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OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
Interview of: ROBERT BROWN

Docket No.

LOCATION: Scriba, New York

DATE: Thursday, August 22, 1991 PAGES: 1 - 46

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

September 27, 1991

MEMORANDUM FOR: Martin J. McCormick, Plant Manager, Nine Mile Point Unit 2

FROM: Wayne L. Schmidt, Senior Resident Inspector, Nine Mile Point

SUBJECT: Review of IIT Interview Transcripts

The IIT has sent the transcripts of interviews conducted with the personnel listed below to the resident inspector's office. If any of the listed individuals wish to review the transcripts they should do so at the resident inspector's office by October 4, 1991. Guidelines for the review of transcripts are provided in the enclosure. If an individual does not review his transcript by that date we will assume that he did not wish to do so and that the statement is correct to the best of his knowledge.

Alan DeGareia, Steve Doty, Dave Barrett, Jerry Helker, Jim Burr, Bob Crandall, Robert Brown, Anil Julka, Perry Bertsch, James Spadafore, Joe Savoca, Mike Colomb, James Kinsley, Marty McCormick, Chris Kolod, Irineo Ferrer, Fred Gerardine, Anthony Petrelli, Jim Reid, Fred White, Rick Slade, Bruce Hennigan, and Tom Tomlinson.

Thank you for your help. If there are any questions please contact me.

Wayne L. Schmidt
Senior Resident Inspector
Nine Mile Point

ERRATA SHEET

ADDENDUM

Page	Line	Correction and Reason for Correction

Date _____ Signature _____

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

INCIDENT INVESTIGATION TEAM

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Interview of :

ROBERT BROWN :

(Closed) :

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Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Thursday, August 22, 1991

The interview commenced, pursuant to notice, at 9:25 a.m.

PRESENT FOR THE IIT:

Michael Jordan, NRC.

Rich Conte, NRC

PROCEEDINGS

[9:25 a.m.]

MR. JORDAN: It's August 22nd, 1991 at approximately 9:25 a.m. We are at the Nine Mile Point Unit Two in the P Building. We are conducting interviews concerning a transient that occurred on August 13th, 1991, and my name is Michael Jordan. I am with the NRC. I am out of Region III.

MR. CONTE: I am Rich Conte, Region I.

MR. BROWN: Bob Brown. I work with general physics for Niagara Mohawk training.

MR. JORDAN: Okay, Bob. Why don't you just give us a general background on what your experience is?

MR. BROWN: I have been at Niagara Mohawk training since 1983. I've been certified on Unit One and Unit Two plants. I have taught initial operator training at Nine Mile Point One and Two. I became a requal instructor in 1989 and I have been either instructing in or administrating the requal program since 1989 at Nine Mile Unit Two.

MR. CONTE: Okay. The event that happened on August 13th, any involvement you had? Did they call you in? Did they ask for any help as far as your involvement with the event?

MR. BROWN: The only involvement I had directly was at the time we were looking for training material that

may be of interest on the training the operators had, and I was involved in getting training material and training records to make available.

MR. CONTE: This was subsequent? After the event?

MR. BROWN: This was -- well, it was during the event but it really wasn't related to the event. It was more of a request from Niagara Mohawk people to get information available for whatever sort of investigation or inquiries might be made.

MR. CONTE: Is that training available or was it sent to the assessment group and one of the sub-leaders in the assessment group?

MR. BROWN: I turned it over to the requal program coordinator and I don't know who he turned it over to, where it went, but it was just a collection of the electrical system lesson plans and objectives that we trained to.

MR. CONTE: The electrical system lesson plans and what?

MR. BROWN: And objectives, training objectives.

MR. CONTE: Let me understand your position here again. You are with general physics?

MR. BROWN: Yes.

MR. CONTE: You are overseeing the requal -- you are a supervisor for requal?

MR. BROWN: No. I was a supervisor for requal

until early this year, February of this year, when -- because I am a contractor they replaced me with one of their own people, but I am still an instructor in the requal program.

MR. CONTE: Who oversees the Unit Two requal for the Niagara Mohawk?

MR. BROWN: The guy's name is Jim Reid.

MR. CONTE: Jim what?

MR. BROWN: Jim Reid.

MR. CONTE: Jim Reid?

MR. BROWN: Uh-huh.

MR. CONTE: And who does he report to?

MR. BROWN: Rick Slade.

MR. CONTE: Who?

MR. BROWN: Rick Slade.

MR. CONTE: Rick Slade. Okay. You want me to take the lead and ask question?

MR. JORDAN: Yes.

MR. CONTE: Some of the notes are cryptic.

Have you had any involvement in the non-licensed operator training program?

MR. BROWN: Not in three or four years. I used to do lectures in the non-licensed operator training program as we moved around but I haven't been directly involved in instructing them since probably '87.

MR. CONTE: So right now your function in the company is mostly with the licensed operators?

MR. BROWN: Licensed operators, yes.

MR. CONTE: Okay. I guess besides the electrical distribution the two other major topics or part of electrical distribution is the UPS power supply safety and non-safety and also the control room panels and annunciators.

Do you have any familiarity with the job task analysis for the licensed operators and would you, if you do, would you know that it addresses the UPS power supplies, control room annunciators?

Does it get that detailed from a job task analysis point of view?

MR. BROWN: I am not that sure what the tasks are. I know that we developed prior to the job task analysis training on UPS power supplies, developed objectives prior to -- or from the task analysis, so there are training objectives on UPS's and there is training along with industry event training on UPS's. It's done in the requal program.

MR. CONTE: Do you know if the UPS training addresses both safety and non-safety power supplies?

MR. BROWN: Yes. It goes through all the types that we have and how they function.

MR. CONTE: Would you know if there is any difference between the lesson plans for auxiliary operators versus licensed operators dealing with UPS?

MR. BROWN: There is -- no. They use the same one for UPS's but the non-licensed people when they get trained generally walk through the plant and go through around to all the UPS's. When the licensed operators did it, it was all classroom training. It is essentially the same information with different objectives.

MR. CONTE: So you would characterize the auxiliary operator training on UPS as more hands on and the licensed operators, more classroom?

MR. BROWN: Yes.

MR. CONTE: Okay. Jump in at any time you think of a question, Mike.

MR. JORDAN: Yes, I will.

MR. CONTE: Let's see. How would -- talking about the systems, I guess we would be interested in getting a copy of the job task analysis dealing with the UPS and/or electrical distribution.

MR. JORDAN: Also the training plan for both the non-licensed and licensed operators.

MR. BROWN: Remember, I told you earlier about the lesson plans that we gathered. That was one of the ones that was in that group, so I don't know if we can make another

copy of it. I got a guy coming over here at eleven o'clock. I can send it over with him.

MR. CONTE: Okay.

MR. JORDAN: Okay.

MR. CONTE: I'll give you a chance to write there. Does the job task analysis address the control room panels and the annunciators and what is expected in that area? Do you have any familiarity with that?

MR. BROWN: When you say the job task analysis, generally what we have is the task will be something that an operator has to do and from that you will break it down into objectives that will be certain knowledges that he'll have to gain, and that is more -- the job task analysis takes you down to a task that says be able to identify a loss of or be able to identify a situation and from that you have to train him, okay, you're going to have to know what annunciators there are, what meters there are, various things like that.

The job task analysis won't really get you to that bottom line. It will just get you to the task that says he has to be able to deal with the loss of power, deal with the loss of pump, whatever it happens to be.

MR. CONTE: How is that covered? Is that covered from a system job task analysis of control room panels or is that kind of in the area of emergency and abnormal response?

MR. BROWN: The answer to that is yes.

MR. CONTE: All of the above?

MR. BROWN: Yes. The tasks basically are broken down by system and then there is a section that is broken down by emergency tasks: you must be able to respond to an accident or transient and where it's best fit when you do that training.

MR. CONTE: Okay. While we are on the control room panels and annunciators, there is a specific question about how do you train AO's and/or licensed operators in reading recorders? There's two scales on the recorder, the scale associated with the instrument and then there is a scale that associated with the chart paper. Is there a policy and is that policy promulgated in training on how to read either recorder or chart paper?

MR. BROWN: They read the recorder.

MR. CONTE: They are supposed to read the recorder?

MR. BROWN: Yes.

MR. CONTE: Okay, and do you know if that is the most accurate from a calibration point of view or why not review the strip chart?

MR. BROWN: Well, when you say review the strip chart, now the strip chart is a permanent record you can go back and read but if you are doing a look and see what this reads rather than trying to interpret the strip chart, you

just read the recorder, so from a standpoint of trying to operate a plant it is like reading a meter versus trying to figure out what a piece of paper or a chart's doing.

If you are looking for a trend you would read the chart but if you are looking for a value, you read the recorder.

As far as which one is more accurate, I couldn't tell you.

MR. CONTE: The next one here I think is covered on the lesson plans we talked about. We can get copies of that.

Any job performance measures that the you are aware of right now that are already established that would say be precursors to a loss of annunciator event such as this, or loss of UPS's and getting them back on the line?

MR. BROWN: We have a job performance measure on how to transfer UPS.

MR. CONTE: Transfer?

MR. BROWN: A UPS from normal, I believe it is from normal to alternate. You have got to go transfer it as a normal evolution and it takes them through doing that.

MR. CONTE: Normal to alternate meaning the AC source to the DC source?

MR. BROWN: No. I'm sorry -- normal to maintenance.

MR. CONTE: Normal to the maintenance.

MR. JORDAN: There is a task. Is that part of a task analysis on the measure or is it just the measure?

MR. BROWN: There is a measure on that. There is a measure on that.

I am not familiar with any more on loss of annunciators. I know there are some that are on loss of power panels, loss of switchgear and how to respond.

MR. JORDAN: Let me make sure I understand something on the job performance measures. So, if there's a job performance measure that means there's a task associated with someplace along the line. And that task then has in it, what do you call them --

MR. BROWN: Well, if you take a task, you say this is a -- a task is something you have to be able to do. Now, to do that you have to have knowledge and you have to have ability. So, there are knowledges that you teach them and there are abilities that you must -- they learn to demonstrate and what you're checking with the job performance measures that they have both, they can do this task.

MR. JORDAN: So that the transfer from maintenance to transfer is that for safety as well as non-safety related?

MR. BROWN: The one that we have is on a safety

related.

MR. JORDAN: For safety related? And we don't -- you don't know if there is one for non-safety related or do you know?

MR. BROWN: I'm pretty sure that there's not one for non-safety related.

MR. JORDAN: Not one for non-safety related?

MR. BROWN: Right.

MR. CONTE: How about simulator scenarios, what has been done recently, I would say in the last two years in the area of loss of UPS's or loss of annunciators?

MR. BROWN: I don't know that we could nail those two areas down to say we trained in that area. We noted a weakness in their response to loss of electrical power -- loss of different power panels and the ability to recognize probably back in the early part of 1990 and we changed a lot of scenarios to add that in as an area to concentrate on. We didn't really approach it with the idea of a loss of UPS and the loss of annunciators. It was more of a -- problems with recognition and distribution losses and so we worked on that a lot to strengthen that. And there's a number of scenarios now that have losses of power incorporated in them.

