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OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
Interview of: DAVID RATHBUN

Docket No.

LOCATION: Scriba, New York

DATE: Tuesday, August 20, 1991

PAGES: 1 - 31

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Exhibit 3-1 (continued)

ADDENDUM TO INTERVIEW OF DAVID A. RATHBUN CSO F Shift
(Name/Position)

Page	Line	Correction and Reason for Correction
4	13+14	"full-rod display" to "four-rod display"
8	25	"read switch" to "reed switch"
9	2	"read switch" to "reed switch" (twice)
9	6	"to zero-zero" to "than zero-zero"
10	2	"read switches" to "reed switches"
28	17	"him" to "them"
28	22	"had" to "have"

Page 1 of 1 Signature [signature] Date 8/23/91

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

INCIDENT INVESTIGATION TEAM

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Interview of :

DAVID RATHBUN :

(Closed) :

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Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Tuesday, August 20, 1991

The interview commenced, pursuant to notice, at 1:25 p.m.

PRESENT FOR THE IIT:

Michael Jordan, NRC

Rich Conte, INPO

PRESENT WITH MR. RATHBUN:

Mike Colomb, Niagara Mohawk

PROCEEDINGS

[1:25 p.m.]

MR. JORDAN: It's August 20, 1991. It's 1:25 p.m. We're at the Nine Mile Point Unit One nuclear power station, in the P building. We are going to cover events of a transient that occurred on August 13, 1991. My name is Michael Jordan, with the U.S. NRC, out of Region III.

MR. CONTE: I'm Rich Conte, Region I.

MR. RATHBUN: My name is David Rathbun, reactor operator at Nine Mile Point Unit Two.

MR. COLOMB: My name is Mike Colomb. I work for Niagara Mohawk Power Corporation. I'm the operations manager at Unit Two.

MR. JORDAN: We're here to interview Dave Rathbun.

Dave, why don't you start out and tell us what's your experience in your site here? What experience do you have? What's your background?

MR. RATHBUN: I was a Navy nuke for six years, reactor operator. I joined Niagara Mohawk in 1982. I licensed on Unit One, went over to Unit Two, and licensed at Unit Two, reactor operator. For the past six months or so, I've been a chief shift operator on F shift.

I'm not sure what else you'd like me to say.

MR. CONTE: When did you get your license in Unit Two?

MR. RATHBUN: I can't remember exactly, to be honest.

MR. CONTE: What year?

MR. RATHBUN: That's what I'm trying to remember. I can't even remember the year, to be honest. I'd say about five years ago, or so.

MR. JORDAN: You're currently licensed?

MR. RATHBUN: Yes.

MR. JORDAN: Okay, Dave. Why don't you go ahead and tell us in your own words, then, what you saw and how you saw the event transpire?

MR. RATHBUN: Okay. I was coming in to relieve the on-shift chief shift operator. I walked into the control room at approximately 6 o'clock. The incident had already started, and I arrived prior to the re-energizing of the uninterruptable power supplies.

Shortly after I walked into the control room, I made the SSS aware that I was available, and he requested that I use EOP 6, attachment 14, to attempt to -- I'm trying to think of the word I want to use -- locate whether or not the rods were full in or not. This was still when we had no indication of the position of rods. I looked through the procedure. At the time, I could only see one thing that might help, and that was to verify locally that the scram air-header was depressurized. I suggested that to the SSS,

and he agreed, and we sent a non-licensed operator out to check on that.

Before he could report back, we recovered power on the uninterruptable power supplies, at which time we regained some of the rod indication systems. Myself and another operator then, using both the rod sequence controller and the full core display -- some rods didn't show full in on both of those, and they weren't exactly the same, so we went through and checked the rods that weren't indicating full in on RSCS against the full-core display, and out of that came up with six rods that were not indicating full in on both of them. We selected those rods using the rod select matrix, to try to use the full-rod display to find where the rods were, and got blanks on all of them, so we still didn't know.

We reported that to the SSS, and at that time I suggested to the SSS that perhaps these rods are over-driven in by the scram. If we reset the scram, we may be able to let the rods settle and get good indication on them. The only problem with that was that at the time the reactor vessel level was less than level 3, which is a scram signal.

The assistant SSS, STA, reminded both of us that he had authorized use of attachment 14, which gives guidance for defeating RPS interlocks to allow resetting scrams to do repeated scram signals to insert rods that are not full in.

The SSS directed me, then, to insert those jumpers and reset the scram.

I used attachment 14, took it in the back of the control room with me, and inserted the jumpers in 609 panel and 611 panel. Also using the procedure, I came back out front and reset alternate rod insertion, reset the scram. At that point we got indication of all rods in on the full-core display and RSCS, and we reported that to the SSS.

I wasn't really given any more duties after that. I answered the phones occasionally and helped direct some of the non-LOTs on lesser tasks out in the plant, as far as trying to regain some of the things for a normal shutdown, try to get the plant back in a more normal configuration.

I worked with one of the oncoming STAs to try to get the plant computers back, to get help from the TSC or the OSC, whichever it was, for the computer techs. Once the SPDS computer was back, I reinitialized the EOF so that they could make use of the SPDS computer.

At one point in time I was asked to look at the Division 2 H2O2 monitor. Basically, all that was wrong with it was that the pump was not running, and we weren't sure at that time why it was not running. The valves were still all lined up; we had not taken the containment isolation; and the SSS wanted that on line so we could have accurate indication of if anything was going wrong in the primary

containment, so at his direction I restarted that pump.

At approximately 10:17, I relieved the CSO, who had been there. He took the log in to write in all of the things that had gone on during his time in the control room, and I had a non-LOT write down and be my scribe for a while, until I could get the log back. We just continued the cool-down, put shutdown cooling in service.

We attempted to put clean-up in service and encountered a problem with that, where it isolated. At that time, the SSS, which by now had also been relieved as a new SSS, made the determination that we were not going to worry about clean-up for a while, till it cooled down.

That's pretty much it. I left before they down-graded the emergency from a site area emergency.

MR. JORDAN: A couple questions.

You mentioned that the RSCS and the full core display and the rod worth minimizer were indicating rods not full in. Can you give me an idea of the RSCS and the full core display were indicating the same number of rods and the same rods? Or were they different rods, was the RSCS and the full core display indicating different rods?

MR. RATHBUN: The RSCS was indicating quite a bit more than the six rods that we ended up with -- excuse me. I don't remember exactly how many. There was one operator that was looking at that, the one that I was helping. He

used the RSCS as a guide.

He went, you know, would break down the rows on that display and when he came to a blank where there should have been a full in light. He'd read that number off and I'd check that number on the full core display, whether or not it had full in lights.

It seemed to me that there were other rods that had, that did not have full in lights on the full core display but that he had full in lights on the RSCS.

Between the two of them, there were only six that showed not full in on both of them together.

MR. JORDAN: How about the rod worth minimizer?

MR. RATHBUN: Rod worth minimizer, the new rod worth minimizer has a confirmed shutdown option or thing you can select. When power came back it was in the normal display. I had to select that confirmed shutdown and when I did, it said "shutdown, no; all rods in, no; number of rods not full in, 1" and then there is another button you can press to give a list.

I pressed that button and it gave me one rod number, of which I don't remember the exact number. It was 1830-something I think, and anyway it said that it thought that rod was full in but it was giving it as the rod that it thought was not full in.

After we reset the scram and RSCS and the full

core display both said all rods were full in, the rod worth minimizer also agreed with that and said "shutdown, yes" and "all rods full in, yes."

MR. JORDAN: Was 18-whatever it is, 1830-something, was that one of the rods that --

MR. RATHBUN: No. That was not one of the six rods. We checked that against our list.

