state the UPS was in now; this was like a startup of a UPS  
12 that had been shut down; it really wasn't a startup of a UPS  
13 that had completely tripped off line, so we really didn't  
14 have any procedure to tell us exactly what to do in this  
15 situation. At least I didn't think it was specific for  
16 the --

17 MR. VATTER: Were there other sections of the  
18 procedure that maybe would have worked better?

19 MR. ARMSTRONG: Not that I could find -- or myself  
20 or Dave Hanczyk could find at the time. They gave us -- I  
21 don't want to say they come out and told us to do it as  
22 quickly as possible, but we felt quite a sense of urgency to  
23 get these things running. With our quick brief through the  
24 procedure, the closest thing we could find to it was that  
25 one blurb on starting them up from just being shut down, and



1 it really wasn't applicable to the status that the UPS was  
2 in.

3 MR. VATTER: So what did you do then?

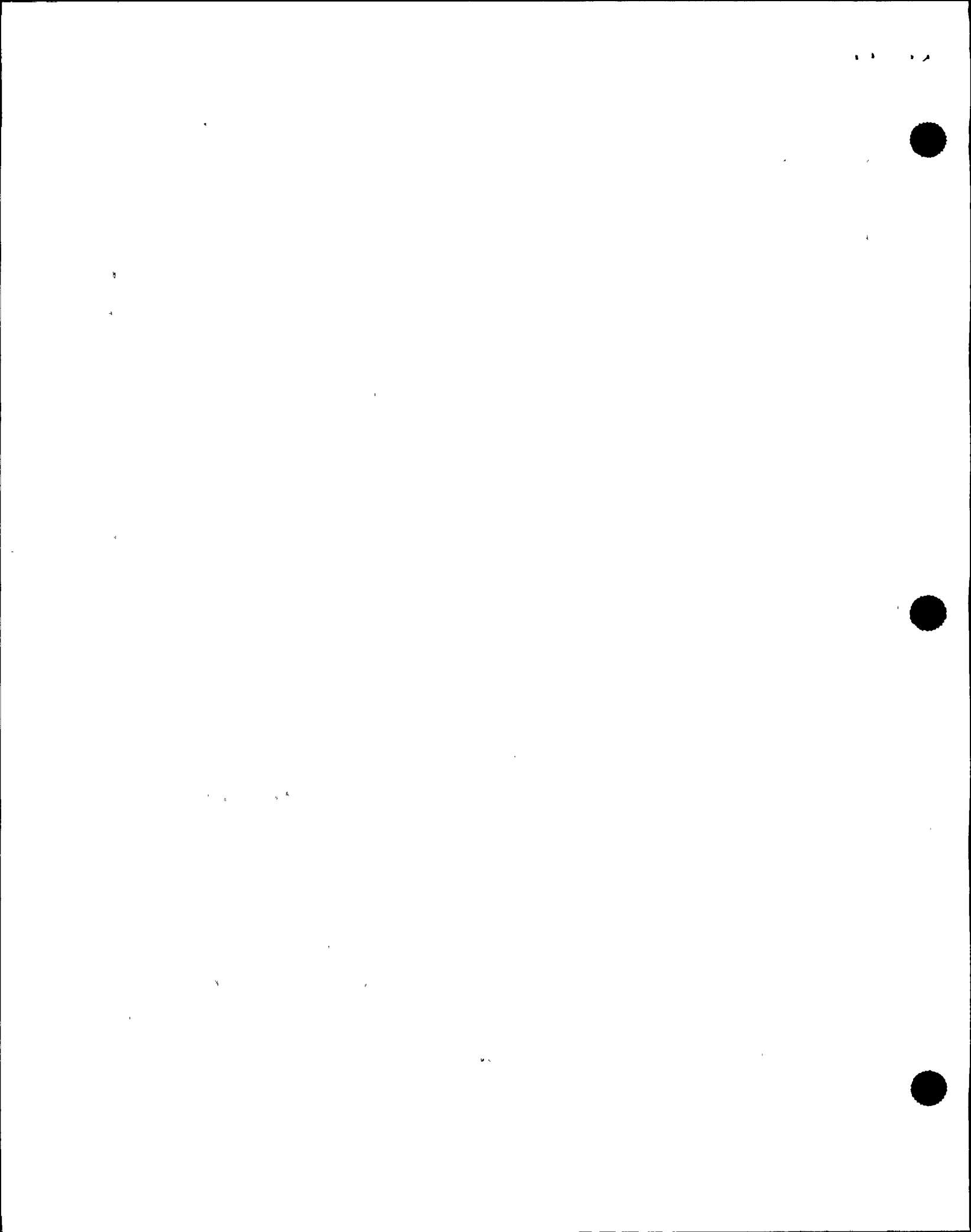
4 MR. ARMSTRONG: Well, we really kind of punted for  
5 a minute, didn't know what to do for sure. At that time we  
6 had probably two other licensed operators -- both of them  
7 were CSOs -- that showed up, and they basically told us that  
8 we can get them back on line by going from the maintenance  
9 power. I had never been trained on opening the panel up,  
10 and inside the panel there's a box you open up, and there's  
11 an actual breaker that you can manually close in to make the  
12 UPS's run off the maintenance supplies. They directed us to  
13 do that.