MR. CONTE: How did you identify that weakness?

MR. BROWN: Through evaluations.

MR. CONTE: On the requal training?

MR. BROWN: Yeah. During requal training evaluations.

MR. CONTE: Any NRC involvement in the identification of that weakness?

MR. BROWN: None that I recall. There was some problems at the plan, also some knowledge problems, some operators mentioning that they didn't feel they've been -- they needed more training in this, they needed more training in that and I believe there was an LER or a release and event on a loss of power due to a recognition problem. And then it was also noted, I went back and looked, and yeah, there were problems in training too where there was recognition, so we went after that area.

MR. JORDAN: But, no specific training on annunciators -- loss of annunciators?

MR. BROWN: Not that I recall. I don't ever remember that being a -- loss of annunciator as the topic.

MR. CONTE: How about drilling them on loss of radiation monitors such as JEMs, loss of JEMs, loss of area radiation monitors things like that? Any training on that?

MR. BROWN: You mean loss of them, there is no power there anymore?

MR. CONTE: Yes.

MR. BROWN: So you have to come up with another

method? When you teach the system and then you go through the abnormal or off-normal conditions that could occur and what the backups are, so in that area nothing that we went in and said, okay, this is something we have to concentrate on, just we teach DRMS and ASRM, all those systems get taught and when you teach them you go through the procedures and the procedures for dealing with losses of or off-normals for not having tech spec requirements and samples required if normal systems aren't available and how they're obtained.

MR. CONTE: Okay.

MR. JORDAN: How about the training on loss of control indication for control rod positions?

MR. BROWN: That's done --

MR. JORDAN: Is there alternate methods of -- are they trained on alternate methods of acquiring that data?

MR. BROWN: Yeah. And there's also procedural guidance in some of the OP's on -- mostly in the areas of failures to scram and identifying how many rods are out and loss of power to various indicators and what the backup indicators would be for determining it.

MR. JORDAN: Are you familiar with the indication that they lost the control room as a result of this transient?

MR. BROWN: Not as familiar as I would like to be, no.

MR. JORDAN: I'm sure you'll get familiar with it. Okay. If they've lost their full core display and they've lost the rod worth minimizer and they've lost their RSCS and they've lost their full rod display, is their a remote indication -- control room indication for rod positions have been lost, are they trained or is there methods by which they can obtain that information remote to the control room?

MR. BROWN: The other option is the process computer, of course, and I believe that was gone too.

MR. JORDAN: That was gone too.

MR. BROWN: You can determine -- not specifically rod position, no. But whether or not the reactor is shut down by power level and other indications as far as rod position. If you take away all of those, it gets real difficult.

MR. JORDAN: So you don't know of any training on -- if they've lost all of their control room indication for rod positions, including the process computer, there is no training that you know of on obtaining that information at another location?

MR. BROWN: Boy, I can't think of anything right off.

MR. JORDAN: Okay.

MR. CONTE: You did make a point that -- you said that there's an EOP -- what is it EOP-6 contingency

procedure or a satellite procedure that tells you on an ATWS that you can go into -- what, some panels and get voltage readings on rod positions to find out rod positions?

MR. BROWN: Yeah, you can do that, I think, in the back panel. You can go back and check it there.

MR. CONTE: I guess that dependent on whether you have power or not?

MR. BROWN: Yeah. And I'm not familiar what power they had or what they didn't, but the systems, the normal systems for picking that stuff off are pretty much taken away in this case.

MR. CONTE: And it is an EOP-6 procedure?

MR. JORDAN: There is an EOP-6 procedure not dealing with the loss of indication but dealing with how to verify rods that are in. And it goes through --

MR. CONTE: Okay. What's the process of training on those EOP-6 procedures? I understand EOP-6 is the ones that go out in the plant or go to the panels and do things as contingencies.

MR. BROWN: Yeah.

MR. CONTE: Does every licensed operator have to go through every one of those attachments in that contingency?

MR. BROWN: They get trained on how to -- everyone of them gets trained on the classroom; a walk-through step-

by-step and the reason for the steps. Then we do, either through job performance measure or simulator scenario -- we do training on them and then there's an evaluation, although, there is nothing that rigidly says each operator will be evaluated on each one of the job performance measures.

The requal operators, we never did that. I believe, and I would have to go back to prove this, but I believe the licensed operators have to do every one of those. Initial licensed operators are now in the process of getting through the license class and obtaining a license, it's one of the tasks they have to perform.

MR. JORDAN: Each of the attachments of the EOP-6?

MR. BROWN: Yeah. Well, it would be more as a -- there are tasks that they have to do and each one of those is a task and they have to get someone to evaluate them performing all of the tasks. So that would be in there.

MR. CONTE: How is that tracked, by qual card?

MR. BROWN: Yeah. Essentially it's a book of -- an OJT manual, they call it.

MR. CONTE: OJT manual?

MR. BROWN: Um hm.

MR. CONTE: Who oversees the initial program?

MR. BROWN: Fred White.

MR. CONTE: Fred White?

MR. BROWN: Yeah.

MR. CONTE: Okay.

MR. BROWN: Now, the guys who were licensed at that time, we did the classroom training when EOP-6 first came out. That came out in the fall of last year with the Rev. 4 to the OP's. And we went back and taught them EOP-6, all the attachments, and then we go through them in simulator scenarios and job performance measures.

But, we never went back and said each one of you has to perform each one of these tasks.

MR. CONTE: Okay. How about overall command and control in emergencies? How is that trained? Obviously the simulator scenarios get you that -- I assume there's evaluations on command and control?

MR. BROWN: Every week we do simulator training for at least -- it was a day of simulator training. It's moved up to about a day and a half and then we do simulator evaluation every week. Each one of the SROs gets his turn at performing as the SSS. We do two scenarios a week. And they rotate so that each one plays the roll of the SSS and the ASSS in alternating scenarios. And that is one of the categories in which they get graded and generally, although not always, there is someone from operations -- management who will be there observing the training, and if there's --

MR. CONTE: So each week the scenario training

where they've got to --

MR. BROWN: They have to perform --

MR. CONTE: -- perform command --

MR. BROWN: -- from anywhere starting out and some normal condition in dealing with a few off-normal events up to EOP entry and the direction of emergency.

MR. CONTE: Excuse me. You say it used to be a day and it's a day and a half now?

MR. BROWN: Well, no. There's two different things. There's training and there's evaluation. They have always done two evaluation scenarios, but the amount of training where we -- where you do the coaching as an instructor -- in evaluation they just go from beginning to end and whatever happens, happens.

In training, if things aren't going well you stop and anywhere from coach up to discussion of events. So we do that for about a day and a half now and then we go into the evaluation mode. That's every Thursday.

MR. CONTE: Okay. The coaching is a day and a half and the actual run and evaluation, don't let the scenario stop, is what, a morning?

MR. BROWN: It's -- they do two scenarios of an hour each. And then each one of those is followed by self assessment.

MR. CONTE: Sounds like an NRC quality

examination.

MR. JORDAN: Yes.

MR. CONTE: Okay. Good. How about in the --

MR. JORDAN: Can I ask a question?

MR. CONTE: Yes, go ahead.

MR. JORDAN: Before we get too far, I have one question back on EOP-6. The method that they get into EOP-6, do the normal -- I don't want to say normal -- do the other EOPs put you into EOP-6, or do you just have to know that, if you're at this point in the EOPs, the EOP-6 would assist you.

MR. BROWN: No. You have entry conditions into the EOPs themselves, and then you're directed if you have to do something. It will be something like, Go manually override this valve, and it will tell you in EOPs, Do that in accordance with EOP-6, attachment -- whatever the number for the system.

MR. JORDAN: So they wouldn't get into EOP-6 unless they were directed to.

MR. BROWN: Unless they were in the EOPs.

MR. JORDAN: Does the EOP-6 address them to what attachment to function off of?

MR. BROWN: Yes. All the guy has to do is read it right out of the EOP. It'll say, In accordance with EOP-6, attachment -- whatever the number is.

MR. JORDAN: So if there's an action or task that's designed and it's in the EOPs, it will be directed to it. Otherwise, you just stay in the normal EOPs.

MR. BROWN: Well, you're never leaving them.

MR. JORDAN: I understand that.

MR. BROWN: But, yes, you would be directed directly to it.

MR. JORDAN: Okay. And if you're not, then there's no assistance out of EOP that you can get by doing that task. I'm just curious; what I'm looking for is the rod position indications if --

MR. BROWN: Oh, in other words, I wouldn't use that unless I was in EOPs; that's true, but in learning that I'm going to learn what else I can do when I don't have my normal -- Somewhere along there, then, as an operator, I have to learn, Check this, check this, check this, and all the various ways there are to check them.

MR. JORDAN: Thanks, Bob.

MR. CONTE: Excuse me. How much time do we have? Do we have another interview at 10 in this room, or what?

MR. JORDAN: We have another interview at 11.

MR. CONTE: Who's coming in this room at 10 o'clock? Nobody?

MR. JORDAN: Nobody.

MR. CONTE: Okay. So we can continue beyond 10 --

hopefully not too far beyond 10.

Related back to the command-and-control issue, how about training on 10 CFR 50.54(x) -- I should say 50.54(x) for the record.

MR. BROWN: I know which one you mean.

MR. CONTE: This is emergency actions for operators.

MR. BROWN: Yes.

MR. CONTE: Could you recount what basically is given to the operators?

MR. BROWN: Well, as a matter of fact, we just did that last cycle. We went through 10 CFR 50 and 10 CFR 55, and in there we went through, in the classroom, 50.54(x) and 50.54(y), so it was classroom training, and then, in the simulator, we go through mostly EOP training. If the operator is aware that he's in a situation where he has to invoke that, he'll say that.

MR. CONTE: Are you saying there's a requal lesson planned on the 50.54(x)?

MR. BROWN: Stated in there? Yes.

MR. CONTE: And the last cycle, so there would be a record for the midshift crew of having received this training?

MR. BROWN: Yes.

MR. CONTE: I see.

What does the requal record reflect for an individual? What do you keep track of?

MR. BROWN: Every lesson that he attends and the time that he attends. They get credit for completing the training. They get graded in the areas of evaluation; they get graded on static exams, job performance measure, and written exams. They do that every cycle, so once out of every six weeks, if I'm an operator, I go through about two days of classroom training, two days of simulator training, simulator evaluation, written exam, static exam, and at least two job-performance measures. All those things that we're evaluating get grades, and everything else, they just credit for completing the training. That's pretty much what they do in a week.

MR. CONTE: Who would I see in the organization to at least review the records for the midshift people that were on watch at the time, requal?

MR. BROWN: You could see Jim Reid?

It's all computerized now, so you just call them up by name, and you can look at all the training they've had in the last two years.

MR. CONTE: No, problem? Good.

Let's talk about post-trip response of the plant and what you expect of your operators. Could you run through the sequence on what you teach your operators to do

on a normal, post-reactor scram, when lights come in indicating a reactor scram?

MR. BROWN: Well, you have --

MR. CONTE: Annunciator lights come in indicating reactor scram.