MR. JORDAN: Okay. You say you selected those rods, the six rods on the four rod display?

MR. RATHBUN: Uh-huh [affirmative].

MR. JORDAN: And they indicated?

MR. RATHBUN: Blanks.

MR. JORDAN: Just blanks?

MR. RATHBUN: Right.

MR. JORDAN: The rest of the rods on full core display, did they indicate blanks also?

MR. RATHBUN: I don't remember seeing any zeroes on it but I wasn't really looking for them so I am not really sure.

MR. CONTE: What do you normally get in the over-travel situation where it is too far in?

MR. RATHBUN: We've had this kind of indication before on these. That's why I --

MR. CONTE: Do you get blanks or xx or what?

MR. RATHBUN: Not blanks, xx's if the read switch

isn't making up and the reactor manual control system doubts the read switch or doesn't, has it open for read switch.

There is a read switch for overtravel in which is -- I am not exactly sure now if it picks up the green light but we've had, I have seen it before on scrams, until you reset it where they're pushed in farther to zero-zero and the zero-zero doesn't show up on the four rod display.

MR. CONTE: What does show up?

MR. RATHBUN: Just blanks, like I saw there.

MR. CONTE: What about the green light? What did you say about that?

MR. RATHBUN: The green lights would be up on the full core display.

MR. JORDAN: You say those are, on an overtravel they are still lit or they are not lit?

MR. RATHBUN: Some of them were and some of them weren't. I don't remember exactly. They came in when we reset the scram and the rods were able to settle back in the past.

MR. JORDAN: How about in the past, when you had indication on the four --

MR. RATHBUN: Well, it was pretty much kind of like this where some would and some wouldn't. It was never the whole core, never, you know, didn't show full in. It was only some of the rods.

MR. CONTE: How much do you know about the power supply to those read switches in terms of where they get power?

MR. RATHBUN: RPIS.

MR. CONTE: If you don't know --

MR. RATHBUN: I wouldn't be able to give it to you from memory. I know I have gone through the GE prints for that system looking up power supplies to make changes to our procedure because they didn't have it in it quite a while back, a year or so ago, and I was writing markups a lot and needed one of them.

I can't give you a definite answer but I know that it comes off, most of the stuff in that system comes off of a main breaker, one or two main breakers in the panel. Its ultimate power supply in the plant I am not really sure.

MR. CONTE: Was it a surprise to you based on your training here at Nine Mile that you would get a loss of annunciators and an accompanying full core display out, being black like that? Have you ever seen that before in training on the simulator or either at startup testing or--

MR. RATHBUN: Not to my recollection, no.

MR. CONTE: Okay. I had some questions as you were running down the chronology. Let's go back to the start of this thing.

How do you know it was six o'clock that you walked

into the control room? Was it before the site emergency was declared?

MR. RATHBUN: When I walked in, I walked in from the back of the control room, and just as I walked through into the front part of the control room between Panel 602 and 601, the SSS site emergency director was announcing, you know, let me have your attention, I am going to declare a site area emergency.

That was just as I walked through is when he said that. I know it was a few minutes to or after 6:00 just from what time it was on my clock radio and I was in the parking lot and just ready to walk in.

MR. CONTE: Could you retrace the path walking in, primarily when you entered Unit Two, what areas were dark?

MR. RATHBUN: Sure. I didn't notice anything in the security building at all or out in the parking lot or on the way in.

When I walked into the CO2 room I noticed that part fo the lights, about half of the lights were off.

MR. CONTE: CO2 room, what building and elevation was that?

MR. RATHBUN: That is auxiliary service building south, elevation 261.

Those lights there --

MR. CONTE: Had some lights on.

MR. RATHBUN: Right. Those lights, I don't know why, but for some reason they get turned off a lot. There's like half the lights in there on a light switch and half of them are on another contacter, so I tried to turn them on and I got no response.

MR. CONTE: Oh, okay.

MR. RATHBUN: Interesting, I'll have to remember this when I go upstairs and ask about it.

I walked from there into the access passageway.

You step into it and then turn a corner and go through another door and I noticed again a lot of the lights were out. It's a very long passageway.

MR. CONTE: Access passageway, what building? Same building?

MR. RATHBUN: No, that's basically what it's called, access passageway or electric bay. It's a long passageway between Unit One heading towards Unit Two -- Unit Two going to Unit One, I'm sorry.

MR. CONTE: Oh, is that where we go to go to the cafeteria?

MR. RATHBUN: Yes, that long hallway.

MR. CONTE: I was wondering what you called that, okay.

MR. JORDAN: If I could back up just for a second. You say in the CO2 room you --

MR. RATHBUN: -- attempted --
MR. JORDAN: With the light switch?
MR. RATHBUN: Right.
MR. JORDAN: The lights did not come on or as a result of operating the lights that were in there did they go off?
MR. RATHBUN: Nothing happened.
MR. JORDAN: Nothing happened?
MR. RATHBUN: Nothing at all.
MR. JORDAN: Okay.
MR. RATHBUN: Okay, so from there I turned and --
MR. CONTE: What was the condition in the access passageway with the lights?
MR. RATHBUN: A lot of the lights were out, yes.
MR. CONTE: A lot of the lights were out, but not black?
MR. RATHBUN: No. There was a few lights on.
MR. CONTE: Any emergency lighting on?
MR. RATHBUN: I didn't notice any in either of these two buildings.
I went into the door into the -- I guess it would be in the turbine building where the elevator is. Again about half of the lights were out. There's like three lights in that area and like two of them were on and one was off.
MR. CONTE: I'm sorry, I missed that area again.

MR. RATHBUN: The turbine building, I believe it is, 261 -- where the elevator is and the stairwell.

Elevator arrived and the lights were all out in the elevator including the emergency lights and I rode the elevator up --

MR. CONTE: Did you see people coming out of that elevator?

MR. RATHBUN: Yes. There were a couple of non-licensed operators who came out of the elevator --

MR. CONTE: Do you remember their names?

MR. RATHBUN: -- in a little bit of a hurry -- only one of them, Tom Restuccio. I don't remember who the other one was.

MR. CONTE: Okay.

MR. RATHBUN: And I asked something like "Is everything okay?" One of them said no, which I had begun to suspect already.

I think one of them said something about, the reactor had scrammed at that point in time. I rode the elevator up. The elevator operating lights for the floors and the buttons all worked, but the lighting in there was not working, and the emergency lights in there were not working.

Up to elevation 306. Again, most of the lights were out.

MR. CONTE: Elevation 306, what building?

MR. RATHBUN: Same building, turbine building. This is by the RP office and the access to go into the turbine building on 306. I walked over to the doors, into the control building, carded in there. The card reader still worked.

MR. CONTE: Did you see anything unusual in the lighting in the control building?

MR. RATHBUN: Yes. Got into the control building. As I recall, the hallway in the control building looked normal. I carded into the control room, and I didn't notice anything as far as lighting out in the control room. Then I walked up between the panels and into the front, like I said before, just in time for the SED to make his emergency declaration.

MR. CONTE: Going further on, you said that one of the SSS sent down an RO to verify locally the scram header depressurization. Do you know who that RO was?

MR. RATHBUN: It was a non-licensed operator I sent out. That was Dave Brockwell.

MR. CONTE: Where does he have to go to see this?

MR. RATHBUN: That would be reactor building, 261 elevation. We researched on the prints for this system and found an indicator off the scram air header that we believed was in an instrument rack down there near the CRD flow

control station.

MR. CONTE: Do you remember when he reported back?

MR. RATHBUN: No. I never heard a report back from him personally. Later on I had asked if anybody had seen him, because I hadn't seen him in a while, and he had been sent down to help start up the auxiliary boilers.