14 MR. VATTER: Were you working right with Dave?

15 MR. ARMSTRONG: Yes, I was.

16 MR. VATTER: Was that Dave's idea to do that?

17 MR. ARMSTRONG: I'm not sure if that was Dave's or  
18 those two other licensed operators'. I don't know if it was  
19 a combined effort or if it was just Dave's, but I do  
20 remember that they gave us the direction to go ahead and  
21 open those boxes. There's a box inside there -- I'm not  
22 sure if you've seen it before, but it's got a position  
23 indication. It said the breakers were open -- open or  
24 off -- but there's no breaker on the outside. I didn't even  
25 know how to get into it. There's a little catch bar



1 underneath it; Dave Hanczyk did show me that. We had to  
2 pull that little catch bar and pull the box open; then you  
3 had a breaker that you could close in right there to close  
4 the maintenance supply in. We just went around and did the  
5 other three after that one was done.

6 MR. VATTER: Did you try to start the UPS in the  
7 normal start-up mode, even though you didn't have the --

8 MR. ARMSTRONG: We got to the procedure, and Dave  
9 Hanczyk was reading the procedure. He was going down step  
10 by step, like we were starting it up. It says close in CB-  
11 2 and then I think it says close in CB-1. But then he got  
12 down to the next step, and he said, Wait a minute; this  
13 doesn't do what we want to do, basically.

14 MR. VATTER: Were you doing those steps as he read  
15 them?

16 MR. ARMSTRONG: Yes, I was.

17 He basically backed out of that. We reopened the  
18 breakers that we closed. We closed two breakers, the CB-2  
19 and, I think, the CB-1, because they were trip-free when we  
20 got down there -- and he was reading the procedure and he  
21 had us close those breakers in. When we found out that the  
22 procedure wasn't applicable to what we were doing, he had to  
23 stop and go back and reopen those breakers that we closed.

24 I think that's right about the time that the other  
25 licensed operators showed up down there, and then they





1 figured, About the only thing we're going to be able to do  
2 is to get them on maintenance and get some power to them and  
3 to close that CB-4.

4 MR. VATTER: Was there a procedure for putting  
5 them on maintenance?

6 MR. ARMSTRONG: There was a procedure for putting  
7 them on maintenance -- I'm not sure, to tell you the truth.  
8 I really don't know. My experience with the UPS's are very,  
9 very limited. It's just not something we do as non-licensed  
10 operators very often at all. I'm sure I couldn't even tell  
11 you for positive that there was one to put them on  
12 maintenance supply.

13 I know people have talked about putting them in  
14 maintenance before, but usually, whenever we do any kind of  
15 UPS work, we've got electrical people down there with us to  
16 do it.