MR. BROWN: The shift supervisor is the man who has the big-picture responsibility and is in charge of the situation, so he's the step-back, touch-nothing, gather-information, and direct. If there is an EOP entry or an entry into that sort of procedure, then it's his responsibility to enter it. The operators are trained. The CSO has charge of the control room, unless there's an EOP entry, in which case he becomes another operator to be used by the SSS, with no function, as in command of anything. So it's more that the operators in a normal sequence are reporting to the CSO, who's reporting to the SSS. As soon as they enter an emergency condition, the SSS is in charge, and everyone reports to him.

The response would be that the person -- the E operator, most likely -- at the 603 panel takes the automatic actions for the scram at the 603 panel. There is generally one other operator in the control room responsible for the other actions: verifying turbine trip, verifying electrical panel transfer, and verifying generally that the response of the other systems is as expected. Each operator

reports back to the SSS what he finds or what he does.

MR. CONTE: Do you have those immediate actions committed to memory?

MR. BROWN: Do I, personally?

MR. CONTE: Yes.

MR. BROWN: Boy, that would be a good test. I used to.

MR. CONTE: Where do I find them?

MR. BROWN: You would find them on the panel in the control room, underneath the plexiglass that the E operator is standing up against.

MR. CONTE: They're listed there?

MR. BROWN: The page out of the procedure is kept under the plexiglass there.

MR. CONTE: Which procedure is it?

MR. BROWN: It's OP-101(c), off-normal.

MR. CONTE: SOP-101 --

MR. BROWN: No, it's not an SOP. It's an N2OP-101(c), in the off-normal section H.

MR. JORDAN: Is that the name of the procedure, OP-101(c)?

MR. BROWN: Yes.

MR. JORDAN: Off-normal.

MR. BROWN: Got it.

MR. CONTE: And that list specifically says,

Immediate action in a reactor scram.

MR. BROWN: Yes. It has, Reactor scram immediate actions, subsequent actions, the whole bit, and that section is kept out on the panel. You've been in the control room. You're familiar with the desk where they've got the section for reduced flow operation? Under there they also keep the actions for scram.

MR. CONTE: You've got to turn away from 603, and you look at the computer console where the CSO stands. It's right on that?

MR. BROWN: Well, their training is to take their immediate actions, which they're required to know, and then to follow up their actions, verifying that everything was completed in accordance with the procedure.

Now, in a normal situation there are enough people there to help him. If it gets into an emergency of any proportion, he may be on his own to first perform and then verify.

MR. CONTE: Okay.

Would you happen to know if checking CRD flow is one of those immediate actions?

MR. BROWN: I don't believe it is.

MR. CONTE: Is it important for the operators to know CRD flow on a post-trip response?

MR. BROWN: It's important to know the response of

the system, and eventually, when you reset a scram, you can verify reset by the behavior of the CRD system, so they're trained that way, but I guess I don't know what you mean by "important."

MR. CONTE: Well, when the scram signal is in, do you normally train or focus in on what the normal flow for CRD flow is when the scram signal is in?

MR. BROWN: We train them on the flow path through the CRD system with a scram signal in, and we train them on why you want to reset a scram as soon as possible -- the CRD flow path being one of the concerns. Yes, that's trained on, but there is no immediate response; when you're taking immediate actions, it's things like, Put the mode switch in shutdown; insert your instrumentation; verify that you have level; verify you have pressure control; verify that the turbine trips. If CRD flow is in there, it's a new addition; it wasn't one of the things you instantly look up, to see CRD flow.

MR. CONTE: What do you tell them in terms of -- Do you remember what you tell them in terms of the importance of resetting the scram with respect to CRD flow?

MR. BROWN: Well, the flow path when the scram is through the charging header into the scram dump volume, which is isolated. When you reset, you isolate the scram dump volume from the reactor vessel through the mechanism,

so, if you don't reset it, then you have through the scram dump volume to the reactor building equipment drain tank a path for leakage if the drains on the scram dump volume don't hold.

MR. CONTE: Did you have a question, Mike?

MR. JORDAN: Yes. I was just curious. Do you train on what the expected, normal CRD flow is for a scram?

MR. BROWN: We train on the entire sequence, what you would expect --

MR. JORDAN: You don't understand what I'm saying. Not just how the system operates, but normal flow is 50 gpms; when you have a scram, you can expect -- what's the normal flow after a scram on CRD? Do you know?

MR. BROWN: Normal flow on CRD after scram is about 100 to 200 -- about 200 gallons a minute.

MR. JORDAN: About 200 gallons a minute. Okay. So you train the people that normal flow is 50? I don't know what it is here?

MR. BROWN: It's 63.

MR. JORDAN: It's 63 here. If you're 100 percent power, normal flow is 63, and then you have a lesson plan to train?

MR. BROWN: Yes.

MR. JORDAN: That's how you do it, through a lesson plan?

MR. BROWN: We go through the --

MR. JORDAN: It says the consequences of a scram: you're going to see CRD flow increased to --

MR. BROWN: Yes. You do it mostly when you teach the CRD system, and then you go through it again in the simulator when you go through a scram, but you go through the whole sequence of what the flow path is and why the flow is different, the valve response, why the valve's responding that way, and recognition of improper operation by flows and pressures in the system.

MR. JORDAN: So that's taught: this is how this system reacts to a reactor scram.

MR. BROWN: Yes.

It's also taught in there, if it looked like this, what different things could be wrong, what you can identify from those indications, like what it should be doing, and then you may run something on them where something fails and say, Okay; now figure out what it is doing, based on your indications.

MR. CONTE: On the simulator portion, are there specific lesson plans for taking them through that sequence of events, or is it mostly just from a simulator scenario bank?

MR. BROWN: There are training scenarios. Mostly you'll see that in the initial training. Then the scenario

will be, We'll run a failure on them -- when they get to requal, we'll run a scenario where something fails and then they identify the situation; if not, we go back through them, what they should have seen, what they didn't see.

MR. CONTE: So on the bank you believe there's a training scenario that takes you through the CRD evolution?

MR. BROWN: It wouldn't be specific to that. It would be a lot of things. That would be in there.

MR. CONTE: Okay. All right.

The general topic of initiation of flows in systems to avoid the so-called heavy-handed operator, being gentle, like establishing a reactor cool-down, how is that communicated to people?

MR. BROWN: You mean not opening valves too quickly?

MR. CONTE: Yes, not jamming the thing open, causing excessive cool-down rate. As case in point is the initiation, for example -- Another example, besides a cool-down rate, is the initiation of reactor water cleanup, and the other one would be the shutdown cooling system before it becomes on service.

MR. BROWN: Well, there are a lot of different ways. We teach them valve operations. We go through significant events due to valve misoperations in the industry. We go through system operation when we teach

systems. Then, theoretically, we have topics on fluid flow, causes of pumps' running out, pumps' cavitating, system cavitation, water hammering systems and the things that create that, so it is communicated in all those various ways.

MR. CONTE: How is that communicated? Is that concisely put in one lesson plan, or is that across many lesson plans?

MR. BROWN: There is a lesson plan on valve misoperation, significant events in the industry from valve misoperations, and there is a lesson plan on fluid flow and statics and dynamics of fluid flow.

I believe the lesson plan on valve misoperations has valve operations. If not, there's a separate one that has it.

MR. JORDAN: How about specific valves in specific systems that this valve can cause these types of problems?

MR. BROWN: You mean this type of valve, or this valve in this system?

MR. JORDAN: Right. You say you have a lesson plan on industry lessons learned -- generally you have lessons learned on fluid flow in the systems. Now, when you get to the system training, when you get to reactor water cleanup system, this is the valves, or these are the valves, or whatever, that can cause you these industry problems? Is

there specific training on those types of things? Be careful, guys, when you operate this system; these are the valves that cause you this?

MR. BROWN: Generally what you'll find is, in the procedure there will be a caution or a note, depending on which is appropriate, or just a step in the procedure: Instead of saying, Open this valve, it will say, Slowly open this valve, or, Throttle this valve open. When we go back through the procedure, you discuss these operations. It's a very general objective, because it will say, Discuss the procedure, so what we'll do is go back through and discuss the different evolutions and the whys and the wherefore of why it says, Slowly open this valve. You wouldn't be able to trace it back to, Yes, this valve was discussed on this day. More you'd find, Discuss the procedure, and in there you'll see questions and notes.

MR. CONTE: Okay. I think we're going to be in need of a lesson plan index to mark up and ask for copies, and we can do that through Niagara Mohawk.

MR. BROWN: Okay. What you're going to look for is, there are three different sets of lessons plans -- there's non-licensed, licensed, and requal -- so you want to make sure you get all three.

MR. CONTE: Good. Thank you for that advice.

Do you know what is taught from a point of view

of actions on SRV, any SRV actuations? How was that covered? Is that emergency response, lesson plans, abnormal response?

MR. BROWN: We teach main steam lesson, in which SRVs are discussed, and then we teach procedure for main steam system, which has all the actions for what to do on an SRV lift. Then we have simulator scenarios, where we go through and actually do SRV lifts, and some of them are, when they take their immediate action to close the valve, it closes, and some of them are, they take their immediate action to close the valve, and it doesn't close, so they take the follow-on actions from there.

MR. CONTE: There's a lesson plan, one for the system and one for the procedure, or is it a combined lesson plan?

MR. BROWN: No. The procedure is taught as a function of the system. You teach the system; then you teach all the instrumentation controls; then you teach the procedure for the system; then you teach the tech spec for the system.

MR. CONTE: So you talk about different sections of one lesson plan.

MR. BROWN: Different sections of one lesson plan.

MR. CONTE: Okay.

MR. JORDAN: The actions associated with SRV

lifting -- are the consequences of SRV lifting that of heating up the suppression pool, discharging energy into the suppression pool, or suppression chamber, and they take the subsequent actions after that, some type of a vacuum breaker cycling -- does the energy increase in the suppression pool make any different -- the actions associated with SRV and vacuum breaker lifting -- are you trained on taking the same actions if you have RCIC actuations or small leaks into the area? Is there any different on where the energy comes from in the suppression pool? Are the actions different?

MR. BROWN: The vacuum breaker actuation is a surveillance requirement that is required specifically for following SRV. As far as entry, temperature of the suppression chamber or suppression pool, there's a limit on what it can be, and you're required to maintain it below that and take whatever action you need to maintain it below that, regardless of the source of heat.

Now, there are two different numbers. One is whether you intentionally put heat in there; another one is based on just normal operation. If there were a leak in there, you'd have to stay with the normal operation. If you were testing a system like RCIC then they give you a little more room on your number.

MR. JORDAN: But the vacuum breaker cycling is

strictly for SRV only?

MR. BROWN: Yes.

MR. JORDAN: I'm going to ask you, Do you know why they do it just for SRVs and not for other energy sources?

MR. BROWN: I don't know the basis of the spec.

MR. JORDAN: Okay.

MR. BROWN: It's a tech spec surveillance to cycle vacuum breakers.

MR. CONTE: You mentioned significant valve misoperations, industry experience being fed back into the training program. Any other topics on operator experience being fed back?