MR. CONTE: You mentioned you wanted to reset the scram; you had made a suggestion to reset the scram because you thought the scram pressure was pushing the rods too far in. You had the level 3 in, which was the low-level scram setting --

MR. RATHBUN: Right.

MR. CONTE: -- and someone reminded you -- and I didn't catch the name -- that you can defeat an RPS interlock.

MR. RATHBUN: That was the STA, Mike Eron.

MR. CONTE: Okay. What did he say? You can defeat an interlock?

MR. RATHBUN: Well, what he said, basically, was that Mike Conway, who was the SSS-SED, had already told me to use attachment 14 -- he had authorized the use of that -- and that one of the sections in that gives guidance for bypassing the RPS interlocks in order to reset scrams.

MR. CONTE: And you were basically getting ready to follow that attachment.

MR. RATHBUN: Right.

Mike took a moment to think about it and said, Yes, that's what I want to do, told me to do that.

MR. CONTE: Did you do that?

MR. RATHBUN: Yes, I did. Four jumpers in the back of the panel, and I installed them.

MR. CONTE: Okay.

MR. JORDAN: The only scram signal that was preventing you from resetting the scram that you know of was the low level?

MR. RATHBUN: Yes. Turbine trip, stop valve and control valve fast closures were in, but they were bypassed, and we had scram dump volume high level in at that point, which could be bypassed by the bypass switches, but the level one you can't bypass normally.

MR. JORDAN: And the level was --?

MR. RATHBUN: I'm not sure of the exact level at that time, but it was less than 159.3, the setpoint.

MR. JORDAN: So 159.3 is the scram setpoint?

MR. RATHBUN: Yes.

MR. CONTE: What panels -- you said the panels that you put the jumpers in were 609 and what?

MR. RATHBUN: 611.

MR. CONTE: You mentioned that Division 2 hydrogen and oxygen pumps not running. Is that a surprise to you?

MR. RATHBUN: I couldn't figure out any reason why it wouldn't have been running, nor the SSS -- or I should say SRO -- that was back looking at it with me. Nothing else on the system appeared to be other than normal operating. Like I said, there were no isolations, no valves out of position, just that the pump wasn't running.

MR. CONTE: Do you happen to know, based on your training and experience, whether or not those pumps are powered from vital or non-vital, or safety, sources?

MR. RATHBUN: They're powered from vital, safety-related -- they're a safety-related pump.

MR. CONTE: Okay.

Further on in the day, you mentioned, reactor water cleanup had isolated.

MR. RATHBUN: Yes.

MR. CONTE: What input signals indicated the isolation? What parameters caused the isolation?

MR. RATHBUN: The isolation occurred on the delta flow timers' timing out.

MR. CONTE: Could you give me a little explanation of what that's supposed to do?

MR. RATHBUN: Basically, it's a leak detection system looking at the flow coming into the system and the flow leaving the system, under the assumption that, if they're different, then it could indicate a leak -- more

flow coming in, not as much going out; the water has got to go somewhere. However, certain transients on the system can cause a difference in flow due to unstabilities and your changing the parameters of the system, the flows and what-no, so there's a timer associated with it.

MR. CONTE: I see. Okay.

When you're starting up reactor water cleanup, is that an unusual alarm, or a usual alarm?

MR. RATHBUN: It isn't that it necessarily happens every time, but it's not unusual, no. Usually they'll just come in and go right out.

MR. CONTE: I want to make sure I understand. The reactor water cleanup was on service at the time of the trip.

MR. RATHBUN: At the time of the trip it was in service.

MR. CONTE: What happened to it during the power outage time period? Do you happen to know?

MR. RATHBUN: Not really, no. I know that one of the immediate scram actions is to either place cleanup in the full reject mode or shut the pumps off. Most of the time we shut the pumps off because we don't have time to -- it's somewhat of a lengthy process to put it into full reject mode. If there isn't time, usually, the SSS will simply say, Okay, turn it off.

MR. CONTE: So when you came up to the panels, the system was shut down.

MR. RATHBUN: The first time I had a chance to look at it, it was already shut down.

MR. CONTE: Okay. You were trying to start it up.

MR. RATHBUN: Yes. This was later. They wanted to put it in reject mode to aid in vessel level control

MR. CONTE: And when you were starting it up, you got the isolation signal.

MR. RATHBUN: Right.

MR. CONTE: You personally were doing this.

MR. RATHBUN: No, I was the CSO at that time. One of my control room reactor operators was doing that.

MR. CONTE: What's his name?

MR. RATHBUN: Jim Emery?

MR. COLOMB: He's on the list.

MR. CONTE: Was he following a procedure?

MR. RATHBUN: Yes, OP-37. I'm not entirely sure which section of it he was using.

MR. CONTE: Okay. So you basically abandoned trying to get it started again.

MR. RATHBUN: After it isolated, the SSS took a look at the system parameters and said that trying to put it in service at this point in time was not -- he didn't feel it a good idea; the system was still fairly hot, compared to

the reactor, and he didn't want to put it in service until it cooled down.

MR. CONTE: You were in the control room, I guess, from 6 o'clock on, right?

MR. RATHBUN: Yes.

MR. CONTE: Did you overhear the conversation with RCIC and what was happening with RCIC? Is there anything you remember about that? You weren't given responsibilities on that; I understand that.

MR. RATHBUN: Right.

I know that was an operator who was assigned level control using RCIC after they had determined the feed pumps had tripped and vessel level was lowering. I know later on they did have a problem with level. As pressure went down, the booster pumps -- it got down to the discharge head of the feedwater booster pumps -- condensate booster pumps, I should say -- and the feedwater level control valves were locked up in the open position. The operator at RCIC -- I was standing near him at one point in time -- was diverting flow from RCIC back to the full flow test to the CST, which cut off its contribution to the level increase, but the booster pumps were still going.

MR. CONTE: How was water going in from the booster pumps? The reg valves were locked up in an as-is --

MR. RATHBUN: Right. They were locked up open or throttled somewhere but fairly high open, probably. They locked up at 100 percent, I guess, when they lost power. I'm not real sure on that. I know they had to adjust things and reset the lock-outs on them.

MR. CONTE: RCIC was never tripped. He just diverted it to the suppression pool?

MR. RATHBUN: To the CST.

MR. CONTE: To the CST. I'm sorry.

MR. RATHBUN: When he diverted it to CST, level still rose until it reached 202.3 inches, which is the level 8 setpoint, at which time the steam admission valve shut and the injection valve shut. I asked him if it was in standby, and he said basically they left it there when those two valves shut. They turned the -- what do I want to say? -- test return valves closed.

Some time later on, probably 15 to 20 minutes later, I wandered by that panel and happened to notice that one of the testable checks was still indicating full open. I pointed that out to one of the STAs -- or SROs -- who was looking up different tech specs and what-not. I made sure they knew that. They had already known it and were looking at containment operability specs.

MR. CONTE: Until feed and condensate were restored, which I think was about 7:30 --

MR. RATHBUN: I don't remember the time, to be honest.

MR. CONTE: Whatever.

-- was RCIC the primary source of getting water into the plant? After this level transient -- for example, water came back down -- you had to keep feeding in order to maintain level; is that correct?

MR. RATHBUN: I'm not real sure on level. As you said, I wasn't assigned level. I remember at least one time they went low, and they started RCIC to recover level. I believe there was another time they had a lowering trend, and I'm not sure exactly what went on to recover that.

MR. CONTE: In this condition, to start it again you would just open the steam admission valve? Since it wasn't in a tripped condition.

MR. RATHBUN: I believe, unless it had got down to the initiation setpoint, you'd have to open the steam admission valve and open the injection valve.

