UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:

IE TMI INVESTIGATION INTERVIEW

of Mr. Daniel M. Shovlin
Superintendent of Maintenance

Trailer #203
NRC Investigation Site
TMI Nuclear Power Plant
Middletown, Pennsylvania

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NRC PERSONNEL:

Mr. F. N. Fasano
Mr. James S. Creswell
Mr. Dale E. Donaldson
Mr. William H. Foster

FOSTER: The following interview is being conducted of Mr. Daniel M. Shovlin. Mr. Shovlin is Superintendent of Maintenance at the Three Mile Island nuclear Power Facility. The present time is 10:02 p.m. Today's date is May 21, 1979. The place of the interview is trailer 203 located immediately outside the south gate to the TMI site. Individuals present for the interview are interviewers: F. N. Fasano, Inspection Specialist, Performance Appraisal Branch, Office of Inspection and Enforcement; James S. Creswell, Reactor Inspector, Region III; and Mr. Dale E. Donaldson, Radiation Specialist, Office of Region I. My name is William H. Foster. I am a Senior Inspector Auditor, office of Inspector and Auditor, NRC. I'll be monitoring the interview. Prior to the interview being recorded Mr. Shovlin was provided documents explaining his rights concerning information he obtained regarding the incident at Three Mile Island. In addition Mr. Shovlin was apprised of the purpose and investigation's scope and the authority by which the Congress authorizes the NRC to conduct an investigation. On the second page of the advisement document Mr. Shovlin has answered three questions. The questions and Mr. Shovlin's answers will now be recorded as part of the interview. Mr. Shovlin, do you understand the document?

SHOVLIN: Yes, I do.

FOSTER: Do we have your permission to tape the interview?

SHOVLIN: You do.

FOSTER: And would you like a copy of the tape?

SHOVLIN: Yes, I do.

FOSTER: Okay. Then, at this time, would you please give us a brief summary of your academic background and your employment history as they relate to the nuclear field.

SHOVLIN: I had 27 years in the United States Navy. I retired as a Lieutenant Commander. I have been employed with Met Ed almost 6 years.

FOSTER: Thank you. Dan, at this point on I'll turn the interview over to the I&E personnel.

FASANO: Dan, when were you notified on March 28, 1979, about the occurrence?

SHOVLIN: It was after 5:00 in the morning.

FASANO: When did you arrive here?

SHOVLIN: It was after 6:00. Normally I got a call as the superintendent of maintenance as it relates to the problem, why did it trip, and how long a period of time will the plant be down; what other work could be scheduled during that time frame that it's going to be down. And that's basically the purpose of my getting involved at that particular time.

FASANO: So it was routine at that time that you would be notified.

SHOVLIN: That's correct.

CRESWELL: Who called you?

SHOVLIN: I don't recall. It was someone on the shift. I don't know if it was a shift foreman or one of the control room operators, or...

CRESWELL: From Unit 1 or Unit 2?

SHOVLIN: I believe it was from Unit 2.

FASANO: When did you realize that it was an unusual situation? In other words, when did you really get involved with the occurrence?

SHOVLIN: Well when they...actually they declared it as a site emergency. When I came to the plant I proceeded to the Unit 2 control room. My

recollection is, at that time the superintendent of Unit 2 was in charge, was there. Joe Logan, and of course supervisor of Operations-- well the shift supervisor is Bill Zewe. They were carrying out the shutdown procedures and when they declared a site emergeny, Joe asked me to get a hold of Gary Miller. That was about a quarter of 7; quarter to 7 or 10 to 7, I believe it was.

FASANO: George Kunder was there already?

SHOVLIN: George Kunder was there, yes. I don't recall that Jim Seelinger was there. I don't believe Jim Seelinger was there at that time. I got a hold of Gary Miller at a quarter of 7, which I believe he was in previous telephone contact with the Unit 2 control room. And I told -- Gary was previously scheduled to go to Oyster Creek that day, or that morning. I told him that they just declared a site emergency and I don't recall at that time if I gave him any particulars...I'm on my way...I'm on my way in. From that point on my function was in charge of the emergency repair party. And we really did not get actively involved until there was some parameters that they -- I guess the relief value on the makeup tank was lifting and they wanted to get some jumper hoses from the makeup tank connected into the reactor building. I believe that was performed by my I&C people. I believe Doug Weaver, who's a foreman and Wilson, who's a foreman, were actively involved with that evolution. Also I think was after -- I don't believe it was parallel, it could have been -- was the reactor coolant

bleed tank. They also were hooking up tubing to vent off into the reactor building from the reactor coolant bleed tanks. And this was because of the pressure buildi..g up and blurping off right into this space. That was the major activity as far as the emergency repair party. It was with my I&C group. I believe they needed some electrical assistance. Whether there was -- I can't recall. We have log books, I know a lot of it can be identified. Whether there was some fans tripped or they needed some electricians to go and check out the circuitry.

FASANO: Fans on what.

SHOVLIN: They are handling fans and I don't recall what system. But I believe they called my -- they needed electrical assistance, though.

FASANO: Ok. Let's get back a little bit. When you did arrive, this time you went right to Unit 2 control room?

SHOVLIN: Because that was one of the trips.

FASANO: Yeah.

SHOVLIN: The unit that tripped.

FASANO: Yes, and that would be different than what you normally would do?

SHOVLIN: No it's no different. I would go to the unit that tripped to find out just what happened, okay? And when I do, I go up and see what the problem was; whether it was the turbine it tripped you, or was it the reactor it tripped you; how long it's going to take to get back to restore the casualty; or if it was going to be down for any appreciable time. I have what you call a "no-name outage list," which is work, that is identified and is on a continuing basis that we prepare the procedures and have the parts ready in the event there is an nonplanned outage as this could have been called.

FASANO: In your opinion when you got there then it is not unusual for you to go into a control room?

SHOVLIN: Oh, no.

FASANO: After a trip?

SHOVLIN: No.

FASANO: How did the people in the control room, how did it seem to you they were behaving?

SHOVLIN: There didn't seem to be no one running around in panic. And looked like the CROs and shift supervisor and they were over on the control panels. I didn't see any really...the major concern is when Gary Miller came into the control room, then I could see they had assembled people into the shift supervisor's office and they talked about the plant condition, what they thought were resolved or where the levels were in the pressurizer. That was discussed between Gary, Kunder, Mike Ross, I believe was there at the time, Seelinger, of course Bill Zewe...

FASANO: When you were in on this kind of a meeting, was this when you were assigned to oversee the emergency repair?

SHOVLIN: Soon as they declared a site emergency, the emergency repair party is in fact a reality. And I report to the emergency control station which was effective which happened to be -- well I was there.

FASANO: Did you report to the emergency control station or center?

SHOVLIN: No, no. It's the station.

FASANO: And which is where?

SHOVLIN: Actually I happened to be in the control room in Unit 2. Normally we go down to the control point in your Unit 1, that's the emergency control station there. And then from there they could declare you to go, well it all depends on the conditions to go to the alternate emergency control station, which is adjacent to your shift supevisor's office up in the Unit 2 control room.

DONALDSON: Could I just back up and pick up something here? When the site emergency was declared, did you report to the emergency control station that is the Unit 1 chem HP area?

SHOVLIN: No, Unit 2. That's where I formulated my -- I gathered my repair party which actually was the shift maintenance crew that are on duty okay?

DONALDSON: The emergency control station and I will make sure we got this term right. The emergency control station is in fact the Unit 1 health physics chemistry check point, is it not?

SHOVLIN: That's correct.

DONALDSON: Then you did not in fact report to the ECS. You remained in what is the ECC, and that is the effective unit control room?

SHOVLIN: No. The alternate ECS is right off the shift supervisor's office in Unit 2 control room.

DONALDSON: I guess what I'm saying is, were you aware of the fact that the ECS was in fact located at the Unit 1 chem HP area, and that a repair party came and had formed in that area?

SHOVLIN: Well they had, that's correct. And I requested that the emergency repair party report to the Unit 2 emergency control station where I was present at the time.