MR. BROWN: There's one on UPS's and different failures in the industry on UPS's.

MR. CONTE: A lesson plan?

MR. BROWN: Well, it's part of the UPS lesson plan, to discuss significant events in the industry on UPS's. Unfortunately, no one had ever had one like this before, but things that can go wrong with UPS's are in there.

If you were to take out the training procedure, it lists the significant events, different SOERS that we are required to incorporate into the training program. In there there's valve mispositions, pump misoperations; there's problems with UPS's, and so on and so on. There are a lot

of them in there. Also, once a week we do significant event review, which is generally a collection of different industry events related around a theme, and they take them into the classroom and split the operators up into groups, go through the event, have them determine what went wrong, what could have been better, what protections we have here, what protections we may need here, to prevent those sorts of things from occurring.

MR. CONTE: That's part of their week in requal?

MR. BROWN: That's part of the week in requal, yes.

MR. CONTE: Okay.

We understand there was a line 5 loss recently for Nine Mile Two, offsite source of power, and as a result there was an increased training on electrical distribution. You mentioned earlier that there was an early-1980 identification of a weakness in electrical distribution --

MR. JORDAN: 1990.

MR. CONTE: Oh, 1990. I'm sorry.

Can you give us any more about the line 5 loss and how that was incorporated in the training, or don't you known what we're talking about?

MR. BROWN: Yes, I think I do, because -- See, I've been flipping back and forth between initial and requals, so sometime I'm confused about that. We wrote a

job performance measure for recovery from a loss of line 5, and then they wrote -- I believe they added it to a simulator scenario also, loss of line 5 and recovery.

Typically what we do, in any kind of an event like that -- not just a loss of line 5, but a reactor scram that was operator error, or the system didn't operate the way they expected, any kind of event like that that occurs -- we'll send out a post-event survey, we call it, and get the operator's event on how they handled the event, how they felt they handled the event, how they felt training either helped them or hindered them, what kind of training they had that was a benefit, what kind of training they could have used that would have helped them, and then we try and get a collection of their comments and make changes or, in some cases, just develop the scenario as best we can to occur the way it did and run them back through that, so that all the groups get to deal with it.

Then those go on file, and then we incorporate training. Somewhere down you try to make it fit. Like if it was, during a startup they inadvertently, then you gather that information, find out what you could have done better, and you incorporate it into the training scenario for startups to cover that specifically the next time.

MR. CONTE: Do you know whether there was an operator performance problem on the line 5 loss event?

MR. BROWN: No, I don't recall that, no.

MR. CONTE: So, as far as you can tell, as a result of the critique of the line 5 loss, some training actions were needed.

MR. BROWN: I believe that's true, yes -- either needed or --

MR. CONTE: Requested.

MR. BROWN: Yes.

MR. CONTE: By the operators.

I thought I had another question.

Yes, the other question was all these -- did the Line 5 loss cause a trip?

MR. BROWN: I'm not familiar with the exactly the Line 5 loss you are referring to, when you say recently. I know there was one about a year ago.

MR. CONTE: That might be the one. We heard about it.

MR. BROWN: If it was, then it did result in a trip.

MR. CONTE: It did?

MR. BROWN: Yes.

MR. CONTE: And I assume that there is a post-trip response on that, right?

MR. BROWN: I believe there is on that one, yes. I am pretty sure there is. It is called a post-event

survey.

MR. CONTE: Post-event survey?

MR. BROWN: Yes, and it is something Training initiates.

MR. CONTE: We are not used to the lingo around here.

MR. BROWN: And the lingo changes to fit what we are doing sometimes.

MR. JORDAN: Is there training on the -- as a result of an ATWS on system response to ATWS's?

MR. BROWN: Yes.

MR. JORDAN: Is it called ATWS training or what is it called?

MR. BROWN: It is called EOP training. There is -- well, you know, it depends on what direction you look at it from. There are systems designed into the plant specifically to deal with that. We teach those systems.

MR. JORDAN: That it separate?

MR. BROWN: Yes.

MR. JORDAN: But EOP training?

MR. BROWN: That's right. Then you go through EOP -- well, in the system training now we teach where that system is utilized in EOPs. Then when you teach EOPs you go back and teach all the EOPs and then you go into the simulator and you run scenarios during the training of the

EOPs.

When we actually put the EOPs in place we went through and ran a scenario that would take them through every leg of every EOP.

MR. JORDAN: I guess what I am looking for, Bob, is that you have some systems that operate automatically off of an ATWS?

MR. BROWN: Yes, we do.

MR. JORDAN: And if they actuate they may give you indication that you have an ATWS? They may or may not?

MR. BROWN: There's an annunciator that says ATWS when one of the systems actuates but the signals that actuate may be indicative of an ATWS. It doesn't necessarily say, yes, you have an ATWS.

MR. JORDAN: So recognitions of actuations of those systems normally aren't EOP-directed?

MR. BROWN: Normally are not or normally -- yes, they are.

MR. JORDAN: They are?

MR. BROWN: Yes.

MR. JORDAN: And the EOPs will tell you to look for this type --

MR. BROWN: No, actually it -- no, it will say did you get this actuation? You have to be able to figure out yes or no you got that. That's what we teach them in system

training, okay? When this pressure comes on, this happens, you get this light and this light means.

MR. JORDAN: But does the EOP then direct you to go over and look for this light?

MR. BROWN: The EOPs is more it will ask you a question like has this happened, yes or no. Then you have to --

MR. JORDAN: But that is one of the things it will ask you, have you gotten high enough pressure to actuate the ATWS?

MR. BROWN: It will say has ARI actuated.

MR. JORDAN: ARI actuated automatically.

MR. BROWN: -- and you will then determine yes or no it hasn't.

MR. CONTE: Do you know anything about the demonstration today at one o'clock in the simulator?

MR. BROWN: I know that the simulator, we have built a scenario to actuate and there has been talk of using it back and forth. I didn't know there was one set up for today, no.

MR. CONTE: Okay. I guess it is fair to say that there has not been a scenario developed to do what happened in the recent event with the five loss of --

MR. BROWN: Prior to this?

MR. CONTE: Yes.

MR. BROWN: No. No one would have believed this. See, one of the things is -- that we worked real hard on was going from just running scenarios to see thing happen to trying to make them credible so it looks like this is how this can happen. I am not sure anybody would have this as a credible scenario if we had run it so we never did do a loss of all the UPS's.

MR. CONTE: But I understand based on operator interviews that they have seen a loss of annunciators, maybe not the full core display but they have seen a loss of annunciators.

MR. BROWN: Yes. That they have seen.

MR. CONTE: That is a scenario malfunction or that's standard simulator malfunction that you can put in?

MR. BROWN: We can do it as any pick an annunciator and lose it or you can turn off all the annunciators.

MR. JORDAN: -- loss of all annunciators?

MR. BROWN: Yes, somewhere along the line I know we have. I don't know if I could pinpoint for you where it was done but I know we have trained on it.

MR. JORDAN: Is it in requal training also?

MR. BROWN: Yes, it's done.

MR. JORDAN: It's done?

MR. BROWN: But it's done kind of more of a loss

of annunciators when you trip the system and you might override the annunciators to see if they'll recognize a recognition kind of thing but I can't ever recall on requal just turning off all the annunciators and seeing if they recognize that.

We have never done to my knowledge a loss of all annunciators and most indications all at the same time.

MR. CONTE: It's partial systems and partial --

MR. BROWN: Yes, partial system.

MR. JORDAN: Partial annunciator loss?

MR. BROWN: Yes, and we do a lot of floor discussion on what if that didn't work, what else could we tell you, how do you know that's true, what actuates that light -- those kinds of things, rather than just get a light and that's true, what gives you that light so you know what it means in the thing.

Going back to the ATWS, there's two annunciators there. One says potential ATWS; the other one says ATWS. What's the difference in what makes those lights go on and what do those lights -- where do they get their input so why do they believe whatever it is they are telling you. Those kinds of things get discussed.

MR. CONTE: There is a scheme up there in the control room. The starred meters are safety grade power supplies. The labelled ones with the red background are Reg

Guide 197, is that correct?

MR. BROWN: I believe that is the scheme, yes.

MR. CONTE: How is that training communicated, the fact that that exists?

MR. BROWN: Only in that -- when we go through and we initially bring them to the simulator you do walk-throughs with them on, okay, this is where things are, this is what things mean. Then, as changes get made like they'll issue a department direction or an instruction that they are going to change something, they are going to add an operator aide or something, they'll send over -- if they consider it necessary to be trained on, they'll send over a change request and we will add it into the program wherever it should be added, but something like, you know, we are going to put a new plate down and we are going to color this different, that may or may not. What happens is Operations requests Training to cover that and then Training will add it in where appropriate.

Past the initial training on why these meters have red backgrounds it's not done unless it is requested again that it needs to be done, so everybody will get it initially and then from then it's you either know that it's true or you don't.

MR. CONTE: For each individual on the crew that was on shift at the time, would training records reflect the

last time they had been exposed to some loss of power supply or loss of annunciators?

MR. BROWN: Yes, but it is not real clean. You have to go back and what it exposes you to is a scenario number and you have to go take that number back to the scenario and go through the scenario and see what was done.

MR. CONTE: Okay.

MR. BROWN: However, the best way is to find somebody who ran it who recalls the last time they did one. They'll all be the same scenario as every cycle so the guy who remembers when the last time they did a loss of power will know what cycle it is and he'll look it up for those guys for that cycle.

I believe it was done in the Spring or early Summer.

MR. CONTE: That wouldn't be a newly-formed shift, would it? Is there a substantial record of this shift being together?

MR. BROWN: I am not sure that this shift -- this shift is not normally together. The normal SSS on this shift was not there that night, so this shift -- Mike Eron is a relief shift SRO, so there is a record of them being trained but as far as together, no.

MR. CONTE: You don't keep shift records, you keep individual records?

MR. BROWN: Well, we keep individual records but what you are going to find is when you do a simulator evaluation you train the shift and on that evaluation all the people are listed and it's generally we try and train them, the shifts, together and then we have staff groups to just make it convenient to get them.

If you only have two guys show up for one week, you can't do simulator training so we arrange the staff so that four, five or six guys show up each week and we can do the simulator training.

The shifts pretty much stay in rotation because they rotate into training like they rotate into midshift. It works out that way for simulator training. You can go back and find out they all had the same training on the same day at the same time, but we keep a record of each person individually what he did or she did.

MR. JORDAN: Is the simulator training -- if they train on Simulator No. 5 at this time do all crews train on that same simulator, so once they get into the cycle they all train on the same so you find that the loss of power, everybody gets trained on the loss of power via that same simulator scenario?

MR. BROWN: Yes, and everybody gets evaluated against it.

MR. JORDAN: Not only everybody on that crew but

everybody that is in training?

MR. BROWN: Everybody in license.

MR. JORDAN: Thank you.

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

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

We can go off the record.

[Whereupon, at 10:20 a.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 ROBERT BROWN

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.

07-111B-91

OFFICIAL TRANSCRIPT OF PROCEEDINGS

Agency: Nuclear Regulatory Commission
Incident Investigation Team

Title: Nine Mile Point Nuclear Power Plant
Interview of: ROBERT BROWN

Docket No.