MR. CONTE: But you weren't there at this point.

MR. RATHBUN: Right.

I was over trying to get how many rods were full in or weren't full in.

MR. CONTE: Later in the morning, I guess, a work party went out to restore some of the uninterruptable power supplies to normal.

MR. RATHBUN: Right.

MR. CONTE: From your vantage point in the control room, were you aware that that was happening? Did you hear anybody voice a concern about that?

MR. RATHBUN: Not really. The first thing I knew anything about it was that the full-core display came back, and a lot of annunciators came in and started flashing.

MR. CONTE: I'm sorry. I'm confusing you. You're back in 6:22 in the morning.

MR. RATHBUN: Right.

MR. CONTE: I'm talking about a time period later, in mid-morning.

MR. RATHBUN: Oh, when they put them on normal?

MR. CONTE: Yes.

MR. RATHBUN: Oh, okay.

MR. CONTE: Did you heard any discussion and concern about shifting back to normal?

MR. RATHBUN: I vaguely remember them talking about it. I don't recall what was said, to be honest. I do remember that one of the operators was directed to go out and attempt to line them back up to normal, and that they had problems with two of them and had to leave two of them on maintenance. I don't really recall the exact reasons why.

I do remember something being said about the order

that the SSS wanted them in. I don't remember what the order was exactly, except that I remember that the two that he had trouble with were the two that he wanted them to wait last on, make sure they could be reset -- I think C because it had like only communications and lighting on it, anyway; we had got them back at that point, because they were on maintenance, because if you lost it it wouldn't be too much of a problem. He wanted that to be the one that he tested, to try to put it in normal first.

MR. CONTE: Okay. Very good.

I'm all out of questions here.

MR. JORDAN: I've got just a couple.

MR. RATHBUN: Okay.

MR. JORDAN: When they transferred back to normal, did you see any bump, any change in any of the parameters, anything?

MR. RATHBUN: Nothing that I saw. I really wasn't up close to the panels at that time, monitoring. Sometime around there I was going around, trying to get a handle on what was going on, different people doing things so I could get a turnover from the off-going guys, so he could get a relief and fill his log out before he had to go home.

MR. JORDAN: Was there a lot of communication as far as when this was occurring? Did you get a feel so you knew whether something was going to be transferred?

MR. RATHBUN: I remember some communications going on, like before each UPS that he tried. It seems to me he was using the radio, and I can't remember if he was talking to the CSO or if the CSO had assigned one of the other reactor operators to stand over by the panel and monitor the electric plant. I think about that time I was walking down the back panels in the control room. This would have been out on the front panel section. But I'm not certain.

MR. JORDAN: You mentioned -- was it a testable check valve?

MR. RATHBUN: Yes.

MR. JORDAN: A testable check valve that was open?

MR. RATHBUN: Yes.

MR. JORDAN: And it probably should have been closed. Do you know what system that was on?

MR. RATHBUN: Yes. That was on RCIC. There are two testable check valves, one inside and one outside the containment, and the one outside was indicating full open. I checked the bulb, and it wasn't burned out. The one inside the containment was indicating full shut, and the injection valve was indicating full shut.

MR. JORDAN: Do you know how long that lasted? You were there most of the day. Was it fixed?

MR. RATHBUN: Sometime after I took the shift -- or just before I took the shift, they had sent an operator

out. They put a hold-out or a mark-up on the injection valve, de-energized it shut, to comply with the tech spec for containment penetration. And they wrote a WR to get that worked. I remember seeing a reference tag hanging on it when I was doing a turnover with the offgoing CSO.

MR. JORDAN: Do you know about what time you identified the problem or you noticed it?

MR. RATHBUN: It would have been shortly after 10. I noticed it when I was walking down the panels prior to relief. I'd say someplace between 5 after and 10 after 10.

MR. JORDAN: When you installed the jumpers -- this is going back again --

MR. RATHBUN: No problem.

MR. JORDAN: -- on the 609 and 611, is that jumper out just the level, or does that jumper all the logic?

MR. RATHBUN: That jumpers all the RPS logic.

MR. JORDAN: All the RPS logic.

MR. RATHBUN: Right. The four jumpers together, that is.

MR. JORDAN: Okay.

MR. CONTE: I hope I'm not repeating myself: Did you ever see this before, in terms of loss of annunciators and the full-core display going out? Did I ask that question?

MR. RATHBUN: Yes. You asked that. The answer

was no, I don't ever recall seeing it.

MR. CONTE: Okay. I guess I did repeat myself.

MR. RATHBUN: That's okay.

MR. CONTE: There was a report of water hammer in reactor water cleanup and the rad waste line from RHR later in the way.

MR. RATHBUN: Right.

MR. CONTE: What do you know about those? Was it just a report? Was it confirmed?

MR. RATHBUN: Well, on the one for RHR, that was when we were flushing to try to put shutdown cooling in service. That was after I had relieved the CSO, and I was now the active CSO. One of the operators was out in the plant. I can't remember what he was sent out to do. He heard these banging noises coming from the floor below him, and he went down to investigate and called from there. I could hear him in the background, through the phone.

The cleanup ones -- again, there were some operators up at the cleanup panel attempting to backflush, backwash, and precoat a filter. They heard noises again from the floor below them and went down to investigate. That particular one -- I had been out in the plant, doing the venting when restarting the cleanup system to do the warm-up and heard very loud bangs coming from the system.

MR. CONTE: Are you saying that the reports of the

water hammer are coming from the same system?

MR. RATHBUN: No, two separate systems.

MR. CONTE: Two separate systems.

MR. RATHBUN: Reactor water cleanup --

MR. CONTE: Reactor water cleanup was the backflush for precoating the demineralizers.

MR. RATHBUN: Right, and at the same time we were starting the pump -- this was just prior to the isolation, just after they started the pump and before the isolation occurred.

MR. CONTE: And the other area is the rad waste line for flushing the shutdown cooling system, or RHR.

MR. RATHBUN: I'm not sure which part of the system had the water hammer or banging noises, but it was the shutdown cooling system when we were doing the warm-up of it, which takes water from the reactor and flushes it through the system to rad waste.

MR. JORDAN: Do you know who the operators were?

MR. RATHBUN: For which system?

MR. JORDAN: For the RHR.

MR. RATHBUN: Pat Brennan.

MR. CONTE: How about reactor water cleanup?

MR. RATHBUN: Cleanup was two non-LOTS and I am not entirely certain who it was.

I can tell you who I think it was, but I am not

sure whether that is true or not.

MR. CONTE: Have you seen this before or heard this before or for both systems?

MR. RATHBUN: Not for shutdown cooling but for the other system, for cleanup, yes.

MR. CONTE: Were the people that you talked to, were they sure that this was water hammer?

MR. RATHBUN: I don't believe that either one of them used the term water hammer.

All they were saying is there is very loud banging noises. They weren't sure what we were doing or whatever but they felt we should be aware and maybe we need to do something.

MR. CONTE: But the noise was associated with starting a pump, doing something to assist them so the connection was obviously there?

MR. RATHBUN: Yes. I mean they could narrow down where the noise was coming from. In the cleanup one it was coming from the heat exchanger room. In the other case he wasn't sure exactly what it was coming from. He said it sounded like it was coming from the spent fuel pool cooling heat exchanger room, which has some piping -- what's the word I want? Pipe runs in it from that system. He knew that we were doing the warmup of the shutdown cooling lines and was wondering if that it what was causing it.

I don't believe either one of them I said used the term water hammer.

MR. CONTE: I don't have anything else. Mike?

MR. JORDAN: I don't have anything else.

MR. CONTE: We're off the record.

[Whereupon, at 2:08 p.m., the taking of the interview was concluded.]