DONALDSON: Now who in the emergency organization do you report to on the organization chart?

SHOVLIN: I report directly to the emergency control center, which would be the station superintendent or whoever, or the unit superintendent whoever is the person in charge of that.

DONALDSON: I'd like to show you a chart here of the emergency organization. Just let me know if this is right or wrong.

SHOVLIN: Okay.

DONALDSON: All right? Emergency diagram from procedure 1670.2 and if you'll notice the way it operates, the...

SHOVLIN: My verbal communication goes through the emergency control station.

DONALDSON: In terms of your --

SHOVLIN: In turn it's relayed to the control center.

DONALDSON: What is the significance? Could you explain to me the significance, then, of having the emergency repair party as one of the off shoot blocks underneath the radiation protection supervisor, who in fact directs the activities in the ECS.

SHOVLIN: And he does, he does. My communication is directly to him up through to the station superintendent, who is in the control room.

DONALDSON: Then is it safe to assume, then, that you were coordinating or communicating with him even though you were located in a position or place different than he was.

SHOVLIN: I was coordinating emergency repair efforts as a direct result of communications between the unit superintendent Logan, Bill Zewe, Mike Ross through me at the Unit 2 control room.

CRESWELL: Who declared the site emergency.

SHOVLIN: Oh, I believe it was -- I believe it was either Ross or Logan, I can't...

CRESWELL: One of the two...

SHOVLIN: One of those that were in the control room at the time.

CRESWELL: Were you in the control room?

SHOVLIN: I was in the control room at the time.

CRESWELL: Did they consult with you when they declared the site emergency?

SHOVLIN: No, except that I was -- See, the thing was that this was the normal working hours all right, for maintenance would be like 0730. So this was prior to that so what you would do is you utilize your maintenance shift people; I&C electrical. And basically there's only like three, two and three. You have a total force of about no more than eight people.

CRESWELL: And the breakdown of the three is...

SHOVLIN: You have three repairmen, two electrical...

CRESWELL: Three mechanical repairmen?

SHOVLIN: Mechanical, that's correct. There would be two electrical and you would have three or four I&C type.

CRESWELL: Okay.

SHOVLIN: And during that time at the Unit 2 control room there were foremen that came, normally come to work a lot earlier, who became a part of my repair force effort. These were the gents who hooked up the attempted to hook up the tubing on the makeup tank and reactor coolant vent tank.

CRESWELL: Were you working on -- I'm sorry. Were the people assigned to you working on the relief valve on the makeup tank and hooking up the plastic tubing to the reactor coolant bleed tank?

SHOVLIN: Yes.

CRESWELL: Prior to the emergency? Declaration of the emergency.

SHOVLIN: The site emergency?

CRESWELL: Right.

SHOVLIN: If they had it was not too much before the site emergency was declared, I would say. Let me you say in fact, the normal path during the night or other than any type of emergency would be for the shift supervisor/ shift foreman go directly to the maintenance foreman to carry out a repair function. Now that could have been carried out during that particular time.

CRESWELL: Did you personally give these people instructions to go do that work?

SHOVLIN: No, I did not.

CRESWELL: Do you recall, did someone reporting to you give the instructions?

SHOVLIN: No, but it was reported to me what they were doing. The first indication I had was when my foreman, Hal Wilson, notified me that this was what he was going to do and I can't recall whether it was just before the site emergency or it was after.

CRESWELL: Do you recall who assigned those men to do that work?

SHOVLIN: I'm sure it was either the shift supervisor or shift foreman, either/or, I would...

CRESWELL: Were informed that they were going there before they were dispatched to do that work?

SHOVLIN: Was I informed whether they were before from the shift supervisor? No, that's negative. I was not. That was direct communication from them to either with Doug Weaver or Wilson, who in turn notified me just what they were doing with it.

CRESWELL: That would have been from the local areas where they were working?

SHOVLIN: The I&C shop is right adjacent, right off the Unit 2 control room so they were physically right in the control room at the time.

CRESWELL: Okay. Now you can't remember whether it was Logan or Ross that declared the site emergency?

SHOVLIN: That's right, I don't...

CRESWELL: Do you what basis upon which they declared the site emergency?

SHOVLIN: I believe the basis on the site emergency was a...I might be wrong... a reading of 125 mR right at the security fence. I believe that. Either that or a monitor going into a high alarm.

CRESWELL: Okay.

SHOVLIN: Okay? I know one way or the other but soon after they said I have 125 at, I believe, at the security fence.

CRESWELL: After they declared the emergency, either Logan or Ross, did they give you instructions of something to do.

SHOVLIN: Yes. Someone told me to get my emergency repair party and I called usually, my electrical shop where they hang out or in the mechanic shop where they work and I believe I got a hold of Hilary Mitchell, who just happened to be in there earlier, okay? Together and tell them to report to me up at the Unit 2 control room.

DONALDSON: Let's back up there, I'm a little confused. Having observed several drills here at Three Mile Island, it has always been my observation and understanding that at the time a site or a general emergency is declared, that the repair party automatically musters at the ECS, which in this case is the Unit 1 chem HP...

SHOVLIN: That's correct.

DONALDSON: Control point. That they stand underneath a little red sign on the wall that says "Repair Party Team." Is that correct?

SHOVLIN: That's basically right.

DONALDSON: All right. Now my understanding is also that the maintenance supervisory foreman, whoever that would happen to be, would be the immediate team director, as it were.

SHOVLIN: During those conditions, right.

DONALDSON: During those conditions. And that he would in fact or in turn report to the emergency control station director, if you will, who in this case would be the radiation protection supervisor...

SHOVLIN: That's correct.

DONALDSON: Now. I guess where I'm confused is how the repair party team, it doesn't appear that it ever formed at the ECS. Now, did it ever in fact form at the ECS?

SHOVLIN: I'm not sure when I got a hold of my supervisor to direct the maintenance shift people.

DONALDSON: Who was the maintenance supervisory foreman that you placed in charge of the emergency repair team?

SHOVLIN: When they reported up to me at the Unit 2 control room, I was directly in charge at the time. Because they all didn't gather at the one -- they came in in dribs and drabs, so to speak. But once the people had assembled and I directed them right off of the shift supervisor's office out of the way of the activity that was going on.

DONALDSON: Let's back up again, I want to try to get my mind clear still. Now according to training records and drill records, you participated in two radiation emergency drills within the last six months.

SHOVLIN: That's correct.

DONALDSON: What method or procedure did you follow in mustering the emergency repair team during those drills?

SHOVLIN: I mustered them at the Unit 1 HP control area.

DONALDSON: Could you then explain why in this particular situation in implementing the emergency plan, why you mustered your team in the control room?

SHOVLIN: I took it upon myself I, suppose. The emergency -- I was there in the control room. The number of people is a minimum number of people, are the maintenance shift people. And there was activity

requiring, to me, requiring people to effect repairs or put in jumpers or...that I asked them...I directed them to report to me up in the Unit 2 control room, which is the alternate emergency control station.

CRESWELL: Did all people report to you at that point?

SHOVLIN: No, I don't believe they all mustered up there.

CRESWELL: Okay. Where were the other people?

SHOVLIN: You mean...?

CRESWELL: You mentioned that you would normally have eight people with the breakdown that you gave earlier; mechanical, electrical and instrumentation. Now if the eight people didn't show up, where were the other people?

SHOVLIN: I didn't inquire. They were either out on a job, some particular job, or... it was getting close to... you know, their shift is over at 0700, okay? Site emergency...

CRESWELL: They were getting ready to go home?

SHOVLIN: Either getting -- in their locker or getting washed up or whatever, I would think.

CRESWELL: Did anybody call you from this ECS in Unit 1 to tell you that they were there?

SHOVLIN: No, the only time I... they could of contacted -- not me directly, but they contacted your, either the shift supervisor, whoever was then director of...the emergency control director that there were men down there. I was not, at the particular time when the site emergency went off, it seemed to me that they were still trying to restore their casualty, their trip. And I in turn, because I knew the shift maintenance on shift, I needed people to support my effort and I was in Unit 2 control room, I knew that's where the casualty was and I directed the...