LOCATION: Scriba, New York

DATE: Thursday, August 22, 1991 PAGES: 1 - 46

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

September 27, 1991

MEMORANDUM FOR: Martin J. McCormick, Plant Manager, Nine Mile Point Unit 2

FROM: Wayne L. Schmidt, Senior Resident Inspector, Nine Mile Point

SUBJECT: Review of IIT Interview Transcripts

The IIT has sent the transcripts of interviews conducted with the personnel listed below to the resident inspector's office. If any of the listed individuals wish to review the transcripts they should do so at the resident inspector's office by October 4, 1991. Guidelines for the review of transcripts are provided in the enclosure. If an individual does not review his transcript by that date we will assume that he did not wish to do so and that the statement is correct to the best of his knowledge.

Alan DeGarcia, Steve Doty, Dave Barrett, Jerry Helker, Jim Burr, Bob Crandall, Robert Brown, Anil Julka, Perry Bertsch, James Spadafore, Joe Savoca, Mike Colomb, James Kinsley, Marty McCormick, Chris Kolod, Irineo Ferrer, Fred Gerardine, Anthony Petrelli, Jim Reid, Fred White, Rick Slade, Bruce Hennigan, and Tom Tomlinson.

Thank you for your help. If there are any questions please contact me.

Wayne L. Schmidt
Senior Resident Inspector
Nine Mile Point

ERRATA SHEET

ADDENDUM

Page	Line	Correction and Reason for Correction

Date _____ Signature _____

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

INCIDENT INVESTIGATION TEAM

- -

Interview of :

ROBERT BROWN :

(Closed) :

- -

Conference Room B
Administration Building
Nine Mile Point Nuclear
Power Plant, Unit Two
Lake Road
Scriba, New York 13093
Thursday, August 22, 1991

The interview commenced, pursuant to notice, at 9:25 a.m.

PRESENT FOR THE IIT:

Michael Jordan, NRC.

Rich Conte, NRC

P R O C E E D I N G S

[9:25 a.m.]

MR. JORDAN: It's August 22nd, 1991 at approximately 9:25 a.m. We are at the Nine Mile Point Unit Two in the P Building. We are conducting interviews concerning a transient that occurred on August 13th, 1991, and my name is Michael Jordan. I am with the NRC. I am out of Region III.

MR. CONTE: I am Rich Conte, Region I.

MR. BROWN: Bob Brown. I work with general physics for Niagara Mohawk training.

MR. JORDAN: Okay, Bob. Why don't you just give us a general background on what your experience is?

MR. BROWN: I have been at Niagara Mohawk training since 1983. I've been certified on Unit One and Unit Two plants. I have taught initial operator training at Nine Mile Point One and Two. I became a requal instructor in 1989 and I have been either instructing in or administrating the requal program since 1989 at Nine Mile Unit Two.

MR. CONTE: Okay. The event that happened on August 13th, any involvement you had? Did they call you in? Did they ask for any help as far as your involvement with the event?

MR. BROWN: The only involvement I had directly was at the time we were looking for training material that

may be of interest on the training the operators had, and I was involved in getting training material and training records to make available.

MR. CONTE: This was subsequent? After the event?

MR. BROWN: This was -- well, it was during the event but it really wasn't related to the event. It was more of a request from Niagara Mohawk people to get information available for whatever sort of investigation or inquiries might be made.

MR. CONTE: Is that training available or was it sent to the assessment group and one of the sub-leaders in the assessment group?

MR. BROWN: I turned it over to the requal program coordinator and I don't know who he turned it over to, where it went, but it was just a collection of the electrical system lesson plans and objectives that we trained to.

MR. CONTE: The electrical system lesson plans and what?

MR. BROWN: And objectives, training objectives.

MR. CONTE: Let me understand your position here again. You are with general physics?

MR. BROWN: Yes.

MR. CONTE: You are overseeing the requal -- you are a supervisor for requal?

MR. BROWN: No. I was a supervisor for requal

until early this year, February of this year, when -- because I am a contractor they replaced me with one of their own people, but I am still an instructor in the requal program.

MR. CONTE: Who oversees the Unit Two requal for the Niagara Mohawk?

MR. BROWN: The guy's name is Jim Reid.

MR. CONTE: Jim what?

MR. BROWN: Jim Reid.

MR. CONTE: Jim Reid?

MR. BROWN: Uh-huh.

MR. CONTE: And who does he report to?

MR. BROWN: Rick Slade.

MR. CONTE: Who?

MR. BROWN: Rick Slade.

MR. CONTE: Rick Slade. Okay. You want me to take the lead and ask question?

MR. JORDAN: Yes.

MR. CONTE: Some of the notes are cryptic.

Have you had any involvement in the non-licensed operator training program?

MR. BROWN: Not in three or four years. I used to do lectures in the non-licensed operator training program as we moved around but I haven't been directly involved in instructing them since probably '87.

MR. CONTE: So right now your function in the company is mostly with the licensed operators?

MR. BROWN: Licensed operators, yes.

MR. CONTE: Okay. I guess besides the electrical distribution the two other major topics or part of electrical distribution is the UPS power supply safety and non-safety and also the control room panels and annunciators.

Do you have any familiarity with the job task analysis for the licensed operators and would you, if you do, would you know that it addresses the UPS power supplies, control room annunciators?

Does it get that detailed from a job task analysis point of view?

MR. BROWN: I am not that sure what the tasks are. I know that we developed prior to the job task analysis training on UPS power supplies, developed objectives prior to -- or from the task analysis, so there are training objectives on UPS's and there is training along with industry event training on UPS's. It's done in the requal program.

MR. CONTE: Do you know if the UPS training addresses both safety and non-safety power supplies?

MR. BROWN: Yes. It goes through all the types that we have and how they function.

MR. CONTE: Would you know if there is any difference between the lesson plans for auxiliary operators versus licensed operators dealing with UPS?

MR. BROWN: There is -- no. They use the same one for UPS's but the non-licensed people when they get trained generally walk through the plant and go through around to all the UPS's. When the licensed operators did it, it was all classroom training. It is essentially the same information with different objectives.

MR. CONTE: So you would characterize the auxiliary operator training on UPS as more hands on and the licensed operators, more classroom?

MR. BROWN: Yes.

MR. CONTE: Okay. Jump in at any time you think of a question, Mike.

MR. JORDAN: Yes, I will.

MR. CONTE: Let's see. How would -- talking about the systems, I guess we would be interested in getting a copy of the job task analysis dealing with the UPS and/or electrical distribution.

MR. JORDAN: Also the training plan for both the non-licensed and licensed operators.

MR. BROWN: Remember, I told you earlier about the lesson plans that we gathered. That was one of the ones that was in that group, so I don't know if we can make another

copy of it. I got a guy coming over here at eleven o'clock. I can send it over with him.

MR. CONTE: Okay.

MR. JORDAN: Okay.

MR. CONTE: I'll give you a chance to write there. Does the job task analysis address the control room panels and the annunciators and what is expected in that area? Do you have any familiarity with that?

MR. BROWN: When you say the job task analysis, generally what we have is the task will be something that an operator has to do and from that you will break it down into objectives that will be certain knowledges that he'll have to gain, and that is more -- the job task analysis takes you down to a task that says be able to identify a loss of or be able to identify a situation and from that you have to train him, okay, you're going to have to know what annunciators there are, what meters there are, various things like that.

The job task analysis won't really get you to that bottom line. It will just get you to the task that says he has to be able to deal with the loss of power, deal with the loss of pump, whatever it happens to be.

MR. CONTE: How is that covered? Is that covered from a system job task analysis of control room panels or is that kind of in the area of emergency and abnormal response?

MR. BROWN: The answer to that is yes.

MR. CONTE: All of the above?

MR. BROWN: Yes. The tasks basically are broken down by system and then there is a section that is broken down by emergency tasks: you must be able to respond to an accident or transient and where it's best fit when you do that training.

MR. CONTE: Okay. While we are on the control room panels and annunciators, there is a specific question about how do you train AO's and/or licensed operators in reading recorders? There's two scales on the recorder, the scale associated with the instrument and then there is a scale that associated with the chart paper. Is there a policy and is that policy promulgated in training on how to read either recorder or chart paper?

MR. BROWN: They read the recorder.

MR. CONTE: They are supposed to read the recorder?

MR. BROWN: Yes.

MR. CONTE: Okay, and do you know if that is the most accurate from a calibration point of view or why not review the strip chart?

MR. BROWN: Well, when you say review the strip chart, now the strip chart is a permanent record you can go back and read but if you are doing a look and see what this reads rather than trying to interpret the strip chart, you

just read the recorder, so from a standpoint of trying to operate a plant it is like reading a meter versus trying to figure out what a piece of paper or a chart's doing.

If you are looking for a trend you would read the chart but if you are looking for a value, you read the recorder.

As far as which one is more accurate, I couldn't tell you.

MR. CONTE: The next one here I think is covered on the lesson plans we talked about. We can get copies of that.

Any job performance measures that the you are aware of right now that are already established that would say be precursors to a loss of annunciator event such as this, or loss of UPS's and getting them back on the line?

MR. BROWN: We have a job performance measure on how to transfer UPS.

MR. CONTE: Transfer?

MR. BROWN: A UPS from normal, I believe it is from normal to alternate. You have got to go transfer it as a normal evolution and it takes them through doing that.

MR. CONTE: Normal to alternate meaning the AC source to the DC source?

MR. BROWN: No. I'm sorry -- normal to maintenance.

MR. CONTE: Normal to the maintenance.

MR. JORDAN: There is a task. Is that part of a task analysis on the measure or is it just the measure?

MR. BROWN: There is a measure on that. There is a measure on that.

I am not familiar with any more on loss of annunciators. I know there are some that are on loss of power panels, loss of switchgear and how to respond.

MR. JORDAN: Let me make sure I understand something on the job performance measures. So, if there's a job performance measure that means there's a task associated with someplace along the line. And that task then has in it, what do you call them --

MR. BROWN: Well, if you take a task, you say this is a -- a task is something you have to be able to do. Now, to do that you have to have knowledge and you have to have ability. So, there are knowledges that you teach them and there are abilities that you must -- they learn to demonstrate and what you're checking with the job performance measures that they have both, they can do this task.

MR. JORDAN: So that the transfer from maintenance to transfer is that for safety as well as non-safety related?

MR. BROWN: The one that we have is on a safety

related.

MR. JORDAN: For safety related? And we don't -- you don't know if there is one for non-safety related or do you know?

MR. BROWN: I'm pretty sure that there's not one for non-safety related.

MR. JORDAN: Not one for non-safety related?

MR. BROWN: Right.

MR. CONTE: How about simulator scenarios, what has been done recently, I would say in the last two years in the area of loss of UPS's or loss of annunciators?

MR. BROWN: I don't know that we could nail those two areas down to say we trained in that area. We noted a weakness in their response to loss of electrical power -- loss of different power panels and the ability to recognize probably back in the early part of 1990 and we changed a lot of scenarios to add that in as an area to concentrate on. We didn't really approach it with the idea of a loss of UPS and the loss of annunciators. It was more of a -- problems with recognition and distribution losses and so we worked on that a lot to strengthen that. And there's a number of scenarios now that have losses of power incorporated in them.