17 MR. VATTER: Okay.

18 So how did you put them on maintenance, then?

19 MR. ARMSTRONG: All we did was shut circuit  
20 breaker 4, which cuts in right from the maintenance supply.

21 MR. VATTER: Which one did you do first?

22 MR. ARMSTRONG: I think it was CB-1 and CB-2 that  
23 we tried first -- circuit breaker 1 and 2.

24 MR. VATTER: But that didn't work.

25 MR. ARMSTRONG: No, it did not work.



1 MR. VATTER: Then you reopened those breakers --

2 MR. ARMSTRONG: That's correct.

3 MR. VATTER: -- and then you --

4 MR. ARMSTRONG: That's when, I think, Dave talked  
5 to the other two licensed operators that came down and  
6 decided, since we did have AC power -- we could see that  
7 there was AC power coming into the UPS -- if we just shut  
8 the maintenance breaker, they should work; it should give  
9 power out. That was when they directed us to open that box,  
10 and Dave showed me how to open up that little breaker box  
11 down there, and I closed the breaker -- I believe it's  
12 circuit breaker 4.

13 MR. VATTER: Which UPS was that that you were  
14 doing that to?

15 MR. ARMSTRONG: That was 1-Delta, the first one we  
16 did.

17 MR. VATTER: Okay.

18 MR. ARMSTRONG: I believe when you walked into the  
19 room it was the first one on the right; I think that's 1-  
20 Delta.

21 MR. VATTER: And that seemed to get going okay  
22 then.

23 MR. ARMSTRONG: Yes. We saw that we had output  
24 voltage after that. To be quite honest, I didn't know if we  
25 were doing what was right, but I did see we had AC input



1 coming in, and when we closed the breaker we had output  
2 coming out. As soon as we got that first one closed, I  
3 started hearing Gaitronics announcements, so we did power up  
4 some of the Gaitronics, so I knew we must be getting power  
5 back up on the controller.

6 MR. VATTER: Things were getting better.

7 MR. ARMSTRONG: Whatever we did must have helped,  
8 so then we went on and did the other three remaining UPS's.

9 MR. VATTER: So you did the other three by  
10 yourself or with Dave?

11 MR. ARMSTRONG: At that time, there were probably  
12 four or five non-licensed operators down there and three or  
13 four licensed operators. I think I helped on one of the  
14 other ones, and the other two were gotten by other people.  
15 I know some of the other non-licensed operators were down  
16 there, but I couldn't tell you for sure who closed in what  
17 breaker and what UPS. I know I did help on the 1-Delta, and  
18 then I went over to one of the other ones -- I think it was  
19 Bravo -- and I think Phil MacEwen actually did that one, but  
20 I helped him get the box open, and he closed that one in.

21 MR. VATTER: If Dave had not been there to show  
22 you how to close in that CB-4, do you think you would have  
23 been able to figure it out?

24 MR. ARMSTRONG: I don't think so. I really don't,  
25 because the training we received as far as the non-licensed



1 operators goes is, they basically trained us to mimic --  
2 that's on the front of the board -- where the power sources  
3 come from. There's a little mimic around the front of the  
4 board telling you where the power is coming from, how the  
5 UPS works, but I've never had any practical training on  
6 that. We've been taken right down to the UPS and told, This  
7 is where the breakers are, and how to -- I've had the basic  
8 training. I can start a UPS up -- we've been through  
9 that -- but to actually start one up like we did I've never  
10 been trained for; I've never had to actually manually shut  
11 one of those breakers in there. I guess I might have  
12 figured it out, but not fast enough for what they needed. I  
13 would have had to get some help.

14 MR. VATTER: There was one more UPS in another  
15 room that --

16 MR. ARMSTRONG: Yes, 1G. That's in the control  
17 building.

18 MR. VATTER: Who took care of that?

19 MR. ARMSTRONG: That I'm not sure. I know before  
20 Dave Hanczyk got down to where I was, he did check that one  
21 and saw that it was tripped, but I don't know who restarted  
22 it. That I don't know.

23 MR. VATTER: Okay. What did you do next?

24 MR. ARMSTRONG: I guess after we got those  
25 restarted, I went back up to the control room. I believe it





1 was at that point that they told me to go to the off-gas  
2 panel, because they wanted to restart off-gas. I was  
3 directed by Dave Hanczyk at that time to go to the off-gas  
4 panel and reset the off-gas and get off-gas back in service.

5 MR. VATTER: What was happening at off-gas?

6 MR. ARMSTRONG: Basically, it had isolated. We  
7 didn't have any recombiner trains in service or freeze-out  
8 dryers; it was completely isolated.