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 DAVID RATHBUN

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

JON HUNDLEY
Official Reporter
Ann Riley & Associates, Ltd.

07-95A-91

ORIGINAL

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
Interview of: DAVID RATHBUN

Docket No.

LOCATION: Scriba, New York

DATE: Tuesday, August 20, 1991

PAGES: 1 - 31

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Exhibit 3-1 (continued)

ADDENDUM TO INTERVIEW OF DAVID A. RATHBUN CSO F Shift
(Name/Position)

Page	Line	Correction and Reason for Correction
4	13+14	"full-rod display" to "four-rod display"
8	25	"read switch" to "reed switch"
9	2	"read switch" to "reed switch" (twice)
9	6	"to zero-zero" to "than zero-zero"
10	2	"read switches" to "reed switches"
28	17	"him" to "them"
28	22	"had" to "have"

Page 1 of 1 Signature [signature] Date 8/23/91

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

INCIDENT INVESTIGATION TEAM

- -

Interview of :

DAVID RATHBUN :

(Closed) :

- -

Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Tuesday, August 20, 1991

The interview commenced, pursuant to notice, at 1:25 p.m.

PRESENT FOR THE IIT:

Michael Jordan, NRC

Rich Conte, INPO

PRESENT WITH MR. RATHBUN:

Mike Colomb, Niagara Mohawk

PROCEEDINGS

[1:25 p.m.]

MR. JORDAN: It's August 20, 1991. It's 1:25 p.m. We're at the Nine Mile Point Unit One nuclear power station, in the P building. We are going to cover events of a transient that occurred on August 13, 1991. My name is Michael Jordan, with the U.S. NRC, out of Region III.

MR. CONTE: I'm Rich Conte, Region I.

MR. RATHBUN: My name is David Rathbun, reactor operator at Nine Mile Point Unit Two.

MR. COLOMB: My name is Mike Colomb. I work for Niagara Mohawk Power Corporation. I'm the operations manager at Unit Two.

MR. JORDAN: We're here to interview Dave Rathbun.

Dave, why don't you start out and tell us what's your experience in your site here? What experience do you have? What's your background?

MR. RATHBUN: I was a Navy nuke for six years, reactor operator. I joined Niagara Mohawk in 1982. I licensed on Unit One, went over to Unit Two, and licensed at Unit Two, reactor operator. For the past six months or so, I've been a chief shift operator on F shift.

I'm not sure what else you'd like me to say.

MR. CONTE: When did you get your license in Unit Two?

MR. RATHBUN: I can't remember exactly, to be honest.

MR. CONTE: What year?

MR. RATHBUN: That's what I'm trying to remember. I can't even remember the year, to be honest. I'd say about five years ago, or so.

MR. JORDAN: You're currently licensed?

MR. RATHBUN: Yes.

MR. JORDAN: Okay, Dave. Why don't you go ahead and tell us in your own words, then, what you saw and how you saw the event transpire?

MR. RATHBUN: Okay. I was coming in to relieve the on-shift chief shift operator. I walked into the control room at approximately 6 o'clock. The incident had already started, and I arrived prior to the re-energizing of the uninterruptable power supplies.

Shortly after I walked into the control room, I made the SSS aware that I was available, and he requested that I use EOP 6, attachment 14, to attempt to -- I'm trying to think of the word I want to use -- locate whether or not the rods were full in or not. This was still when we had no indication of the position of rods. I looked through the procedure. At the time, I could only see one thing that might help, and that was to verify locally that the scram air-header was depressurized. I suggested that to the SSS,

and he agreed, and we sent a non-licensed operator out to check on that.

Before he could report back, we recovered power on the uninterruptable power supplies, at which time we regained some of the rod indication systems. Myself and another operator then, using both the rod sequence controller and the full core display -- some rods didn't show full in on both of those, and they weren't exactly the same, so we went through and checked the rods that weren't indicating full in on RSCS against the full-core display, and out of that came up with six rods that were not indicating full in on both of them. We selected those rods using the rod select matrix, to try to use the full-rod display to find where the rods were, and got blanks on all of them, so we still didn't know.

We reported that to the SSS, and at that time I suggested to the SSS that perhaps these rods are over-driven in by the scram. If we reset the scram, we may be able to let the rods settle and get good indication on them. The only problem with that was that at the time the reactor vessel level was less than level 3, which is a scram signal.

The assistant SSS, STA, reminded both of us that he had authorized use of attachment 14, which gives guidance for defeating RPS interlocks to allow resetting scrams to do repeated scram signals to insert rods that are not full in.

The SSS directed me, then, to insert those jumpers and reset the scram.

I used attachment 14, took it in the back of the control room with me, and inserted the jumpers in 609 panel and 611 panel. Also using the procedure, I came back out front and reset alternate rod insertion, reset the scram. At that point we got indication of all rods in on the full-core display and RSCS, and we reported that to the SSS.

I wasn't really given any more duties after that. I answered the phones occasionally and helped direct some of the non-LOTs on lesser tasks out in the plant, as far as trying to regain some of the things for a normal shutdown, try to get the plant back in a more normal configuration.

I worked with one of the oncoming STAs to try to get the plant computers back, to get help from the TSC or the OSC, whichever it was, for the computer techs. Once the SPDS computer was back, I reinitialized the EOF so that they could make use of the SPDS computer.

At one point in time I was asked to look at the Division 2 H2O2 monitor. Basically, all that was wrong with it was that the pump was not running, and we weren't sure at that time why it was not running. The valves were still all lined up; we had not taken the containment isolation; and the SSS wanted that on line so we could have accurate indication of if anything was going wrong in the primary

containment, so at his direction I restarted that pump.

At approximately 10:17, I relieved the CSO, who had been there. He took the log in to write in all of the things that had gone on during his time in the control room, and I had a non-LOT write down and be my scribe for a while, until I could get the log back. We just continued the cool-down, put shutdown cooling in service.

We attempted to put clean-up in service and encountered a problem with that, where it isolated. At that time, the SSS, which by now had also been relieved as a new SSS, made the determination that we were not going to worry about clean-up for a while, till it cooled down.

That's pretty much it. I left before they down-graded the emergency from a site area emergency.

MR. JORDAN: A couple questions.

You mentioned that the RSCS and the full core display and the rod worth minimizer were indicating rods not full in. Can you give me an idea of the RSCS and the full core display were indicating the same number of rods and the same rods? Or were they different rods, was the RSCS and the full core display indicating different rods?

MR. RATHBUN: The RSCS was indicating quite a bit more than the six rods that we ended up with -- excuse me. I don't remember exactly how many. There was one operator that was looking at that, the one that I was helping. He

used the RSCS as a guide.

He went, you know, would break down the rows on that display and when he came to a blank where there should have been a full in light. He'd read that number off and I'd check that number on the full core display, whether or not it had full in lights.

It seemed to me that there were other rods that had, that did not have full in lights on the full core display but that he had full in lights on the RSCS.

Between the two of them, there were only six that showed not full in on both of them together.

MR. JORDAN: How about the rod worth minimizer?

MR. RATHBUN: Rod worth minimizer, the new rod worth minimizer has a confirmed shutdown option or thing you can select. When power came back it was in the normal display. I had to select that confirmed shutdown and when I did, it said "shutdown, no; all rods in, no; number of rods not full in, 1" and then there is another button you can press to give a list.

I pressed that button and it gave me one rod number, of which I don't remember the exact number. It was 1830-something I think, and anyway it said that it thought that rod was full in but it was giving it as the rod that it thought was not full in.

After we reset the scram and RSCS and the full

core display both said all rods were full in, the rod worth minimizer also agreed with that and said "shutdown, yes" and "all rods full in, yes."