MR. CONTE: How did you identify that weakness?

MR. BROWN: Through evaluations.

MR. CONTE: On the requal training?

MR. BROWN: Yeah. During requal training evaluations.

MR. CONTE: Any NRC involvement in the identification of that weakness?

MR. BROWN: None that I recall. There was some problems at the plan, also some knowledge problems, some operators mentioning that they didn't feel they've been -- they needed more training in this, they needed more training in that and I believe there was an LER or a release and event on a loss of power due to a recognition problem. And then it was also noted, I went back and looked, and yeah, there were problems in training too where there was recognition, so we went after that area.

MR. JORDAN: But, no specific training on annunciators -- loss of annunciators?

MR. BROWN: Not that I recall. I don't ever remember that being a -- loss of annunciator as the topic.

MR. CONTE: How about drilling them on loss of radiation monitors such as JEMs, loss of JEMs, loss of area radiation monitors things like that? Any training on that?

MR. BROWN: You mean loss of them, there is no power there anymore?

MR. CONTE: Yes.

MR. BROWN: So you have to come up with another

method? When you teach the system and then you go through the abnormal or off-normal conditions that could occur and what the backups are, so in that area nothing that we went in and said, okay, this is something we have to concentrate on, just we teach DRMS and ASRM, all those systems get taught and when you teach them you go through the procedures and the procedures for dealing with losses of or off-normals for not having tech spec requirements and samples required if normal systems aren't available and how they're obtained.

MR. CONTE: Okay.

MR. JORDAN: How about the training on loss of control indication for control rod positions?

MR. BROWN: That's done --

MR. JORDAN: Is there alternate methods of -- are they trained on alternate methods of acquiring that data?

MR. BROWN: Yeah. And there's also procedural guidance in some of the OP's on -- mostly in the areas of failures to scram and identifying how many rods are out and loss of power to various indicators and what the backup indicators would be for determining it.

MR. JORDAN: Are you familiar with the indication that they lost the control room as a result of this transient?

MR. BROWN: Not as familiar as I would like to be, no.

MR. JORDAN: I'm sure you'll get familiar with it. Okay. If they've lost their full core display and they've lost the rod worth minimizer and they've lost their RSCS and they've lost their full rod display, is their a remote indication -- control room indication for rod positions have been lost, are they trained or is there methods by which they can obtain that information remote to the control room?

MR. BROWN: The other option is the process computer, of course, and I believe that was gone too.

MR. JORDAN: That was gone too.

MR. BROWN: You can determine -- not specifically rod position, no. But whether or not the reactor is shut down by power level and other indications as far as rod position. If you take away all of those, it gets real difficult.

MR. JORDAN: So you don't know of any training on -- if they've lost all of their control room indication for rod positions, including the process computer, there is no training that you know of on obtaining that information at another location?

MR. BROWN: Boy, I can't think of anything right off.

MR. JORDAN: Okay.

MR. CONTE: You did make a point that -- you said that there's an EOP -- what is it EOP-6 contingency

procedure or a satellite procedure that tells you on an ATWS that you can go into -- what, some panels and get voltage readings on rod positions to find out rod positions?

MR. BROWN: Yeah, you can do that, I think, in the back panel. You can go back and check it there.

MR. CONTE: I guess that dependent on whether you have power or not?

MR. BROWN: Yeah. And I'm not familiar what power they had or what they didn't, but the systems, the normal systems for picking that stuff off are pretty much taken away in this case.

MR. CONTE: And it is an EOP-6 procedure?

MR. JORDAN: There is an EOP-6 procedure not dealing with the loss of indication but dealing with how to verify rods that are in. And it goes through --

MR. CONTE: Okay. What's the process of training on those EOP-6 procedures? I understand EOP-6 is the ones that go out in the plant or go to the panels and do things as contingencies.

MR. BROWN: Yeah.

MR. CONTE: Does every licensed operator have to go through every one of those attachments in that contingency?

MR. BROWN: They get trained on how to -- everyone of them gets trained on the classroom; a walk-through step-

by-step and the reason for the steps. Then we do, either through job performance measure or simulator scenario -- we do training on them and then there's an evaluation, although, there is nothing that rigidly says each operator will be evaluated on each one of the job performance measures.

The requal operators, we never did that. I believe, and I would have to go back to prove this, but I believe the licensed operators have to do every one of those. Initial licensed operators are now in the process of getting through the license class and obtaining a license, it's one of the tasks they have to perform.

MR. JORDAN: Each of the attachments of the EOP-6?

MR. BROWN: Yeah. Well, it would be more as a -- there are tasks that they have to do and each one of those is a task and they have to get someone to evaluate them performing all of the tasks. So that would be in there.

MR. CONTE: How is that tracked, by qual card?

MR. BROWN: Yeah. Essentially it's a book of -- an OJT manual, they call it.

MR. CONTE: OJT manual?

MR. BROWN: Um hm.

MR. CONTE: Who oversees the initial program?

MR. BROWN: Fred White.

MR. CONTE: Fred White?

MR. BROWN: Yeah.

MR. CONTE: Okay.

MR. BROWN: Now, the guys who were licensed at that time, we did the classroom training when EOP-6 first came out. That came out in the fall of last year with the Rev. 4 to the OP's. And we went back and taught them EOP-6, all the attachments, and then we go through them in simulator scenarios and job performance measures.

But, we never went back and said each one of you has to perform each one of these tasks.

MR. CONTE: Okay. How about overall command and control in emergencies? How is that trained? Obviously the simulator scenarios get you that -- I assume there's evaluations on command and control?

MR. BROWN: Every week we do simulator training for at least -- it was a day of simulator training. It's moved up to about a day and a half and then we do simulator evaluation every week. Each one of the SROs gets his turn at performing as the SSS. We do two scenarios a week. And they rotate so that each one plays the roll of the SSS and the ASSS in alternating scenarios. And that is one of the categories in which they get graded and generally, although not always, there is someone from operations -- management who will be there observing the training, and if there's --

MR. CONTE: So each week the scenario training

where they've got to --

MR. BROWN: They have to perform --

MR. CONTE: -- perform command --

MR. BROWN: -- from anywhere starting out and some normal condition in dealing with a few off-normal events up to EOP entry and the direction of emergency.

MR. CONTE: Excuse me. You say it used to be a day and it's a day and a half now?

MR. BROWN: Well, no. There's two different things. There's training and there's evaluation. They have always done two evaluation scenarios, but the amount of training where we -- where you do the coaching as an instructor -- in evaluation they just go from beginning to end and whatever happens, happens.

In training, if things aren't going well you stop and anywhere from coach up to discussion of events. So we do that for about a day and a half now and then we go into the evaluation mode. That's every Thursday.

MR. CONTE: Okay. The coaching is a day and a half and the actual run and evaluation, don't let the scenario stop, is what, a morning?

MR. BROWN: It's -- they do two scenarios of an hour each. And then each one of those is followed by self assessment.

MR. CONTE: Sounds like an NRC quality

examination.

MR. JORDAN: Yes.

MR. CONTE: Okay. Good. How about in the --

MR. JORDAN: Can I ask a question?

MR. CONTE: Yes, go ahead.

MR. JORDAN: Before we get too far, I have one question back on EOP-6. The method that they get into EOP-6, do the normal -- I don't want to say normal -- do the other EOPs put you into EOP-6, or do you just have to know that, if you're at this point in the EOPs, the EOP-6 would assist you.

MR. BROWN: No. You have entry conditions into the EOPs themselves, and then you're directed if you have to do something. It will be something like, Go manually override this valve, and it will tell you in EOPs, Do that in accordance with EOP-6, attachment -- whatever the number for the system.

MR. JORDAN: So they wouldn't get into EOP-6 unless they were directed to.

MR. BROWN: Unless they were in the EOPs.

MR. JORDAN: Does the EOP-6 address them to what attachment to function off of?

MR. BROWN: Yes. All the guy has to do is read it right out of the EOP. It'll say, In accordance with EOP-6, attachment -- whatever the number is.

MR. JORDAN: So if there's an action or task that's designed and it's in the EOPs, it will be directed to it. Otherwise, you just stay in the normal EOPs.

MR. BROWN: Well, you're never leaving them.

MR. JORDAN: I understand that.

MR. BROWN: But, yes, you would be directed directly to it.

MR. JORDAN: Okay. And if you're not, then there's no assistance out of EOP that you can get by doing that task. I'm just curious; what I'm looking for is the rod position indications if --

MR. BROWN: Oh, in other words, I wouldn't use that unless I was in EOPs; that's true, but in learning that I'm going to learn what else I can do when I don't have my normal -- Somewhere along there, then, as an operator, I have to learn, Check this, check this, check this, and all the various ways there are to check them.

MR. JORDAN: Thanks, Bob.

MR. CONTE: Excuse me. How much time do we have? Do we have another interview at 10 in this room, or what?

MR. JORDAN: We have another interview at 11.

MR. CONTE: Who's coming in this room at 10 o'clock? Nobody?

MR. JORDAN: Nobody.

MR. CONTE: Okay. So we can continue beyond 10 --

hopefully not too far beyond 10.

Related back to the command-and-control issue, how about training on 10 CFR 50.54(x) -- I should say 50.54(x) for the record.

MR. BROWN: I know which one you mean.

MR. CONTE: This is emergency actions for operators.

MR. BROWN: Yes.

MR. CONTE: Could you recount what basically is given to the operators?

MR. BROWN: Well, as a matter of fact, we just did that last cycle. We went through 10 CFR 50 and 10 CFR 55, and in there we went through, in the classroom, 50.54(x) and 50.54(y), so it was classroom training, and then, in the simulator, we go through mostly EOP training. If the operator is aware that he's in a situation where he has to invoke that, he'll say that.

MR. CONTE: Are you saying there's a requal lesson planned on the 50.54(x)?

MR. BROWN: Stated in there? Yes.

MR. CONTE: And the last cycle, so there would be a record for the midshift crew of having received this training?

MR. BROWN: Yes.

MR. CONTE: I see.

What does the requal record reflect for an individual? What do you keep track of?

MR. BROWN: Every lesson that he attends and the time that he attends. They get credit for completing the training. They get graded in the areas of evaluation; they get graded on static exams, job performance measure, and written exams. They do that every cycle, so once out of every six weeks, if I'm an operator, I go through about two days of classroom training, two days of simulator training, simulator evaluation, written exam, static exam, and at least two job-performance measures. All those things that we're evaluating get grades, and everything else, they just credit for completing the training. That's pretty much what they do in a week.

MR. CONTE: Who would I see in the organization to at least review the records for the midshift people that were on watch at the time, requal?

MR. BROWN: You could see Jim Reid?

It's all computerized now, so you just call them up by name, and you can look at all the training they've had in the last two years.

MR. CONTE: No, problem? Good.

Let's talk about post-trip response of the plant and what you expect of your operators. Could you run through the sequence on what you teach your operators to do

on a normal, post-reactor scram, when lights come in indicating a reactor scram?