9 MR. VATTER: Why was that?

10 MR. ARMSTRONG: I'm not positive why it did, to  
11 tell you the truth.

12 MR. VATTER: It probably had something to do with  
13 the UPS.

14 MR. ARMSTRONG: I'm just making an assumption. I  
15 really don't know, to tell you the truth.

16 MR. VATTER: Okay.

17 MR. ARMSTRONG: But when I got up to the off-gas  
18 panel, before I touched any buttons or anything, I was  
19 called by the control room and told not to reset off-gas,  
20 not to get off-gas going, because we had high-radiation  
21 alarms in and I was supposed to immediately leave the  
22 turbine building.

23 MR. VATTER: High-radiation alarms on what?

24 MR. ARMSTRONG: They didn't even tell me. They  
25 told me they had high-radiation alarms, not to restart off-



1 gas. It was a pretty quick communication; they didn't  
2 explain; I didn't ask any questions. They just told me they  
3 had high-radiation alarms. I didn't know that until I saw  
4 when I came back one of the CAMs going off on 250, heavy-  
5 radiation area monitor -- or alarms -- there, but when I was  
6 up at the off-gas panel, they just told me we had high-  
7 radiation alarms and to not start off-gas and to leave the  
8 turbine building immediately.

9 MR. VATTER: Did you understand from that that the  
10 high radiation was in the turbine building?

11 MR. ARMSTRONG: Yes. That's all I did say. I  
12 don't know if I stated that. They said they had high-  
13 radiation alarms going off in the turbine building and to  
14 not start off-gas and to leave the turbine building  
15 immediately.

16 On my way out, I did get called again to put the  
17 feed pump lube oil motors in start. When the feed pumps  
18 trip, their lube oil pumps will only run in auto for so  
19 long, and then they trip, unless you put them in start.  
20 They called me and asked me on my way out to put B and C  
21 feed pumps lube oil switches in start, which I did.

22 Then I guess I saw one other non-licensed operator  
23 and gave him the message that we had to leave the turbine  
24 building. Then I left the turbine building and went back up  
25 to the control room.



1 MR. VATTER: Was there any announcement on the  
2 Gaitronics about that?

3 MR. ARMSTRONG: I can't remember if there was or  
4 not.

5 MR. VATTER: But you got it from that phone call.

6 MR. ARMSTRONG: Yes, I did.

7 MR. VATTER: Okay.

8 MR. ARMSTRONG: It was a short time after that, I  
9 guess, that we had permission to go back in the turbine  
10 building, because they sent two non-licensed operators down  
11 to restart the condensate booster pump, or a condensate  
12 booster pump, and they sent me to the condensate  
13 demineralizer panel just to check flow through the  
14 condensate demineralizers when they started the booster  
15 pump.

16 MR. VATTER: What about off-gas? Who took care of  
17 that?

18 MR. ARMSTRONG: As far as I know, nobody did.  
19 They never had sent me back up there. I don't know if they  
20 had somebody else go back up there or not.

21 I witnessed them start the booster pump and  
22 checked my flows on the demineralizers and noticed that they  
23 were low, that we really had very low flow through both  
24 demineralizers for we should have with the booster pump  
25 running.



1 MR. VATTER: Why did you need to be at the  
2 demineralizer panel when they started the booster pump?

3 MR. ARMSTRONG: Just to verify flow through the  
4 demineralizers, to make sure we didn't need to put another  
5 demineralizer on -- just basically to make sure we got flow  
6 in our DP across them.

7 MR. VATTER: What type of demineralizer is that?

8 MR. ARMSTRONG: Condensate.

9 MR. VATTER: Precoat or deep bed?

10 MR. ARMSTRONG: I guess you would call it a deep  
11 bed. I don't think it's a precoat.

12 MR. VATTER: Great big tank?

13 MR. ARMSTRONG: Yes.

14 When I noticed the flows were low, I left the  
15 turbine building and went up to the control room and told  
16 one of the licensed operators, who wasn't on our shift -- it  
17 was Bob Spooner -- that we had real low flows through the  
18 condensate demineralizers. He went and checked the panels  
19 and said the bypass was open; that's why. At that time, I  
20 took it that they didn't know that the bypass was open,  
21 because he seemed to be surprised when I told him he only  
22 had so much flow going through the demineralizers.