CRESWELL: Is it possible that some of these people were out working on the relief valve on the makeup tank and the reactor coolant bleed tank?

SHOVLIN: No... You mean before? You mean during the, putting in the line to vent off?

CRESWELL: Right.

SHOVLIN: That's possible.

CRESWELL: Okay.

DONALDSON: You mentioned that you decided that you needed the people in the control room because that's where the trip had occurred and where the problems were being experienced. Again going back to past drills, had you not experienced that same need during drills? What made this situation so much different than drills that you had been in before that you would not meet your repair party in the assigned location?

SHOVLIN: Well first of all, I think now there is a big difference between a simulation and the real thing, all right? It was real to me. And real to me meant I was there in Unit 2 control room, they were having problems. It was quite evident to me they were having problems either interpreting levels, instrumentation. So it was prudent on my part to -- the predominance was to me to have I&C people over and above that which was a part of the repair party, and I turned to the I&C shop that's right adjacent to Unit 2 control room to augment the number of people that I required and the expertise that was required. They were there and I utilized that expertise. They were not a direct member of the repair party.

DONALDSON: Okay. You mentioned over and above. Then, the people who you mustered in the control room were in fact sort of like a, oh, side group you felt would be needed to do things over and above.

SHOVLIN: These were my (so to speak) experts, not a side group. People who knew their business, okay? These were the foremen; these were like Wilson, and Doug Weaver, who were foremen, who were well familiar with the systems; who quite frankly, they were running around taking action and taking steps, probably before I got there, they were there. And they became a part of my communications.

DONALDSON: Let me finish this line, if I could. I wanted to try to develop what's happening here. Alright now, then I assumed from what you're said that there in fact was a repair team or repair party formed and at the emergency control station with the official repair party. The people you had were sort of like your assistants.

SHOVLIN: Well I did request that the people that were on shift and was either I paged through the page system (and if I remember correctly it was Hilary Mitchell, the individual that I got in touch with) and I told him and he said they are all, the people of the repair party were mustered down at the emergency control station at Unit 1. And I said "I want you to direct those people to the emergency control station up at Unit 2." And I informed the emergency control director that my party has been mustered. It was apparent that I have augmented my party with additional talent and we proceeded from there.

CRESWELL: Who did you report to?

SHOVLIN: I reported the repair party, Joe Logan was the individual at the time that I was mustering my repair party.

FOSTER: We are going to take a break and change the tape now. The time now is 10:30 a.m.

FOSTER: We are continuing with the interview of Mr. Shovlin. The time is still 10:30 a.m.

DONALDSON: So essentially by what, 8:00 would you say? We have you with your repair party personnel in the control room. Or was it earlier? Do you know?

SHOVLIN: I'd say, yeah, about between quarter of and 8:00, probably they were assembled. Maybe it was after 8:00, maybe it was like 10 after 8, but around that area they were assembled.

DONALDSON: All right, then we have you now in the control room and performing various repair type functions or maintenance functions at the request of Mr. Logan? Is that correct?

SHOVLIN: There was some conversation, yes. Mr. Logan and Zewe and Ross. There was various people.

DONALDSON: Okay, in other words there, any number of people were requesting your people to perform various actions?

SHOVLIN: That's correct. And I might say that some of those actions went directly to the individual, to the foreman rather than go through me to the foreman, okay?

DONALDSON: Did the foreman then get in touch with you?

SHOVLIN: They kept me advised, okay? Of what they were doing.

DONALDSON: Did you keep a log or any kind of record?

SHOVLIN: There is -- In the emergency -- in the Unit 2 control room, no. We do have a log. The I&C people kept a log of the work that was performed during that whole evolution.

DONALDSON: Then after the time when the repair party was formed, let's say the morning of the 28th to start with, were there any repair functions performed by your team members in areas where...that either later proved to be or that you knew beforehand had high levels of radioactivity? Or any levels of radioactivity for that matter? Did they make entries to the aux building?

SHOVLIN: You mean prior to the incident, prior to the site emergency?

DONALDSON: No. We have you...

CRESWELL: Asked to pursue this prior to the site emergency like these guys that could possibly be working on the relief, the makeup...?

SHOVLIN: I said that was possible. They could be in that area.

CRESWELL: Did they have health physics coverage when they went out there?

SHOVLIN: When they were putting in the... yes, I'm pretty certain that they did, yes. When they were putting in the tubing, and the...

FASANO: Normally you would have your supervisor look to see, I mean is the work to be done and they would check to see if you need an RWP. Correct?

SHOVLIN: Under normal conditions you work with a work request and a procedure, okay? Which takes a PORC review and so forth. This was not done. This was done in emergency conditions, okay?

DONALDSON: Okay, Dan we've got you. The emergency has been declared, you have your repair party formed. Were there any functions that any

of your team members performed either requested by Mr. Zewe, Mr. Logan, anyone else in the facility; where did they enter the aux building, anywhere where there was any radiation?

SHOVLIN: The only work that was identified throughout the whole morning was trying to install a line from your makeup tank to the reactor building and from the bleed tank to the reactor building.

DONALDSON: Okay, a line from the makeup tank. Now prior to the initiation of that work, did you have any discussions either Mr. Dubiel or Mr. Mulleavy or Mr. Huwe or any of the rad protection personnel regarding radiation levels in the area of the makeup tank?

SHOVLIN: I personally?

DONALDSON: Yes.

SHOVLIN: No.

DONALDSON: Did your foreman?

SHOVLIN: I'm quite sure my foreman did.

DONALDSON: Do you know for a fact?

SHOVLIN: No, I don't know. But I'm sure that someone would have alerted them when they initiated that action, okay?

DONALDSON: Okay, and your foreman again would have been Hillary Mitchell?

SHOVLIN: No, the foreman would of been either Wilson, Hal Wilson (he's the I&C foreman) or Doug Weaver. Wilson is the one I have seen that was most actively engaged in that particular evolution.

DONALDSON: Alright, now to your knowledge when Mr. Wilson directed or assisted in performing any of these repair functions on the morning of the 28th, did he have a rad chem technician accompany the team?

SHOVLIN: I couldn't tell you. I don't know.

DONALDSON: Did you at all discuss with him the need to touch base with the ECS?

SHOVLIN: I did not, because that work that Wilson was doing on the tubing was initiated before I got actively involved in the formulation of the repair activity, the emergency repair activity. That particular, the makeup tank job was -- I don't know if it was directly instituted before the site emergency or if it was a little bit after, right after it was declared. But he was actively involved.

DONALDSON: And the work continued? It continued?

SHOVLIN: And the work continued on. That's correct.

DONALDSON: Did you get any reports back from Wilson about how that work was going?

SHOVLIN: No, I did not.

DONALDSON: The individuals involved, did they report back?

SHOVLIN: In fact I can't recall on the makeup tank, or I can't recall on the bleed tank of the completion of that activity, okay?

DONALDSON: Did they say they were successful in what they were attempting to do?

SHOVLIN: On the makeup tank or the bleed tank? I believe on the makeup tank they were successful on that particular evolution, but I don't know, I can't say honestly on the bleed tank, if that was installed and checked out and was doing...

DONALDSON: I believe that when Gary Miller took over as the emergency director when the site emergency was declared (he arrived somewhere around 7:00, I believe), he designated four individuals who would be

in charge of various aspects of the emergency. He directed someone in charge of operations, he directed someone in charge of health physics and accident assessment for radiological.

SHOVLIN: Uh-huh.

DONALDSON: He also directed another individual in the operations area to advise him. If I am hearing you say, is it correct to say, that you were not receiving requests or direction from a centralized person, but rather from a number of individuals?

SHOVLIN: Well when Gary first came in and called everyone in the control station, that's when he designated and I was the one who was responsible for the maintenance functions. That's when he gathered everyone into the control supervisor's office, and he designated in each individual as to what function they are going to perform. You are in charge of the repair functions.