MR. BROWN: Well, you have --

MR. CONTE: Annunciator lights come in indicating reactor scram.

MR. BROWN: The shift supervisor is the man who has the big-picture responsibility and is in charge of the situation, so he's the step-back, touch-nothing, gather-information, and direct. If there is an EOP entry or an entry into that sort of procedure, then it's his responsibility to enter it. The operators are trained. The CSO has charge of the control room, unless there's an EOP entry, in which case he becomes another operator to be used by the SSS, with no function, as in command of anything. So it's more that the operators in a normal sequence are reporting to the CSO, who's reporting to the SSS. As soon as they enter an emergency condition, the SSS is in charge, and everyone reports to him.

The response would be that the person -- the E operator, most likely -- at the 603 panel takes the automatic actions for the scram at the 603 panel. There is generally one other operator in the control room responsible for the other actions: verifying turbine trip, verifying electrical panel transfer, and verifying generally that the response of the other systems is as expected. Each operator

reports back to the SSS what he finds or what he does.

MR. CONTE: Do you have those immediate actions committed to memory?

MR. BROWN: Do I, personally?

MR. CONTE: Yes.

MR. BROWN: Boy, that would be a good test. I used to.

MR. CONTE: Where do I find them?

MR. BROWN: You would find them on the panel in the control room, underneath the plexiglass that the E operator is standing up against.

MR. CONTE: They're listed there?

MR. BROWN: The page out of the procedure is kept under the plexiglass there.

MR. CONTE: Which procedure is it?

MR. BROWN: It's OP-101(c), off-normal.

MR. CONTE: SOP-101 --

MR. BROWN: No, it's not an SOP. It's an N2OP-101(c), in the off-normal section H.

MR. JORDAN: Is that the name of the procedure, OP-101(c)?

MR. BROWN: Yes.

MR. JORDAN: Off-normal.

MR. BROWN: Got it.

MR. CONTE: And that list specifically says,

Immediate action in a reactor scram.

MR. BROWN: Yes. It has, Reactor scram immediate actions, subsequent actions, the whole bit, and that section is kept out on the panel. You've been in the control room. You're familiar with the desk where they've got the section for reduced flow operation? Under there they also keep the actions for scram.

MR. CONTE: You've got to turn away from 603, and you look at the computer console where the CSO stands. It's right on that?

MR. BROWN: Well, their training is to take their immediate actions, which they're required to know, and then to follow up their actions, verifying that everything was completed in accordance with the procedure.

Now, in a normal situation there are enough people there to help him. If it gets into an emergency of any proportion, he may be on his own to first perform and then verify.

MR. CONTE: Okay.

Would you happen to know if checking CRD flow is one of those immediate actions?

MR. BROWN: I don't believe it is.

MR. CONTE: Is it important for the operators to know CRD flow on a post-trip response?

MR. BROWN: It's important to know the response of

the system, and eventually, when you reset a scram, you can verify reset by the behavior of the CRD system, so they're trained that way, but I guess I don't know what you mean by "important."

MR. CONTE: Well, when the scram signal is in, do you normally train or focus in on what the normal flow for CRD flow is when the scram signal is in?

MR. BROWN: We train them on the flow path through the CRD system with a scram signal in, and we train them on why you want to reset a scram as soon as possible -- the CRD flow path being one of the concerns. Yes, that's trained on, but there is no immediate response; when you're taking immediate actions, it's things like, Put the mode switch in shutdown; insert your instrumentation; verify that you have level; verify you have pressure control; verify that the turbine trips. If CRD flow is in there, it's a new addition; it wasn't one of the things you instantly look up, to see CRD flow.

MR. CONTE: What do you tell them in terms of -- Do you remember what you tell them in terms of the importance of resetting the scram with respect to CRD flow?

MR. BROWN: Well, the flow path when the scram is through the charging header into the scram dump volume, which is isolated. When you reset, you isolate the scram dump volume from the reactor vessel through the mechanism,

so, if you don't reset it, then you have through the scram dump volume to the reactor building equipment drain tank a path for leakage if the drains on the scram dump volume don't hold.

MR. CONTE: Did you have a question, Mike?

MR. JORDAN: Yes. I was just curious. Do you train on what the expected, normal CRD flow is for a scram?

MR. BROWN: We train on the entire sequence, what you would expect --

MR. JORDAN: You don't understand what I'm saying. Not just how the system operates, but normal flow is 50 gpms; when you have a scram, you can expect -- what's the normal flow after a scram on CRD? Do you know?

MR. BROWN: Normal flow on CRD after scram is about 100 to 200 -- about 200 gallons a minute.

MR. JORDAN: About 200 gallons a minute. Okay. So you train the people that normal flow is 50? I don't know what it is here?

MR. BROWN: It's 63.

MR. JORDAN: It's 63 here. If you're 100 percent power, normal flow is 63, and then you have a lesson plan to train?

MR. BROWN: Yes.

MR. JORDAN: That's how you do it, through a lesson plan?

MR. BROWN: We go through the --

MR. JORDAN: It says the consequences of a scram: you're going to see CRD flow increased to --

MR. BROWN: Yes. You do it mostly when you teach the CRD system, and then you go through it again in the simulator when you go through a scram, but you go through the whole sequence of what the flow path is and why the flow is different, the valve response, why the valve's responding that way, and recognition of improper operation by flows and pressures in the system.

MR. JORDAN: So that's taught: this is how this system reacts to a reactor scram.

MR. BROWN: Yes.

It's also taught in there, if it looked like this, what different things could be wrong, what you can identify from those indications, like what it should be doing, and then you may run something on them where something fails and say, Okay; now figure out what it is doing, based on your indications.

MR. CONTE: On the simulator portion, are there specific lesson plans for taking them through that sequence of events, or is it mostly just from a simulator scenario bank?

MR. BROWN: There are training scenarios. Mostly you'll see that in the initial training. Then the scenario

will be, We'll run a failure on them -- when they get to requal, we'll run a scenario where something fails and then they identify the situation; if not, we go back through them, what they should have seen, what they didn't see.

MR. CONTE: So on the bank you believe there's a training scenario that takes you through the CRD evolution?

MR. BROWN: It wouldn't be specific to that. It would be a lot of things. That would be in there.

MR. CONTE: Okay. All right.

The general topic of initiation of flows in systems to avoid the so-called heavy-handed operator, being gentle, like establishing a reactor cool-down, how is that communicated to people?

MR. BROWN: You mean not opening valves too quickly?

MR. CONTE: Yes, not jamming the thing open, causing excessive cool-down rate. As case in point is the initiation, for example -- Another example, besides a cool-down rate, is the initiation of reactor water cleanup, and the other one would be the shutdown cooling system before it becomes on service.

MR. BROWN: Well, there are a lot of different ways. We teach them valve operations. We go through significant events due to valve misoperations in the industry. We go through system operation when we teach

systems. Then, theoretically, we have topics on fluid flow, causes of pumps' running out, pumps' cavitating, system cavitation, water hammering systems and the things that create that, so it is communicated in all those various ways.

MR. CONTE: How is that communicated? Is that concisely put in one lesson plan, or is that across many lesson plans?

MR. BROWN: There is a lesson plan on valve misoperation, significant events in the industry from valve misoperations, and there is a lesson plan on fluid flow and statics and dynamics of fluid flow.

I believe the lesson plan on valve misoperations has valve operations. If not, there's a separate one that has it.

MR. JORDAN: How about specific valves in specific systems that this valve can cause these types of problems?

MR. BROWN: You mean this type of valve, or this valve in this system?

MR. JORDAN: Right. You say you have a lesson plan on industry lessons learned -- generally you have lessons learned on fluid flow in the systems. Now, when you get to the system training, when you get to reactor water cleanup system, this is the valves, or these are the valves, or whatever, that can cause you these industry problems? Is

there specific training on those types of things? Be careful, guys, when you operate this system; these are the valves that cause you this?

MR. BROWN: Generally what you'll find is, in the procedure there will be a caution or a note, depending on which is appropriate, or just a step in the procedure: Instead of saying, Open this valve, it will say, Slowly open this valve, or, Throttle this valve open. When we go back through the procedure, you discuss these operations. It's a very general objective, because it will say, Discuss the procedure, so what we'll do is go back through and discuss the different evolutions and the whys and the wherefore of why it says, Slowly open this valve. You wouldn't be able to trace it back to, Yes, this valve was discussed on this day. More you'd find, Discuss the procedure, and in there you'll see questions and notes.

MR. CONTE: Okay. I think we're going to be in need of a lesson plan index to mark up and ask for copies, and we can do that through Niagara Mohawk.

MR. BROWN: Okay. What you're going to look for is, there are three different sets of lessons plans -- there's non-licensed, licensed, and requal -- so you want to make sure you get all three.

MR. CONTE: Good. Thank you for that advice.

Do you know what is taught from a point of view

of actions on SRV, any SRV actuations? How was that covered? Is that emergency response, lesson plans, abnormal response?

MR. BROWN: We teach main steam lesson, in which SRVs are discussed, and then we teach procedure for main steam system, which has all the actions for what to do on an SRV lift. Then we have simulator scenarios, where we go through and actually do SRV lifts, and some of them are, when they take their immediate action to close the valve, it closes, and some of them are, they take their immediate action to close the valve, and it doesn't close, so they take the follow-on actions from there.

MR. CONTE: There's a lesson plan, one for the system and one for the procedure, or is it a combined lesson plan?

MR. BROWN: No. The procedure is taught as a function of the system. You teach the system; then you teach all the instrumentation controls; then you teach the procedure for the system; then you teach the tech spec for the system.

MR. CONTE: So you talk about different sections of one lesson plan.

MR. BROWN: Different sections of one lesson plan.

MR. CONTE: Okay.

MR. JORDAN: The actions associated with SRV

lifting -- are the consequences of SRV lifting that of heating up the suppression pool, discharging energy into the suppression pool, or suppression chamber, and they take the subsequent actions after that, some type of a vacuum breaker cycling -- does the energy increase in the suppression pool make any different -- the actions associated with SRV and vacuum breaker lifting -- are you trained on taking the same actions if you have RCIC actuations or small leaks into the area? Is there any different on where the energy comes from in the suppression pool? Are the actions different?

MR. BROWN: The vacuum breaker actuation is a surveillance requirement that is required specifically for following SRV. As far as entry, temperature of the suppression chamber or suppression pool, there's a limit on what it can be, and you're required to maintain it below that and take whatever action you need to maintain it below that, regardless of the source of heat.

Now, there are two different numbers. One is whether you intentionally put heat in there; another one is based on just normal operation. If there were a leak in there, you'd have to stay with the normal operation. If you were testing a system like RCIC then they give you a little more room on your number.

MR. JORDAN: But the vacuum breaker cycling is

strictly for SRV only?

MR. BROWN: Yes.

MR. JORDAN: I'm going to ask you, Do you know why they do it just for SRVs and not for other energy sources?

MR. BROWN: I don't know the basis of the spec.

MR. JORDAN: Okay.

MR. BROWN: It's a tech spec surveillance to cycle vacuum breakers.