MR. JORDAN: Was 18-whatever it is, 1830-something, was that one of the rods that --

MR. RATHBUN: No. That was not one of the six rods. We checked that against our list.

MR. JORDAN: Okay. You say you selected those rods, the six rods on the four rod display?

MR. RATHBUN: Uh-huh [affirmative].

MR. JORDAN: And they indicated?

MR. RATHBUN: Blanks.

MR. JORDAN: Just blanks?

MR. RATHBUN: Right.

MR. JORDAN: The rest of the rods on full core display, did they indicate blanks also?

MR. RATHBUN: I don't remember seeing any zeroes on it but I wasn't really looking for them so I am not really sure.

MR. CONTE: What do you normally get in the over-travel situation where it is too far in?

MR. RATHBUN: We've had this kind of indication before on these. That's why I --

MR. CONTE: Do you get blanks or xx or what?

MR. RATHBUN: Not blanks, xx's if the read switch

isn't making up and the reactor manual control system doubts the read switch or doesn't, has it open for read switch.

There is a read switch for overtravel in which is -- I am not exactly sure now if it picks up the green light but we've had, I have seen it before on scrams, until you reset it where they're pushed in farther to zero-zero and the zero-zero doesn't show up on the four rod display.

MR. CONTE: What does show up?

MR. RATHBUN: Just blanks, like I saw there.

MR. CONTE: What about the green light? What did you say about that?

MR. RATHBUN: The green lights would be up on the full core display.

MR. JORDAN: You say those are, on an overtravel they are still lit or they are not lit?

MR. RATHBUN: Some of them were and some of them weren't. I don't remember exactly. They came in when we reset the scram and the rods were able to settle back in the past.

MR. JORDAN: How about in the past, when you had indication on the four --

MR. RATHBUN: Well, it was pretty much kind of like this where some would and some wouldn't. It was never the whole core, never, you know, didn't show full in. It was only some of the rods.

MR. CONTE: How much do you know about the power supply to those read switches in terms of where they get power?

MR. RATHBUN: RPIS.

MR. CONTE: If you don't know --

MR. RATHBUN: I wouldn't be able to give it to you from memory. I know I have gone through the GE prints for that system looking up power supplies to make changes to our procedure because they didn't have it in it quite a while back, a year or so ago, and I was writing markups a lot and needed one of them.

I can't give you a definite answer but I know that it comes off, most of the stuff in that system comes off of a main breaker, one or two main breakers in the panel. Its ultimate power supply in the plant I am not really sure.

MR. CONTE: Was it a surprise to you based on your training here at Nine Mile that you would get a loss of annunciators and an accompanying full core display out, being black like that? Have you ever seen that before in training on the simulator or either at startup testing or--

MR. RATHBUN: Not to my recollection, no.

MR. CONTE: Okay. I had some questions as you were running down the chronology. Let's go back to the start of this thing.

How do you know it was six o'clock that you walked

into the control room? Was it before the site emergency was declared?

MR. RATHBUN: When I walked in, I walked in from the back of the control room, and just as I walked through into the front part of the control room between Panel 602 and 601, the SSS site emergency director was announcing, you know, let me have your attention, I am going to declare a site area emergency.

That was just as I walked through is when he said that. I know it was a few minutes to or after 6:00 just from what time it was on my clock radio and I was in the parking lot and just ready to walk in.

MR. CONTE: Could you retrace the path walking in, primarily when you entered Unit Two, what areas were dark?

MR. RATHBUN: Sure. I didn't notice anything in the security building at all or out in the parking lot or on the way in.

When I walked into the CO2 room I noticed that part fo the lights, about half of the lights were off.

MR. CONTE: CO2 room, what building and elevation was that?

MR. RATHBUN: That is auxiliary service building south, elevation 261.

Those lights there --

MR. CONTE: Had some lights on.

MR. RATHBUN: Right. Those lights, I don't know why, but for some reason they get turned off a lot. There's like half the lights in there on a light switch and half of them are on another contacter, so I tried to turn them on and I got no response.

MR. CONTE: Oh, okay.

MR. RATHBUN: Interesting, I'll have to remember this when I go upstairs and ask about it.

I walked from there into the access passageway.

You step into it and then turn a corner and go through another door and I noticed again a lot of the lights were out. It's a very long passageway.

MR. CONTE: Access passageway, what building? Same building?

MR. RATHBUN: No, that's basically what it's called, access passageway or electric bay. It's a long passageway between Unit One heading towards Unit Two -- Unit Two going to Unit One, I'm sorry.

MR. CONTE: Oh, is that where we go to go to the cafeteria?

MR. RATHBUN: Yes, that long hallway.

MR. CONTE: I was wondering what you called that, okay.

MR. JORDAN: If I could back up just for a second. You say in the CO2 room you --

MR. RATHBUN: -- attempted --
MR. JORDAN: With the light switch?
MR. RATHBUN: Right.
MR. JORDAN: The lights did not come on or as a result of operating the lights that were in there did they go off?
MR. RATHBUN: Nothing happened.
MR. JORDAN: Nothing happened?
MR. RATHBUN: Nothing at all.
MR. JORDAN: Okay.
MR. RATHBUN: Okay, so from there I turned and --
MR. CONTE: What was the condition in the access passageway with the lights?
MR. RATHBUN: A lot of the lights were out, yes.
MR. CONTE: A lot of the lights were out, but not black?
MR. RATHBUN: No. There was a few lights on.
MR. CONTE: Any emergency lighting on?
MR. RATHBUN: I didn't notice any in either of these two buildings.
I went into the door into the -- I guess it would be in the turbine building where the elevator is. Again about half of the lights were out. There's like three lights in that area and like two of them were on and one was off.
MR. CONTE: I'm sorry, I missed that area again.

MR. RATHBUN: The turbine building, I believe it is, 261 -- where the elevator is and the stairwell.

Elevator arrived and the lights were all out in the elevator including the emergency lights and I rode the elevator up --

MR. CONTE: Did you see people coming out of that elevator?

MR. RATHBUN: Yes. There were a couple of non-licensed operators who came out of the elevator --

MR. CONTE: Do you remember their names?

MR. RATHBUN: -- in a little bit of a hurry -- only one of them, Tom Restuccio. I don't remember who the other one was.

MR. CONTE: Okay.

MR. RATHBUN: And I asked something like "Is everything okay?" One of them said no, which I had begun to suspect already.

I think one of them said something about, the reactor had scrammed at that point in time. I rode the elevator up. The elevator operating lights for the floors and the buttons all worked, but the lighting in there was not working, and the emergency lights in there were not working.

Up to elevation 306. Again, most of the lights were out.

MR. CONTE: Elevation 306, what building?

MR. RATHBUN: Same building, turbine building. This is by the RP office and the access to go into the turbine building on 306. I walked over to the doors, into the control building, carded in there. The card reader still worked.

MR. CONTE: Did you see anything unusual in the lighting in the control building?

MR. RATHBUN: Yes. Got into the control building. As I recall, the hallway in the control building looked normal. I carded into the control room, and I didn't notice anything as far as lighting out in the control room. Then I walked up between the panels and into the front, like I said before, just in time for the SED to make his emergency declaration.

MR. CONTE: Going further on, you said that one of the SSS sent down an RO to verify locally the scram header depressurization. Do you know who that RO was?

MR. RATHBUN: It was a non-licensed operator I sent out. That was Dave Brockwell.

MR. CONTE: Where does he have to go to see this?

MR. RATHBUN: That would be reactor building, 261 elevation. We researched on the prints for this system and found an indicator off the scram air header that we believed was in an instrument rack down there near the CRD flow

control station.

MR. CONTE: Do you remember when he reported back?