DONALDSON: Was this -- again, you mentioned that in past drills your normal position was at the ECS. Then, did Mr. Miller at all ask you why you were there? Or didn't it seem strange to him see you there when normally he would expect to find you in the ECS? Or maybe he didn't think about it?

SHOVLIN: No, I don't know; maybe he didn't about it. I think conditions, knowing that it was a real thing, apparently a real thing to all of them and certainly to me, you're looking to localize whatever started the condition. And...

DONALDSON: Then Mr. Miller did assign you and did say to those present that anything having to do with maintenance, go through Shovlin.

SHOVLIN: Go through Shovlin, that's correct.

DONALDSON: Go through Shovlin, okay.

SHOVLIN: To those people that were in the office, I think if I recall it was Seelinger, Logan, Zewe, Ross, myself and Gary. And sometime later, if I remember, we gathered in there and Lee Rogers from B&W was...

FASANO: Dan, as you said previously, that you do report to the control room where a trip has occurred so you could get the parameters. So in this case you were in the control room.

SHOVLIN: That's correct.

FASANO: At the time of the emergency?

SHOVLIN: When they declared the site emergency.

FASANO: Where did you assemble with your people in the control room physically?

SHOVLIN: Right adjacent to the shift supervisor's office. As you come in the entrance, that area right there.

FASANO: How many people were in that area?

SHOVLIN: On I would say roughly, at that particular time, about 10 people.

FASANO: How many people were in front of the yellow line?

SHOVLIN: The console?

FASANO: Yes.

SHOVLIN: I like about six or seven, roughly. That included the supervisor, the superintendent, I noticed. But I kept myself away from the activity because I had no business up there.

DONALDSON: You mentioned that Lee Rogers from B&W was also in the control room. At any time did Mr. Rogers request of you or any of

your people that certain repair functions or tours of the building be made?

SHOVLIN: Not that I recall, no.

DONALDSON: Alright. Now again on the 28th, and I dont want to worry too much about the specific time it occurred, but at any time do you recall any discussions involving the need to change the seal injection filters? Were you approached by anyone and requested to perform that work?

SHOVLIN: That morning you say, on the 28th.

DONALDSON: On the 28th.

SHOVLIN: What time?

DONALDSON: Any time if you can recall.

SHOVLIN: No, not during the time I was there. But I have just found out when I got relieved I was there from the time after 6:00 until roughly 3:00 in the afternoon. I previously thought I was there a lot longer. I got relieved and I came back. I got relieved by Dick Sieglitz who's the supervisor of Unit 2, Supervisor of Maintenance, of Unit 2.

DONALDSON: Would Mr. Sieglitz be a normal alternate for you in heading the repair party?

SHOVLIN: Yes, yes.

DONALDSON: He would be?

SHOVLIN: See, the thing is when the site emergency was declared I had no people on the island all right? They were over at the observation center. They mustered over there, okay? After I somewhat got some assemblance, some people reported to work early and I utilized them; that was the I&C people. I called -- I made a -- And I'm trying to think the communications. I requested that my supervisors come to the island and muster and contact me. Basically I wanted to see where I was going, what work had to be identified to do and where would my people work. But they were mustered over at the observation center. So I was able to get a relief for myself, I thought it was 3:00. The normal shift maintenance relieved the other individuals that were in the repair party, and we continued that around the clock.

DONALDSON: On the morning here, now (I guess by 9:00 or so) the health physics people had pretty much determined that there were significant radiological hazards within various areas of the building. Do you recall Mr. Miller cautioning or discussing at all the command or control or authorization for various entries that were to be made

by people? Who that was to go through? Any general policy that he may have reiterated at that time?

SHOVLIN: I believe there was some word that was given in the control room, general people in view of Miller I believe any entry into, and I don't recall if it including the aux building, but I do believe that, not Dubiel but I believe Mulleavy...Mulleavy or Dubiel was the one that was supposed to be coordinating that effort, okay?

DONALDSON: Was Mr. Mulleavy in the control room at this time?

SHOVLIN: I don't recall that now. I think Dick Dubiel was.

DONALDSON: Was Mr. Wilson or Mr. Weaver were they present in the control room when this announcement was made?

SHOVLIN: I can't say that. I don't know.

DONALDSON: Do you recall whether or not you reiterated that comment to them?

SHOVLIN: To Weaver or, no.

DONALDSON: Or Wilson.

SHOVLIN: No. But I know -- there were so many things going on and you know, to recall each individual... I remember when Gary came in he took over, he took control, I remember that. As soon as he stepped in he took over and there was some vocalizing on his part to give out instructions. But most of the time I spent was directly in the area of where the repair party functioned. And I know there were some instructions given over in the area of the console right directly in front of your reactor protection.

DONALDSON: Now normally if you were located at the Unit 1 chem HP point and you had to make an entry into the Unit 2 auxiliary building, how would the repair team make that entry? Would it be through the Unit 1 HP check point and across, or would it be directly in from the Unit 2 side?

SHOVLIN: No. It could be through the Unit 2 side. First of all they would assign us an HP type to go and monitor the area well he'd be assigned as a part of the repair team. They would give us exact directions where, what avenue to the take, okay? Whether it would be through the Unit 1 turbine building over into the Unit 2; or would it be up over from Unit 1 to Unit 2 fuel handling building; that specific directions would have been given there at the Unit 1 HP control station.

DONALDSON: Then it's reasonable to assume that since the radiation protection supervisor is located essentially right at the entrance,

that he could control entries and make such explanations before the entry were made. Correct?

SHOVLIN: That's correct.

DONALDSON: My memory serves me be right that about 9:00 in the morning, the ECS did in fact relocate to the Unit 2 control room because of increasing radiation levels in the chem HP area. Correct?

SHOVLIN: Yes, I am trying to recall the direct time that we did have airborne, that we had to put on respirators. I don't know if it was around that time or not, right in the control room.

DONALDSON: Once the ECS had been relocated and Mr. Mulleavy and the ECS, and all the rad-chem technicians were in the control room, at any time when they were located in the control room, do you recall seeing any of your repair party individuals being briefed as to routes to be taken, exposure times, protective clothing required, so on and so forth?

SHOVLIN: From the time after 9:00? I don't recall any activity to any extent after we put the respirators on.

DONALDSON: So basically --

SHOVLIN: As far as maintenance activity.

DONALDSON: So on the morning as far as you were concerned, the only maintenance activities you had been provided with or asked to accomplish were completing the hook up from the makeup tank.

SHOVLIN: To the reactor building, right.

DONALDSON: And hooking up tubing from the reactor coolant bleed tank. Those were the only two functions.

SHOVLIN: And there was electrical request... I'm trying to recall... to restart air handling motors and I don't know where -- the aux building, reactor building or where but I know there was one.

CRESWELL: You mentioned earlier that there was a problem with interpreting instrumentation. Did any of your people --

SHOVLIN: Yes, there's times I've seen we were over by the console, okay? With several people and what they were discussing I'm sure was pressurizer levels and what time of the day now that was after we were doing any -- it was after the involvement in, his activity with the makeup tank and reactor if I can recall. And what I'm saying is that many times the operation shift foreman, or someone would directly call the foreman and say "I want you to look at this particular problem we have."

CRESWELL: That was in the control room?

SHOVLIN: That was in the control room.

CRESWELL: That wasn't out in, say, the aux building?

SHOVLIN: No, no, that was directly in the control room.

FASANO: Were you knowledgeable of getting water treatment unit and water from Unit 1 to Unit 2? Apparently there were some valves on the water treatment system in Unit 1, I think it was B-62 or B-63, that requested to be tapped off and then water would be available to Unit 2. Do you have any knowledge of that work?

SHOVLIN: That was on the water treatment system? No.

FASANO: You have no knowledge that Unit 1 supplied Unit 2 with makeup water?

SHOVLIN: No, if it was done, it was done through a normal valve line up that Operations would perform.