23 After that, I don't really think I had any other  
24 functions in the plant during this transient. We had two  
25 other shifts in by that time, and they were trying to get





1 those guys out and give us a break. To my recollection, I  
2 can't remember having any other function in the plant.

3 MR. VATTER: What time did you finally get to go  
4 home?

5 MR. ARMSTRONG: Shortly after 11 o'clock in the  
6 morning, so we were here for 12 and a half, 13 hours by the  
7 time we left.

8 MR. VATTER: What do you think we ought to know  
9 about the event that you haven't told us?

10 MR. ARMSTRONG: There's nothing really I can think  
11 of. I've told you about everything I can remember.

12 MR. VATTER: Do you think things went well?

13 MR. ARMSTRONG: I think things could have gone  
14 smoother; things could have been better if I had more -- I  
15 personally feel I could have done better if I had better  
16 training on the UPS's. I could have gotten the control  
17 power, annunciators and stuff, back sooner.

18 I don't think it's personal to myself. There were  
19 a lot of other people down there, non-licensed operators and  
20 licensed operators, that really weren't comfortable with the  
21 UPS's. They teach the theory, but they really didn't teach  
22 any practical part on those UPS's. We did get power back,  
23 and that part of it was good, but I think we could have done  
24 it a lot sooner and maybe made the SSS's and the reactor  
25 operator's jobs a lot easier if we could have got that done



1 quicker.

2 MR. VATTER: If you had known more about the  
3 UPS's -- for example, if you had known exactly what to do --  
4 would you have been able to do it your first trip down to  
5 them?

6 MR. ARMSTRONG: If I was directed to do so. My  
7 first trip to the UPS's was not to get them going; they just  
8 wanted a status. My second trip down, I don't think I would  
9 have had to wait for a reactor operator or a licensed  
10 operator to show up if I was given a direction to get them  
11 back on line. With more training, I could have got them  
12 back on line and felt comfortable about it.

13 MR. KAUFFMAN: With all the things you need to  
14 know in your job, do you think it -- Well, we could say  
15 that everybody should be trained on everything and know how  
16 everything works. With all the things that you need to  
17 learn, would you classify this as something pretty important  
18 to be trained on?

19 MR. ARMSTRONG: Up to this event, I wouldn't  
20 have -- UPS's are not something we usually deal with a  
21 whole lot. They pretty much run. If we have to take one  
22 down, if we get an alarm then we call the control room and  
23 let them know and we WR it and get maintenance done on it.  
24 That's about the only time you see one shut down or put in a  
25 different mode: when there's a problem with it.



1           Myself personally have not been involved with  
2 actually having to take one off line for maintenance. There  
3 are a few non-licensed operators that have and knew about  
4 that circuit breakers and how to get that panel open to get  
5 into that one, but I would say the vast majority of us  
6 didn't know. As it turned out, those UPS's were -- training  
7 would be very important.

8           MR. VATTER: What else could be different, besides  
9 UPS training? Procedure? Is there some area for help  
10 there?

11           MR. ARMSTRONG: Definitely. That UPS procedure --  
12 I was told that the UPS procedure was already in the  
13 process of being rewritten, I believe by Bob Crandall. I  
14 think that's the one I had to take down there and show; he  
15 was the one investigating the UPS's there. I was told that  
16 he was already in the process of rewriting them and giving  
17 up more guidance for such circumstances that we were in at  
18 the time. I would say that would be definitely a high  
19 priority, to get those. Because it was tough even to find  
20 it; anything remotely close to something we needed was very  
21 difficult to find in that procedure.

22           MR. KAUFFMAN: What you had to do sounded really  
23 pretty simple: make sure that all the breakers were open  
24 and then shutting that --

25           MR. ARMSTRONG: It was actually very simple.



1 Either if we had training on it or it was in a procedure,  
2 that could have made our life a lot easier. I don't think  
3 they can transfer every situation, but hopefully these  
4 incidents we can at least learn something from and fix it.

5 MR. KAUFFMAN: That's really where my previous  
6 question was coming from before: There are all kinds of  
7 situations and things you could be trained on, and I guess  
8 in hindsight this one popped up, that it would be a good  
9 one, but I guess we discussed that it wasn't intuitive, that  
10 it wasn't important until it jumped up and happened.