MR. CONTE: You mentioned significant valve misoperations, industry experience being fed back into the training program. Any other topics on operator experience being fed back?

MR. BROWN: There's one on UPS's and different failures in the industry on UPS's.

MR. CONTE: A lesson plan?

MR. BROWN: Well, it's part of the UPS lesson plan, to discuss significant events in the industry on UPS's. Unfortunately, no one had ever had one like this before, but things that can go wrong with UPS's are in there.

If you were to take out the training procedure, it lists the significant events, different SOERS that we are required to incorporate into the training program. In there there's valve mispositions, pump misoperations; there's problems with UPS's, and so on and so on. There are a lot

of them in there. Also, once a week we do significant event review, which is generally a collection of different industry events related around a theme, and they take them into the classroom and split the operators up into groups, go through the event, have them determine what went wrong, what could have been better, what protections we have here, what protections we may need here, to prevent those sorts of things from occurring.

MR. CONTE: That's part of their week in requal?

MR. BROWN: That's part of the week in requal, yes.

MR. CONTE: Okay.

We understand there was a line 5 loss recently for Nine Mile Two, offsite source of power, and as a result there was an increased training on electrical distribution. You mentioned earlier that there was an early-1980 identification of a weakness in electrical distribution --

MR. JORDAN: 1990.

MR. CONTE: Oh, 1990. I'm sorry.

Can you give us any more about the line 5 loss and how that was incorporated in the training, or don't you known what we're talking about?

MR. BROWN: Yes, I think I do, because -- See, I've been flipping back and forth between initial and requals, so sometime I'm confused about that. We wrote a

job performance measure for recovery from a loss of line 5, and then they wrote -- I believe they added it to a simulator scenario also, loss of line 5 and recovery.

Typically what we do, in any kind of an event like that -- not just a loss of line 5, but a reactor scram that was operator error, or the system didn't operate the way they expected, any kind of event like that that occurs -- we'll send out a post-event survey, we call it, and get the operator's event on how they handled the event, how they felt they handled the event, how they felt training either helped them or hindered them, what kind of training they had that was a benefit, what kind of training they could have used that would have helped them, and then we try and get a collection of their comments and make changes or, in some cases, just develop the scenario as best we can to occur the way it did and run them back through that, so that all the groups get to deal with it.

Then those go on file, and then we incorporate training. Somewhere down you try to make it fit. Like if it was, during a startup they inadvertently, then you gather that information, find out what you could have done better, and you incorporate it into the training scenario for startups to cover that specifically the next time.

MR. CONTE: Do you know whether there was an operator performance problem on the line 5 loss event?

MR. BROWN: No, I don't recall that, no.

MR. CONTE: So, as far as you can tell, as a result of the critique of the line 5 loss, some training actions were needed.

MR. BROWN: I believe that's true, yes -- either needed or --

MR. CONTE: Requested.

MR. BROWN: Yes.

MR. CONTE: By the operators.

I thought I had another question.

Yes, the other question was all these -- did the Line 5 loss cause a trip?

MR. BROWN: I'm not familiar with the exactly the Line 5 loss you are referring to, when you say recently. I know there was one about a year ago.

MR. CONTE: That might be the one. We heard about it.

MR. BROWN: If it was, then it did result in a trip.

MR. CONTE: It did?

MR. BROWN: Yes.

MR. CONTE: And I assume that there is a post-trip response on that, right?

MR. BROWN: I believe there is on that one, yes. I am pretty sure there is. It is called a post-event

survey.

MR. CONTE: Post-event survey?

MR. BROWN: Yes, and it is something Training initiates.

MR. CONTE: We are not used to the lingo around here.

MR. BROWN: And the lingo changes to fit what we are doing sometimes.

MR. JORDAN: Is there training on the -- as a result of an ATWS on system response to ATWS's?

MR. BROWN: Yes.

MR. JORDAN: Is it called ATWS training or what is it called?

MR. BROWN: It is called EOP training. There is -- well, you know, it depends on what direction you look at it from. There are systems designed into the plant specifically to deal with that. We teach those systems.

MR. JORDAN: That it separate?

MR. BROWN: Yes.

MR. JORDAN: But EOP training?

MR. BROWN: That's right. Then you go through EOP -- well, in the system training now we teach where that system is utilized in EOPs. Then when you teach EOPs you go back and teach all the EOPs and then you go into the simulator and you run scenarios during the training of the

EOPs.

When we actually put the EOPs in place we went through and ran a scenario that would take them through every leg of every EOP.

MR. JORDAN: I guess what I am looking for, Bob, is that you have some systems that operate automatically off of an ATWS?

MR. BROWN: Yes, we do.

MR. JORDAN: And if they actuate they may give you indication that you have an ATWS? They may or may not?

MR. BROWN: There's an annunciator that says ATWS when one of the systems actuates but the signals that actuate may be indicative of an ATWS. It doesn't necessarily say, yes, you have an ATWS.

MR. JORDAN: So recognitions of actuations of those systems normally aren't EOP-directed?

MR. BROWN: Normally are not or normally -- yes, they are.

MR. JORDAN: They are?

MR. BROWN: Yes.

MR. JORDAN: And the EOPs will tell you to look for this type --

MR. BROWN: No, actually it -- no, it will say did you get this actuation? You have to be able to figure out yes or no you got that. That's what we teach them in system

training, okay? When this pressure comes on, this happens, you get this light and this light means.

MR. JORDAN: But does the EOP then direct you to go over and look for this light?

MR. BROWN: The EOPs is more it will ask you a question like has this happened, yes or no. Then you have to --

MR. JORDAN: But that is one of the things it will ask you, have you gotten high enough pressure to actuate the ATWS?

MR. BROWN: It will say has ARI actuated.

MR. JORDAN: ARI actuated automatically.

MR. BROWN: -- and you will then determine yes or no it hasn't.

MR. CONTE: Do you know anything about the demonstration today at one o'clock in the simulator?

MR. BROWN: I know that the simulator, we have built a scenario to actuate and there has been talk of using it back and forth. I didn't know there was one set up for today, no.

MR. CONTE: Okay. I guess it is fair to say that there has not been a scenario developed to do what happened in the recent event with the five loss of --

MR. BROWN: Prior to this?

MR. CONTE: Yes.

MR. BROWN: No. No one would have believed this. See, one of the things is -- that we worked real hard on was going from just running scenarios to see thing happen to trying to make them credible so it looks like this is how this can happen. I am not sure anybody would have this as a credible scenario if we had run it so we never did do a loss of all the UPS's.

MR. CONTE: But I understand based on operator interviews that they have seen a loss of annunciators, maybe not the full core display but they have seen a loss of annunciators.

MR. BROWN: Yes. That they have seen.

MR. CONTE: That is a scenario malfunction or that's standard simulator malfunction that you can put in?

MR. BROWN: We can do it as any pick an annunciator and lose it or you can turn off all the annunciators.

MR. JORDAN: -- loss of all annunciators?

MR. BROWN: Yes, somewhere along the line I know we have. I don't know if I could pinpoint for you where it was done but I know we have trained on it.

MR. JORDAN: Is it in requal training also?

MR. BROWN: Yes, it's done.

MR. JORDAN: It's done?

MR. BROWN: But it's done kind of more of a loss

of annunciators when you trip the system and you might override the annunciators to see if they'll recognize a recognition kind of thing but I can't ever recall on requal just turning off all the annunciators and seeing if they recognize that.

We have never done to my knowledge a loss of all annunciators and most indications all at the same time.

MR. CONTE: It's partial systems and partial --

MR. BROWN: Yes, partial system.

MR. JORDAN: Partial annunciator loss?

MR. BROWN: Yes, and we do a lot of floor discussion on what if that didn't work, what else could we tell you, how do you know that's true, what actuates that light -- those kinds of things, rather than just get a light and that's true, what gives you that light so you know what it means in the thing.

Going back to the ATWS, there's two annunciators there. One says potential ATWS; the other one says ATWS. What's the difference in what makes those lights go on and what do those lights -- where do they get their input so why do they believe whatever it is they are telling you. Those kinds of things get discussed.

MR. CONTE: There is a scheme up there in the control room. The starred meters are safety grade power supplies. The labelled ones with the red background are Reg

Guide 197, is that correct?

MR. BROWN: I believe that is the scheme, yes.

MR. CONTE: How is that training communicated, the fact that that exists?

MR. BROWN: Only in that -- when we go through and we initially bring them to the simulator you do walk-throughs with them on, okay, this is where things are, this is what things mean. Then, as changes get made like they'll issue a department direction or an instruction that they are going to change something, they are going to add an operator aide or something, they'll send over -- if they consider it necessary to be trained on, they'll send over a change request and we will add it into the program wherever it should be added, but something like, you know, we are going to put a new plate down and we are going to color this different, that may or may not. What happens is Operations requests Training to cover that and then Training will add it in where appropriate.

Past the initial training on why these meters have red backgrounds it's not done unless it is requested again that it needs to be done, so everybody will get it initially and then from then it's you either know that it's true or you don't.

MR. CONTE: For each individual on the crew that was on shift at the time, would training records reflect the

last time they had been exposed to some loss of power supply or loss of annunciators?

MR. BROWN: Yes, but it is not real clean. You have to go back and what it exposes you to is a scenario number and you have to go take that number back to the scenario and go through the scenario and see what was done.

MR. CONTE: Okay.

MR. BROWN: However, the best way is to find somebody who ran it who recalls the last time they did one. They'll all be the same scenario as every cycle so the guy who remembers when the last time they did a loss of power will know what cycle it is and he'll look it up for those guys for that cycle.

I believe it was done in the Spring or early Summer.

MR. CONTE: That wouldn't be a newly-formed shift, would it? Is there a substantial record of this shift being together?

MR. BROWN: I am not sure that this shift -- this shift is not normally together. The normal SSS on this shift was not there that night, so this shift -- Mike Eron is a relief shift SRO, so there is a record of them being trained but as far as together, no.

MR. CONTE: You don't keep shift records, you keep individual records?

MR. BROWN: Well, we keep individual records but what you are going to find is when you do a simulator evaluation you train the shift and on that evaluation all the people are listed and it's generally we try and train them, the shifts, together and then we have staff groups to just make it convenient to get them.

If you only have two guys show up for one week, you can't do simulator training so we arrange the staff so that four, five or six guys show up each week and we can do the simulator training.

The shifts pretty much stay in rotation because they rotate into training like they rotate into midshift. It works out that way for simulator training. You can go back and find out they all had the same training on the same day at the same time, but we keep a record of each person individually what he did or she did.

MR. JORDAN: Is the simulator training -- if they train on Simulator No. 5 at this time do all crews train on that same simulator, so once they get into the cycle they all train on the same so you find that the loss of power, everybody gets trained on the loss of power via that same simulator scenario?

MR. BROWN: Yes, and everybody gets evaluated against it.

MR. JORDAN: Not only everybody on that crew but

everybody that is in training?

MR. BROWN: Everybody in license.

MR. JORDAN: Thank you.

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

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

We can go off the record.

[Whereupon, at 10:20 a.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 ROBERT BROWN

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.