FASANO: You have no knowledge that say, a...

SHOVLIN: A repairman or someone assisted in that?

FASANO: Not a repairman but, say, someone at the foreman level actually did that in Unit 1.

SHOVLIN: That could have happened, but it would have had to have been from direction of either an operation supervisor or a foreman who would recommend...

FASANO: And you would not have been notified?

SHOVLIN: I would not have been notified.

DONALDSON: In that direction an operations foreman, you said. Now, were operations foremen also directing repair or corrective actions?

SHOVLIN: As they have in the past, I'm sure they have requested directly to foreman to foreman type of communication. Yes.

DONALDSON: Then requests for action were not being essentially taken to a central authority for review and looking at it in light of the overall situation?

SHOVLIN: Not during the conditions that existed on that particular day.

DONALDSON: Are you aware of any people other than your maintenance people or those people who would normally be on the emergency repair team performing any valve line ups, assessment tours to determine plant status in the aux building, things of that nature? When you were on shift at any time? Any time during the 28th through the 30th.

SHOVLIN: Not to my knowledge.

DONALDSON: I wonder if you can recall any of the other specific actions that you might have been involved in in terms of repair type? For example, laying down of plastic in the auxiliary building. I think you also had a hose hooked to the waste gas decay tank so that that would vent into the auxiliary building.

SHOVLIN: Now I remember the plastic and that was to cover water that was already spilled, I believe. I remember that action. But I don't know, right now I don't know whether it was in the aux building or what area of the aux building it was.

DONALDSON: Did your repair team perform that function?

SHOVLIN: I believe they were requested to do that. I remember the action being taken, and I remember because there was water that was contaminated on the floor.

CRESWELL: Where?

SHOVLIN: I believe it was in the makeup room, or in that area. I'm not certain, but I know that they did request and put plastic down to particularly cover up contaminated water.

CRESWELL: You say they requested. Who is "they"?

SHOVLIN: Operations. Either the shift supervisor or someone from Operations requested that.

CRESWELL: Through you or directly to you?

SHOVLIN: I believe it was through me.

CRESWELL: Who did you assign to the task?

SHOVLIN: These two or three people that were...

CRESWELL: Next to you...

SHOVLIN: In my repair party.

CRESWELL: And they would have been mechanical, electrical, instrumentation...

SHOVLIN: Or I&C, right.

CRESWELL: You don't recall who they were?

SHOVLIN: And I can't to this day tell you who the names of the repairmen were except for my talking to Hillary Mitchell and the I&C types who were mostly actively involved. Now it could have been the I&C types that went and laid down the plastic because they were the ones that were involved in the work. In fact, the I&C group were, from what I can recall, were involved in 99% of what activity that went on that day. And they in turn could have put the plastic down in order for them to go in to do -- to be able to go in and work or whatever they had to do.

CRESWELL: Is it a fair characterization that there's various number of people beside you during the course of the event that morning; people are leaving and coming back and you mentioned that at this time there were three people there when the plastic was laid down.

SHOVLIN: Roughly I believe there were three people.

CRESWELL: You had a total of eight people available and this besides the number of people...

SHOVLIN: Yeah, there was a total of eight people were there during what time frame. Eventually I had more than eight people, because I was augmented, initially augmented, I was utilizing the I&C people that were already working or already there engaged in the problem that existed.

CRESWELL: To your understanding, then, Dan, the individual foremen were keeping the maintenance activities that were being performed in their log books as they normally would?

SHOVLIN: Yes I think most of that is documented in the I&C area, which I think...

CRESWELL: Even if I guess in this case since they were I&C people and were probably performing emergency type functions. Anything might have been put in.

SHOVLIN: If that plastic, if they laid that plastic I'm sure that's in their log. Because that was...

CRESWELL: Good. Dan, on anytime through the 28th or the 30th because of manpower shortage or because you felt there was a necessity, did you perform or assist any of the repair teams? Did you accompany any of them?

SHOVLIN: I was directly involved, personally supervised the hydrogen recombiner that was installed that's putting in the new piping; I directed the whole function. But that was, I think, on Easter, on Sunday. Whatever date that was.

CRESWELL: About a week later.

SHOVLIN: I was personally involved in that evolution. I directed four of my people and four of the contractor to install that. That was Easter Sunday, I believe it was.

CRESWELL: You had a recombiner there.

SHOVLIN: There was one; I was installing the second one, the standby one. That's correct.

CRESWELL: And that would be the only...

SHOVLIN: That was the only...

CRESWELL: Action...

SHOVLIN: Action that I personally was totally involved with.

DONALDSON: If I could I'd like to just backup on a couple of other things and then I'll leave you to these fellows. I'd like to talk a little bit about the training for the emergency repair team. Again could you describe for me just a little bit the scope and the nature of the training that your people received?

SHOVLIN: Well it's heavy on the health physics involvement. During our normal drills as you've been a party to, or at least witnessed several times, the extent of the repair activity is a small part of the overall drill. Normally if you are simulating a valve is stuck open in a system, and you send a repair party in to unstick the valve -- ilizing: You're dressed up; all the precautions that you have to take; you have a health physics monitor monitoring the area for you; you know what the reading of the areas is what you're going into; but over and above that. we go through extensive -- before we go into our final drill, we go through extensive training prior to that. In fact there's several weeks that we go through in preparation for the final drill.

DONALDSON: I believe you do conduct repair party drills. Is that correct?

SHOVLIN: That's correct.

DONALDSON: Do you recall when the last repair party drill was held?

SHOVLIN: When we had our final drill for the State and NRC?

DONALDSON: You helped the conjunction with the large scale radiation emergency drill then, in November, I believe. Is that correct?

SHOVLIN: The latter part of last year.

DONALDSON: Now, in looking through the training program I have a lesson plan that was provided -- yes?

SHOVLIN: Let me back up a little bit now. There are, my foremen are involved in giving individual -- not just training department...my foreman in each discipline, on shift directly go through repair party function training or on-the-job type training. While they're on...

FOSTER: The time is 11:00 a.m. We ran out of the last tape. Mr. Shovlin was speaking. Would you back up just a little bit please and pick up the sentence before we were cut off?

SHOVLIN: We were discussing the on-the-job repair party training as defined, and other definitions of actual drill type repair party training which we've done.

DONALDSON: Did you, or are you aware that of any formal training that had been conducted? That is, a classroom kind of situation where specific topics were covered and then student performance or student ....?

SHOVLIN: It was done, it was conducted by HP with my foremen who in turn had to instruct each discipline on the repair partly functions.

DONALDSON: and ... did you attend that particular class?

SHOVLIN: There was, no, I can't, I personally?

DONALDSON: Did you attend the formal class in 1978? Conducted by either health physics and yourself or, by health physics?

SHOVLIN: Yes, it was conducted I believe I was, it was conducted over in the auditorium. Yes. ... When in 1978, I can't say.

DONALDSON: What I heard you say is then that ... the one class was held and in turn then the foreman, who you designated, in turn trained additional people. Is that correct?

SHOVLIN: That is correct.

DONALDSON: I wonder if you'de take a look at this lesson plan that ... it is a hand written lesson plan at the top, it's the emergency

repair party. This is part of the official investigation record TM #469. I wonder if you'd glance through the two pages of this and give me a feeling as to whether or not the classroom trining that you attended, number one, met the scope that's outlined in there and number two, whether or not you had any input in the preparation of that particular lesson plan.

SHOVLIN: There's one area here that I, the second page, that I can't recall is the area, Formation Emergency Organization - talking about the day shift-back shift.... I mean as a part of the formal training.

DONALDSON: You'd mentioned earlier that you didn't have any people there because of the change of shift, now, there are shift people working, maintenance people around the clock.

SHOVLIN: Yes, around the clock.

DONALDSON: But because they were switching over they were, there were some leaving and some trying to come onl

SHOVLIN: I don't, I can't, I don't, Like I said there was like 10 of 7, when quarter of 7, 10 of 7, and I, normally they are.