MR. RATHBUN: No. I never heard a report back from him personally. Later on I had asked if anybody had seen him, because I hadn't seen him in a while, and he had been sent down to help start up the auxiliary boilers.

MR. CONTE: You mentioned you wanted to reset the scram; you had made a suggestion to reset the scram because you thought the scram pressure was pushing the rods too far in. You had the level 3 in, which was the low-level scram setting --

MR. RATHBUN: Right.

MR. CONTE: -- and someone reminded you -- and I didn't catch the name -- that you can defeat an RPS interlock.

MR. RATHBUN: That was the STA, Mike Eron.

MR. CONTE: Okay. What did he say? You can defeat an interlock?

MR. RATHBUN: Well, what he said, basically, was that Mike Conway, who was the SSS-SED, had already told me to use attachment 14 -- he had authorized the use of that -- and that one of the sections in that gives guidance for bypassing the RPS interlocks in order to reset scrams.

MR. CONTE: And you were basically getting ready to follow that attachment.

MR. RATHBUN: Right.

Mike took a moment to think about it and said, Yes, that's what I want to do, told me to do that.

MR. CONTE: Did you do that?

MR. RATHBUN: Yes, I did. Four jumpers in the back of the panel, and I installed them.

MR. CONTE: Okay.

MR. JORDAN: The only scram signal that was preventing you from resetting the scram that you know of was the low level?

MR. RATHBUN: Yes. Turbine trip, stop valve and control valve fast closures were in, but they were bypassed, and we had scram dump volume high level in at that point, which could be bypassed by the bypass switches, but the level one you can't bypass normally.

MR. JORDAN: And the level was --?

MR. RATHBUN: I'm not sure of the exact level at that time, but it was less than 159.3, the setpoint.

MR. JORDAN: So 159.3 is the scram setpoint?

MR. RATHBUN: Yes.

MR. CONTE: What panels -- you said the panels that you put the jumpers in were 609 and what?

MR. RATHBUN: 611.

MR. CONTE: You mentioned that Division 2 hydrogen and oxygen pumps not running. Is that a surprise to you?

MR. RATHBUN: I couldn't figure out any reason why it wouldn't have been running, nor the SSS -- or I should say SRO -- that was back looking at it with me. Nothing else on the system appeared to be other than normal operating. Like I said, there were no isolations, no valves out of position, just that the pump wasn't running.

MR. CONTE: Do you happen to know, based on your training and experience, whether or not those pumps are powered from vital or non-vital, or safety, sources?

MR. RATHBUN: They're powered from vital, safety-related -- they're a safety-related pump.

MR. CONTE: Okay.

Further on in the day, you mentioned, reactor water cleanup had isolated.

MR. RATHBUN: Yes.

MR. CONTE: What input signals indicated the isolation? What parameters caused the isolation?

MR. RATHBUN: The isolation occurred on the delta flow timers' timing out.

MR. CONTE: Could you give me a little explanation of what that's supposed to do?

MR. RATHBUN: Basically, it's a leak detection system looking at the flow coming into the system and the flow leaving the system, under the assumption that, if they're different, then it could indicate a leak -- more

flow coming in, not as much going out; the water has got to go somewhere. However, certain transients on the system can cause a difference in flow due to unstabilities and your changing the parameters of the system, the flows and what-no, so there's a timer associated with it.

MR. CONTE: I see. Okay.

When you're starting up reactor water cleanup, is that an unusual alarm, or a usual alarm?

MR. RATHBUN: It isn't that it necessarily happens every time, but it's not unusual, no. Usually they'll just come in and go right out.

MR. CONTE: I want to make sure I understand. The reactor water cleanup was on service at the time of the trip.

MR. RATHBUN: At the time of the trip it was in service.

MR. CONTE: What happened to it during the power outage time period? Do you happen to know?

MR. RATHBUN: Not really, no. I know that one of the immediate scram actions is to either place cleanup in the full reject mode or shut the pumps off. Most of the time we shut the pumps off because we don't have time to -- it's somewhat of a lengthy process to put it into full reject mode. If there isn't time, usually, the SSS will simply say, Okay, turn it off.

MR. CONTE: So when you came up to the panels, the system was shut down.

MR. RATHBUN: The first time I had a chance to look at it, it was already shut down.

MR. CONTE: Okay. You were trying to start it up.

MR. RATHBUN: Yes. This was later. They wanted to put it in reject mode to aid in vessel level control

MR. CONTE: And when you were starting it up, you got the isolation signal.

MR. RATHBUN: Right.

MR. CONTE: You personally were doing this.

MR. RATHBUN: No, I was the CSO at that time. One of my control room reactor operators was doing that.

MR. CONTE: What's his name?

MR. RATHBUN: Jim Emery?

MR. COLOMB: He's on the list.

MR. CONTE: Was he following a procedure?

MR. RATHBUN: Yes, OP-37. I'm not entirely sure which section of it he was using.

MR. CONTE: Okay. So you basically abandoned trying to get it started again.

MR. RATHBUN: After it isolated, the SSS took a look at the system parameters and said that trying to put it in service at this point in time was not -- he didn't feel it a good idea; the system was still fairly hot, compared to

the reactor, and he didn't want to put it in service until it cooled down.

MR. CONTE: You were in the control room, I guess, from 6 o'clock on, right?

MR. RATHBUN: Yes.

MR. CONTE: Did you overhear the conversation with RCIC and what was happening with RCIC? Is there anything you remember about that? You weren't given responsibilities on that; I understand that.

MR. RATHBUN: Right.

I know that was an operator who was assigned level control using RCIC after they had determined the feed pumps had tripped and vessel level was lowering. I know later on they did have a problem with level. As pressure went down, the booster pumps -- it got down to the discharge head of the feedwater booster pumps -- condensate booster pumps, I should say -- and the feedwater level control valves were locked up in the open position. The operator at RCIC -- I was standing near him at one point in time -- was diverting flow from RCIC back to the full flow test to the CST, which cut off its contribution to the level increase, but the booster pumps were still going.

MR. CONTE: How was water going in from the booster pumps? The reg valves were locked up in an as-is --

MR. RATHBUN: Right. They were locked up open or throttled somewhere but fairly high open, probably. They locked up at 100 percent, I guess, when they lost power. I'm not real sure on that. I know they had to adjust things and reset the lock-outs on them.

MR. CONTE: RCIC was never tripped. He just diverted it to the suppression pool?

MR. RATHBUN: To the CST.

MR. CONTE: To the CST. I'm sorry.

MR. RATHBUN: When he diverted it to CST, level still rose until it reached 202.3 inches, which is the level 8 setpoint, at which time the steam admission valve shut and the injection valve shut. I asked him if it was in standby, and he said basically they left it there when those two valves shut. They turned the -- what do I want to say? -- test return valves closed.

Some time later on, probably 15 to 20 minutes later, I wandered by that panel and happened to notice that one of the testable checks was still indicating full open. I pointed that out to one of the STAs -- or SROs -- who was looking up different tech specs and what-not. I made sure they knew that. They had already known it and were looking at containment operability specs.

MR. CONTE: Until feed and condensate were restored, which I think was about 7:30 --

MR. RATHBUN: I don't remember the time, to be honest.

MR. CONTE: Whatever.

-- was RCIC the primary source of getting water into the plant? After this level transient -- for example, water came back down -- you had to keep feeding in order to maintain level; is that correct?

MR. RATHBUN: I'm not real sure on level. As you said, I wasn't assigned level. I remember at least one time they went low, and they started RCIC to recover level. I believe there was another time they had a lowering trend, and I'm not sure exactly what went on to recover that.

MR. CONTE: In this condition, to start it again you would just open the steam admission valve? Since it wasn't in a tripped condition.