11 MR. ARMSTRONG: Quite frankly, the way I  
12 understood UPS's, they couldn't do what they did. I thought  
13 that they were always going to be in service; that's the way  
14 we were trained. They were uninterruptable power supplies;  
15 I didn't know they had a trip-free mode where the logic  
16 screwed up. I was not even trained on that. I was always  
17 under the assumption that, if we lost one power, it would  
18 automatically go to the other power or back to battery, so I  
19 was quite bewildered when I went down there and saw that we  
20 had AC input when nothing was going out, we had no power at  
21 all from them.

22 MR. KAUFFMAN: I have some I guess related  
23 questions. The plant went to a site area emergency pretty  
24 early on in the event. How is your accountability and those  
25 sorts of functions taken care of? What did you do for





1 accountability?

2 MR. ARMSTRONG: When they called a site area  
3 emergency, we all carded into the control room, which is our  
4 evacuation assembly area, and, as far as I understood, once  
5 we punched into the control room, we were accounted for.  
6 Right after we carded in, we were still sent out on jobs to  
7 do, so we were carded back out, but I was under the  
8 assumption that, once we carded in after the emergency was  
9 declared, we were accounted for.

10 We were asked some time later -- I couldn't tell  
11 you exactly what time, but later on in the morning there, we  
12 had to go back in and repunch in to the control room again,  
13 so evidently that first time we did not get accounted for;  
14 or, if we did get accounted for, it wasn't caught for some  
15 reason.

16 MR. KAUFFMAN: When you get sent out into the  
17 plant, did you have health physics techs?

18 MR. ARMSTRONG: At the time I was being sent out,  
19 we hadn't turned over to the TSC and OSC yet; we were still  
20 under command from the SSS. At that time we did not have  
21 to. By the time they were manned up, they were starting to  
22 send people out from other shifts now, giving us a break,  
23 and those people did have to go out with a health physics.  
24 That part seemed cumbersome to their job, to a point. They  
25 had to go over to Unit One and meet their damage control



1 team and then go back to Unit Two to do their function that  
2 the SSS wanted them to do. I was listening to some of the  
3 communications; there seemed to be quite a bit of confusion.

4 MR. KAUFFMAN: The emergency preparedness aspects  
5 aren't really a focus for the Incident Investigation  
6 Team --

7 MR. ARMSTRONG: Right.

8 MR. KAUFFMAN: -- but we ask questions a little  
9 bit on how it impacted your direct activities that you were  
10 doing. We're not going to pursue it in any great detail.

11 Was there anything in this event that you thought  
12 really helped the crew or you do well in carrying out your  
13 tasks?

14 MR. ARMSTRONG: I would say the performance of my  
15 SSS and my assistant SSS helped me, because they seemed to  
16 maintain their coolness. Nobody -- In fact even the  
17 licensed operators, my CSO, nobody got excited, and  
18 basically made their communications a lot more clear and  
19 concise because they weren't screaming and yelling and  
20 running around. Everybody seemed to know exactly what to  
21 do, and it made it very easy for them to direct us to do the  
22 jobs that they needed done. I would say that would probably  
23 be the biggest thing that helped me.

24 MR. KAUFFMAN: Okay.

25 Bill?



1 MR. VATTER: No.

2 MR. KAUFFMAN: Neither one of us have any more  
3 questions. I'll give you an opportunity, if you'd like, to  
4 say anything or talk about anything that we haven't  
5 discussed or brought up. If so, fine. If not, we're done.

6 MR. ARMSTRONG: I don't have anything further to  
7 add that I can think of.

8 MR. KAUFFMAN: Okay. That concludes the  
9 interview.

10 [Whereupon, at 1:58 p.m., the interview was  
11 concluded.]

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REPORTER'S CERTIFICATE

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

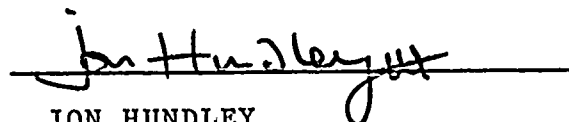
in the matter of:

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DOCKET NUMBER:

PLACE OF PROCEEDING: Scriba, N.Y.

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