DONALDSON: Was that training roughly, the one you attended, the classroom training was it roughly equivalent to that outline? Do you

know whether or not your maintenance foreman, the one you designated to train additional people used or followed that, this outline?

SHOVLIN: This guideline? I can't say that for sure.

DONALDSON: Who was the individual that you designated, do you recall?

SHOVLIN: Well, I left it up to the, I have a supervisor in each discipline. A supervisor mechanic, who is John McGarry, supervisor in electrical who is Hilary Mitchell, and a supervisor in I&C is Pete Snyder. And I know, I can remember because McCormick.

DONALDSON: Who provided the health physics portion of that training? That is, the emergency risk doses that could be accepted for, well I don't think could be accepted, but emergency risk doses that...

SHOVLIN: I'm pretty sure it was Tom Mulleavy.

DONALDSON: Did he also provide this training for the follow on training that your supervisors conducted?

SHOVLIN: I'm not sure, I'm not perfectly sure of that.

DONALDSON: Do you recall in your training class discussions relating to emergency risk doses? Who would be authorized to direct certain

actions if it appeared that individuals would receive X amount of exposure?

SHOVLIN: That's, that's your HP supervisor is the one that would give...

DONALDSON: Do you recall that being discussed?

SHOVLIN: As part of it? No, I don't recall that. Although I personally have read that, what the doses were.

DONALDSON: Do you recall whether or not the training addressed follow on actions in the event that a person was overexposed during an emergency or the need for an individual to be a volunteer under certain circumstances?

SHOVLIN: As part of that training? No, Idon't recall that.

DONALDSON: From your reading of the response plan and participation in drills, did you apply any of this prior knowledge during the emergency we are discussing, to the extent that prior to having one of your foremen or maintenance supervisors conduct some operation, that they were apprised of or aware of the fact that under certain conditions the individual should be made aware that they ... the participation or action would be voluntary? Was that ever passed on to you at all?

SHOVLIN: Would you repeat that again?

DONALDSON: Yea, did you ever say to your foreman, "O.K. we've got a job to do," or "whatever job you do, pay attention to the HP end and remember that if the doses are, the dose levels are so high, whatever number that would be, the guys would have to be volunteers, you can't make them do it."

SHOVLIN: No, we set a, in maintenance we set a 20 MR limit as a control but never with the stipulation on it you would not, you exceed that.

DONALDSON: We're in emergency condition now. You set 20 MR administratively during normal operations, what is the administrative limit set during emergencies?

SHOVLIN: The three hundred MR per week was the normal administrative, we had 25 hundred MR during the emergency, as a ...

DONALDSON: Who set the 25 hundred?

SHOVLIN: The station superintendant...

DONALDSON: Was this set on the day of the, of the incident of sometime prior? I don't see that written down anywhere, that's the 25 hundred is sort of news to me, that's why I'm wondering where it came from.

SHOVLIN: No, well, the 25 hundred was, to me was the day of the incident that Gary said

DONALDSON: O.K., so you sort of remember Gary saying 25 hundred? Do you recall whether he designated an individual who could authorize anyone to go beyond that?

SHOVLIN: Dick DuBeil.

DONALDSON: Do you remember him saying Dick DuBeil up to, did he say up to how much, or just overall he gave that responsibility to Dick?

SHOVLIN: Overall, 25 hundred was the maximum. Above that it would have to be Dick DuBeil would be the controlling factor.

DONALDSON: So he issued a general administrative limit of 25 hundred with additional followup in order to go above that and Dick DuBeil was the clearing authority for that? Do you recall any discussions that your foreman may have had or did you see them talking with Dick at all regarding any of these operations, to determine if these administrative limits that were set?

SHOVLIN: Dick DuBeil was a very busy gent that particular day, O.K.? And it would be hard for me to pinpoint down what his activity really was because he was heavily involved in trying to keep everyone notified

of what was happening. That not only included our own staff, it included the NRC, the state and ... so whether some individual came up to him and requested from him that's possible. But I wouldn't personally know.

DONALDSON: To your knowledge, prior to the 28th, were there any members of your repair party team, those who would normally be designated as members and those would be maintenance shift workers, repairmen, and I guess it's maintenance I&C, I forget the other title offhand, any of the people normally assigned to the emergency repair party team who had not received required training?

SHOVLIN: That's possible. It would be someone who just went into the discipline, that bid into a shift maintenance job in recent months? That's possible.

DONALDSON: Do you recall prior to the incident now last year during 78, so on and so forth, do you recall any discussions or requests that lesson plans or certain training be conducted for the maintenance and repair party?

SHOVLIN: That maintenance, was actively involved in preparing the lesson plans?

DONALDSON: Yes, were you requested either through a memorandum from the training department or either as a result of a drill were you tasked with the responsibility of preparing a formal training program for the emergency repair team?

SHOVLIN: Now that through me as the superintendent of maintenance, no, but it's possible through the supervisor of maintenance for each unit that ... that's quite possible.

DONALDSON: Would supervisor of maintenance for each unit report to you as the superintendent of maintenance, or how does that work?

SHOVLIN: No, see the supervisor of Unit 1 reports directly to the superintendent of Unit 1. Supervisor of Unit 2 reports directly to the superintendent of Unit 2. Now there is a dotted line to me that I control what work goes through Met Ed maintenence or what work goes to the contractor. Sometimes I referee who ... what the priorities are. But it's quite possible that all of these particular situations or instances that you speak of, were directed to the supervisor of that particular unit.

DONALDSON: Now if I read this, going back to this chart again your title as superintendent of maintenence. That according to this the supervisor of maintence would have been in charge of the emergency

repair party team, is that correct? I believe that would have been for Unit 2 Mr. Siegletz.

SHOVLIN: That's correct, but not, that was my title until not too long ago.

DONALDSON: Until when?

SHOVLIN: Well I became superintendant of maintenance, oh, about a year ago.

DONALDSON: Is this a new title, superintendent of maintenance?

SHOVLIN: Yes, pretty much, so, you're going to see, you'll probably see some correspondence that still has supervisor of maintenance on it.

DONALDSON: If we were to just look at this though, we would expect... Mr. Sieglitz.

SHOVLIN: No, looking at it you would look for the superintendent of maintenance to be on it.

DONALDSON: But while this is the current chart, I'm reading this says supervisor of maintenance, prior to a year and a half ago was there only one supervisor of maintenance?

SHOVLIN: Prior to a year and a half ago, yes I was supervisor of maintenance for Unit 1 and then I went into the startup of Unit 2, and I promoted an engineer to supervise our maintenance, Unit 1, and that's when I became superintendent.

CRESSWELL: When was that that you changed your job title?

SHOVLIN: I believe Jim it was January of 78.

DONALDSON: O.K., so this really I quess you're telling me this is really not accurate reflection of the way things really work?

SHOVLIN: What I'm saying is that the supervisor maintenance is really myself. I am the superintendent of maintenance right now.

DONALDSON: Were you told that's what it's supposed to be? I don't know,

SHOVLIN: What do you mean?

DONALDSON: Well, in other words, supervisor of maintenance is a very specific title and now you have a Unit 1 supervisor of maintenance and a Unit 2 supervisor of maintenance. Since certain other positions are designated by supervisor of the affected unit, I would assume that the head of the repair party team would have been the unit 2 supervisor of

maintenance. I guess what I'm saying is had this ever been discussed as to who really was going to be in charge of the emergency repair party team?

SHOVLIN: I have been in charge of the emergency repair party team from its inception since I've been here.

DONALDSON: O.K. so then the person who's in charge of repair party team is not really a duty title, it's more of a specific name of an individual.

SHOVLIN: That's correct.

DONALDSON: O.K., Then I guess it's safe to assume that during the drills as late as November 11, 1978 that Mr. Sieglitz or, who's the Unit 1 supervisor?