MR. RATHBUN: I believe, unless it had got down to the initiation setpoint, you'd have to open the steam admission valve and open the injection valve.

MR. CONTE: But you weren't there at this point.

MR. RATHBUN: Right.

I was over trying to get how many rods were full in or weren't full in.

MR. CONTE: Later in the morning, I guess, a work party went out to restore some of the uninterruptable power supplies to normal.

MR. RATHBUN: Right.

MR. CONTE: From your vantage point in the control room, were you aware that that was happening? Did you hear anybody voice a concern about that?

MR. RATHBUN: Not really. The first thing I knew anything about it was that the full-core display came back, and a lot of annunciators came in and started flashing.

MR. CONTE: I'm sorry. I'm confusing you. You're back in 6:22 in the morning.

MR. RATHBUN: Right.

MR. CONTE: I'm talking about a time period later, in mid-morning.

MR. RATHBUN: Oh, when they put them on normal?

MR. CONTE: Yes.

MR. RATHBUN: Oh, okay.

MR. CONTE: Did you heard any discussion and concern about shifting back to normal?

MR. RATHBUN: I vaguely remember them talking about it. I don't recall what was said, to be honest. I do remember that one of the operators was directed to go out and attempt to line them back up to normal, and that they had problems with two of them and had to leave two of them on maintenance. I don't really recall the exact reasons why.

I do remember something being said about the order

that the SSS wanted them in. I don't remember what the order was exactly, except that I remember that the two that he had trouble with were the two that he wanted them to wait last on, make sure they could be reset -- I think C because it had like only communications and lighting on it, anyway; we had got them back at that point, because they were on maintenance, because if you lost it it wouldn't be too much of a problem. He wanted that to be the one that he tested, to try to put it in normal first.

MR. CONTE: Okay. Very good.

I'm all out of questions here.

MR. JORDAN: I've got just a couple.

MR. RATHBUN: Okay.

MR. JORDAN: When they transferred back to normal, did you see any bump, any change in any of the parameters, anything?

MR. RATHBUN: Nothing that I saw. I really wasn't up close to the panels at that time, monitoring. Sometime around there I was going around, trying to get a handle on what was going on, different people doing things so I could get a turnover from the off-going guys, so he could get a relief and fill his log out before he had to go home.

MR. JORDAN: Was there a lot of communication as far as when this was occurring? Did you get a feel so you knew whether something was going to be transferred?

MR. RATHBUN: I remember some communications going on, like before each UPS that he tried. It seems to me he was using the radio, and I can't remember if he was talking to the CSO or if the CSO had assigned one of the other reactor operators to stand over by the panel and monitor the electric plant. I think about that time I was walking down the back panels in the control room. This would have been out on the front panel section. But I'm not certain.

MR. JORDAN: You mentioned -- was it a testable check valve?

MR. RATHBUN: Yes.

MR. JORDAN: A testable check valve that was open?

MR. RATHBUN: Yes.

MR. JORDAN: And it probably should have been closed. Do you know what system that was on?

MR. RATHBUN: Yes. That was on RCIC. There are two testable check valves, one inside and one outside the containment, and the one outside was indicating full open. I checked the bulb, and it wasn't burned out. The one inside the containment was indicating full shut, and the injection valve was indicating full shut.

MR. JORDAN: Do you know how long that lasted? You were there most of the day. Was it fixed?

MR. RATHBUN: Sometime after I took the shift -- or just before I took the shift, they had sent an operator

out. They put a hold-out or a mark-up on the injection valve, de-energized it shut, to comply with the tech spec for containment penetration. And they wrote a WR to get that worked. I remember seeing a reference tag hanging on it when I was doing a turnover with the offgoing CSO.

MR. JORDAN: Do you know about what time you identified the problem or you noticed it?

MR. RATHBUN: It would have been shortly after 10. I noticed it when I was walking down the panels prior to relief. I'd say someplace between 5 after and 10 after 10.

MR. JORDAN: When you installed the jumpers -- this is going back again --

MR. RATHBUN: No problem.

MR. JORDAN: -- on the 609 and 611, is that jumper out just the level, or does that jumper all the logic?

MR. RATHBUN: That jumpers all the RPS logic.

MR. JORDAN: All the RPS logic.

MR. RATHBUN: Right. The four jumpers together, that is.

MR. JORDAN: Okay.

MR. CONTE: I hope I'm not repeating myself: Did you ever see this before, in terms of loss of annunciators and the full-core display going out? Did I ask that question?

MR. RATHBUN: Yes. You asked that. The answer

was no, I don't ever recall seeing it.

MR. CONTE: Okay. I guess I did repeat myself.

MR. RATHBUN: That's okay.

MR. CONTE: There was a report of water hammer in reactor water cleanup and the rad waste line from RHR later in the way.

MR. RATHBUN: Right.

MR. CONTE: What do you know about those? Was it just a report? Was it confirmed?

MR. RATHBUN: Well, on the one for RHR, that was when we were flushing to try to put shutdown cooling in service. That was after I had relieved the CSO, and I was now the active CSO. One of the operators was out in the plant. I can't remember what he was sent out to do. He heard these banging noises coming from the floor below him, and he went down to investigate and called from there. I could hear him in the background, through the phone.

The cleanup ones -- again, there were some operators up at the cleanup panel attempting to backflush, backwash, and precoat a filter. They heard noises again from the floor below them and went down to investigate. That particular one -- I had been out in the plant, doing the venting when restarting the cleanup system to do the warm-up and heard very loud bangs coming from the system.

MR. CONTE: Are you saying that the reports of the

water hammer are coming from the same system?

MR. RATHBUN: No, two separate systems.

MR. CONTE: Two separate systems.

MR. RATHBUN: Reactor water cleanup --

MR. CONTE: Reactor water cleanup was the backflush for precoating the demineralizers.

MR. RATHBUN: Right, and at the same time we were starting the pump -- this was just prior to the isolation, just after they started the pump and before the isolation occurred.

MR. CONTE: And the other area is the rad waste line for flushing the shutdown cooling system, or RHR.

MR. RATHBUN: I'm not sure which part of the system had the water hammer or banging noises, but it was the shutdown cooling system when we were doing the warm-up of it, which takes water from the reactor and flushes it through the system to rad waste.

MR. JORDAN: Do you know who the operators were?

MR. RATHBUN: For which system?

MR. JORDAN: For the RHR.

MR. RATHBUN: Pat Brennan.

MR. CONTE: How about reactor water cleanup?

MR. RATHBUN: Cleanup was two non-LOTS and I am not entirely certain who it was.

I can tell you who I think it was, but I am not

sure whether that is true or not.

MR. CONTE: Have you seen this before or heard this before or for both systems?

MR. RATHBUN: Not for shutdown cooling but for the other system, for cleanup, yes.

MR. CONTE: Were the people that you talked to, were they sure that this was water hammer?

MR. RATHBUN: I don't believe that either one of them used the term water hammer.

All they were saying is there is very loud banging noises. They weren't sure what we were doing or whatever but they felt we should be aware and maybe we need to do something.

MR. CONTE: But the noise was associated with starting a pump, doing something to assist them so the connection was obviously there?

MR. RATHBUN: Yes. I mean they could narrow down where the noise was coming from. In the cleanup one it was coming from the heat exchanger room. In the other case he wasn't sure exactly what it was coming from. He said it sounded like it was coming from the spent fuel pool cooling heat exchanger room, which has some piping -- what's the word I want? Pipe runs in it from that system. He knew that we were doing the warmup of the shutdown cooling lines and was wondering if that it what was causing it.

I don't believe either one of them I said used the

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 DAVID RATHBUN

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

JON HUNDLEY
Official Reporter
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