SHOVLIN: They could have, they could have, well now its, I was still an, as supervisor Unit 1, I was holding two titles. That's where the problem comes in. Tom Hopkins ... he's right now, he's not officially, but he's going to be designated supervisor Unit 1, so I was really filling two titles. Supervisor of Maintenance Unit 1 plus Superintendent of both units.

DONALDSON: You wore two hats.

SHOVLIN: I wore two hats.

DONALDSON: One final question, as a result of any of these drills that you conducted, or having gone through the training, did you prepare any recommendations or critique comments following drills? To highlight areas that needed to be improved in the response plan?

SHOVLIN: Yes, we did. After each drill and you probably were a party to some of them, if you participated in any of our drills.

DONALDSON: I won't ask you to recall what those specific comments were right now, but in general would you say that the comments that you addressed were in fact reviewed by management and either resolved or in some manner addressed to your satisfaction?

SHOVLIN: Yes, because they were particular as a result of our overall drill there were particular problem areas that were identified that we had to comment on and not only in my own, I know there was in my area there was a couple of areas, but also in the health physics and other areas.

DONALDSON: You mean areas, health physics areas that related to your activities?

SHOVLIN: Right, and even these were future these were looking after future ... future drills or these were areas that we had to improve on.

DONALDSON: In a very general sense, can you recall any of these comments or areas you felt needed to be highlighted for further drills?

SHOVLIN: As related to repair party function?

DONALDSON: Yes.

SHOVLIN: I think in some of our communications ... in communications, definitely in communications the communications from the individual who is out, either out in the area getting back the information back to emergency control station, as the assessment of the problem of difficulty, that was brought up.

DONALDSON: I said one final question, I've really got one more and then I'll leave. There were some other actions, that at least to me on the surface seemed as if they were really repair type actions that occured on the 28th through the 30th. I did mention one of them before one of them was the, I believe the seal injection filter work there were some other tours made by various people to turn wheels and turn valves and do various and sundry things. I guess the point I want to make is did you have any knowledge that somebody other than your people were running around doing your function?

SHOVLIN: You mean opening valves?

FASANO: Let me just clear this up, I think what we're talking about there were some cases where the turning gear on the feedwater pump, apparently an operator was, an auxiliary operator was in the turbine building and turning the turning gear, assisting the turning gear to make sure that the shaft didn't warp. Is this the kind of thing?

DONALDSON: These kinds of things. The emergency repair functions that repair people did not perform under the repair team. Health physics people might have done it, for example the seal injection. Originally the adjustment of some seal water flow was to be performed by an auxiliary operator and a HP technician.

SHOVLIN: You're well aware that you have aux operators as a part of the emergency control, emergency parties.

DONALDSON: I'm well aware that they are not in fact a part of the emergency repair party.

SHOVLIN: But you are aware that when we conduct our drills we do have auxiliary operators as a part of the emergency control station, standing by to go out and assist the emergency repair party, in being familiar with valve line-ups, opening and closing valves that ...

DONALDSON: What we're trying to get to is where there any situations where an aux operator on his own or a health physics technician on his own, or someone outside, totally outside of the repair party team performed your kind of function without your knowledge, without assistance from your people?

SHOVLIN: That's quite possible. And during this condition, there's probably a lot of action taken that they were not looking ... in order to get immediate response ... looking for the gent who was in charge of the repair party. I'm sure there were some instances that they went directly to an individual and said I want you to go down and close whatever valve or...

DONALDSON: You've always had fairly ambitious scenarios in your drills in terms of repair party activities. You've done such things as lock doors behind the teams after they leave and actually have to have the repair party open the doors through bolt cutters to get back in. You've had major equipment failures where you've had to make re-entry's and perform certain functions. Looking back over the drills that you've conducted and your experience in heading these repair party teams, how would you characterize the response of your group? In comparison with those past drills the way you used to do it under the drill and the way it had to be done or the way that you did it during the emergency?

SHOVLIN: If you would go back and look at the scenario from any drill you would note that there was minimum repair type functional activity required in support of the drill. So, to your question was, the overall drill as conducted I think is directly, is directed to the those areas that are monitoring outside activities, communication response from the various areas that they are monitoring, the conduct of the emergency control station and your emergency control center, their performance under the drill. The repair activity I think is a small portion of the overall drill.

DONALDSON: During the emergency would you say that it turned out to be a significantly greater portion?

SHOVLIN: From what I was involved in ? Yes, because during the drill it was isolated to a valve sticking open, or they lost air to an operator or this certainly, there was definitly more activity during this emergency then and it involved the response of, in most instances, of our I&C group, instrumentation group

DONALDSON: Within your emergency duties with the repair party team, would you like to make any general comments regarding the emergency functions of that nature that may be of assistance here to others in the industry or to your own organization in improving that particular area?

SHOVLIN: Yes, in retrospect you look at better coordination between HP and the maintenance activity where you told me the question, "was I aware of the radiation levels in a certain area?" Perhaps that was not identified as explicitly as it should have. At least to have a better control of the response by your repair party. I know that you react a lot different in the real thing than you would during the ... simulating type conditions.

DONALDSON: Is that more or a personal comment, or is that a characterization of the organization of a whole?

SHOVLIN: No, I've personally been, I lived in the environment of simulating drills in the Navy and I personally have been involved in the real thing and I think your response and what action you take is somewhat different to some degree, you're bypassing the formal aspect of it in many cases. And in so doing, bypassing the formal aspect, it doesn't say that you're not jepordizing it's possible that you're doing things that, for example here, where they questioned this particular work function in a high radiation area and if somebody identified that with what the readings were prior to entry? That could have been done, but, to my, as me directly knowing what the radiation levels were or a function being performed during that particular case, I would say I was not.

FASANO: You mentioned earlier that you donned a mask. Did you find it at that time more difficult to communicate?

SHOVLIN: Oh, definitely.

FASANO: Previous people had said that they took their masks off to communicate. Do you have any, did you see people doing that?

SHOVLIN: No, in the, several times inside the shift supervisor's office where it was enclosed, I've seen that when someone was trying to answer a phone or that type of a situation.

CRESWELL: Can I go back to any earlier period of time, you arrived at the site about 6:00.

SHOVLIN: It was after six, I would say between six and six-thirty.

CRESWELL: And I'de like to go back to the time where you first got to the control room. At that time I believe you said there were six or seven people in the control room.

SHOVLIN: No, I said you mentioned how many people were around the console.

CRESWELL: O.K. Well how many people were in the control room when you got there?

SHOVLIN: Well, I'de say it looked like about 12 or 14.

CRESWELL: 12 or 14? O.K You mentioned earlier that there was about 150 MR at the security fence.

SHOVLIN: I said greater than 125 MR. That's one of the conditions that gets you a site emergency.

CRESWELL: I'd like to go back to the time you entered the control room, you looked at the panel? Did you look at the panel?

SHOVLIN: No, at no time did I look at any, I didn't get into the area. There's a certain division that ... there's people that get out of the way, that so let those that are able to, evaluate the situation, without cluttering up and interfering with their normal process.

CRESWELL: Who's the first person that you talked to when you got into the control room?

SHOVLIN: That's one thing I could never recall, either it was Logan or it was Ross. That's to my recollection.

CRESWELL: Did they brief you on what was going on?

SHOVLIN: I tried, they were doing a thing, I tried to I think Mike Ross was the one that briefly told me what they were having well they had a, told me what happened, why it, what started, precipitated the trip. He said they got water in the air system, the polisher valve closed the feed pump tripped, the condensate pump tripped which in turn of course tripped the turbine and the turbine, consequently then the turbine, the reactor tripped. I was aware of that scenario.

CRESWELL: Anything between that and the time that you got there?

SHOVLIN: No.

CRESWELL: O.K. There was a short period of time before the site emergency was declared.

SHOVLIN: While I was there, that's correct.

CRESWELL: Well, I'm interested in what went on during that short period of time.

SHOVLIN: Well I was there, I stayed back out of the area and you know, I would say there's at least 6 or 7 around the console, looked to me like they were doing just an orderly shutdown. And, they got an

alarm I am pretty sure they got an alarm from one of the monitors, a high alarm which seemed to they, see the reactor very quickly the condition existing that was not normal and from that it just seemed to me that it went into the site emergency, and then it was a general emergency...

FOSTER: Let's take a break and change the tape. The time is 11:28 a.m.

FOSTER: We're continuing with the interview of Mr. Shovlin the time is still 11:28 a.m. Mr. Donaldson has left the interview.

CRESWELL: Did anybody discuss with you at that point in time whether they had problems with the reactor coolant pumps?

SHOVLIN: No, the only time they discussed the reactor coolant pumps was that they were, I believe this was when we went into the shift supervisors they were discussing this. where, they were having a problem with the main vapor valve, I believe, or losing suction or being vapor bound.

CRESWELL: And that would have been about what time that you had that discussion?

SHOVLIN: I'm quite sure it was after Gary Miller was there. Shortly after he got there.

CRESWELL: O.K. Did you have any comments on the pumps being a vapor bound? Did anybody ask you anything about it?

SHOVLIN: No. Except that they were concerned about doing severe damage to the pump, I think they were vibrating.

CRESWELL: What type of damage would you expect?

SHOVLIN: From the high vibration? Well you could have bearing damage, or seal damage. I didn't go back into it I'm sure someone took the ... secured the affected pump.

CRESWELL: O.K. What contributions did you make to this first conference that Gary Miller had?

SHOVLIN: I was just party, I was superintendant of maintenance they was more in an operational aspect. What should we do? Should we kick the seal injection on or that type of...

CRESWELL: What was that discussion? What, who asked whether they should keep the seal injection on?

SHOVLIN: Or shut it off, I think the people who were highly involved in that discussion I believe was Kunder, Ross ... with Gary, I don't know if Zewe was or not , yes Zewe was involved in that too. And I'm trying to feel, you know this was ... several times ... I think Lee Rodgers was in at that particular time.

CRESWELL: What was the consideration in whether they should shut the seal injection off or not?

SHOVLIN: I believe put it, yes, keep it on.

CRESWELL: It was decided to keep it on, but what were the considerations about whether you could shut it off or not?

SHOVLIN: I don't recall.

CRESWELL: Were they concerned about plugging up the filters in the line or...?

SHOVLIN: That was not discussed. I mean it could have been discussed, but I didn't. They were rallying, going back and forth and I was like a like in the background listening to the and the ... yes, B&W, they had some input. I know that Gary had some questions and Ross and Kunder had some concerns and but other than...

CRESWELL: Do you remember what any of those questions were or the concerns were ...

SHOVLIN: No the only one I can vividly remember was of the continuing with the high pressure injection. That was discussed.

CRESWELL: That was discussed thouroughly?

SHOVLIN: Yes, that was discussed.

CRESWELL: Who was talking about that?

SHOVLIN: I think it was Kunder and Ross, I think Zewe.

CRESWELL: Do you remember what their position was?

SHOVLIN: No, it seemed that, like Zewe ... I can't recall, Zewe or Ross of Kunder one wanted it off, and one wanted, two wanted it on, or I can't recall how that ... which one of the ones, which one was the gent that thought it should be secured.

CRESWELL: Thought it should be secured?

SHOVLIN: Once, right, one ... there was one that I'm pretty sure that gave the indication that you know, that he wanted to secure the high pressure injection, the other two I thought they wanted to keep it on.

CRESWELL: It was a kind of two and one situation.

SHOVLIN: I think it was, yes. From what I recall now who the one was I can't...

CRESWELL: Who won out? Do you have any idea?

SHOLVIN: The seal injection went back ... either it was off or it went back on, O.K. That whoever ... to put the seal injection back on or continue with it, that's who won out.

CRESWELL: Did Miller make that decision?

SHOLVIN: Gary could have ... I wasn't ... he could have made that decision.

FASANO: I have a few questions on ... that Dale had left. One of them is what contractors ... you had contractors in ... and what were these contractors doing during this period? You had contract maintenance I believe.

SHOVLIN: Yes, there was no activity with the contractors, during this time frame that this whole thing started, the whole scenario started.

FASANO: Were they doing work, just prior to it?

SHOVLIN: No, there was no work function being conducted.

FASANO: You left at 3:00, right? About 3 in the afternoon?

SHOVLIN: I left at 3 and I came back oh, I left at 3 really to get something to eat, so they told me. I came back at about 5 or 6, as I recall.

FASANO: So you were there about 2:00 and about that time the spike was noted on the wide range reactor building pressure?

SHOVLIN: I've heard this and I heard people saying it was a hydrogen explosion and whatever. But the significance of that never came to me until the next day or sometime after.

CRESWELL: Did you notice any of the group in the shift engineer's office, that would have been Ross, Miller, Joe Logan I believe you said was there, did you notice any of those people in that group go out and tell what had happened?

SHOVLIN: Well, during, I don't even recall when that really happened. In the afternoon, after noontime, when, I was out directly controling and getting reliefs in for my people who had to go over to the observa-

tion center or call, so I was not direct, I was more or less around the area of the outside of the shift supervisor's office, during this particular time, and we set up our maintenance functions right there by the computer, if you recall, so that was actually where we worked out of. My shift foreman, that's where he sat and that's where he directed all the maintenance efforts around the clock. From the time I got relieved at 3:00 until several days we...

CRESWELL: Do you remember when that pressure spike occured, whether anyone said there's been a pressure spike?

SHOVLIN: No.

CRESWELL: There wasn't any sound, anyone saying something?

SHOVLIN: Not to my, not to the group I was discussing or talking with, no.

CRESWELL: Did you hear the thing abnormal around that period of time?

SHOVLIN: No, I did not.

CRESWELL: Your group was around the computer, you said, during that part of the day. Did you notice anyone come around and get information out of the computer while you were there?

SHOVLIN: Well, there was people going back and forth all, from the various start of the trip, through the site emergency ... through the several days, that was the ... that we sat to the very left of the computer. We didn't block the area around the computer.

CRESWELL: Do you remember any of the people who came over and got information out of the computer?

SHOVLIN: I'm sure everyone of those in the control room of any authority was over on the computer.

CRESWELL: Back on that pressure indicator of the reactor building, now, would your instrumentation man have been called to look at this unusual spike to see if this maybe had to do with the noise or whether it would be something that's real and how would he, do you have any knowledge what might have gone on?

SHOVLIN: That's possible that he did. I'm sure that if he was in the area ... he could have been, because most of ... we ran, but I sent them, I wanted the minimum number of people at the site, O.K., after we started wearing the respirators, I was very concerned about the numbers of people that I had. So, I sent Weaver and Wilson, I'm sure in the area 2:00, home, we had an I&C foreman by the name of Barry, a Ukrainian name here.

CRESWELL: His first name is Barry?

SHOVLIN: His first name is Barry, something like Rosanovich, it was close to that, who was the foreman that relieved the shift foreman, who happened to be in of an IC discipline. Now, it's possible that he would know, and would be called on to look at that.

CRESWELL: But you have no knowledge of anyone going over there, or anyone asking ... for anybody from your group?

SHOVLIN: No.

FASANO: Dan, do you, apparently, the EMOV valve was leaking and prior to this occurance, ... the electromatic valve sometimes called the EMOV valve. Do you have any, well did you know about this and had you, were there, plans to correct it or to OP list this difficulty?

SHOVLIN: Yes, that would be identified on our no-name outage list, and I think I discussed as far as leakage, control leakage, I'm sure that that was identified and it was on the no-name outage list and I'm sure they knew by the leak spec into the reactor coolant drain tank. And that they're able to identify the leakage, and certainly identify if this leak got increased, that was under a controled nature, I'm sure, so that wouldn't, that would not have been a real major concern.

CRESWELL: I have here some hand-written notes with eight items on it, that is entitled, "Jobs to do if Reactor Trips" and Dan I'd like to ask you if you have seen that list before.

SHOVLIN: These should be a part of our no-name outage list, I would think if these jobs were identified, and I'm sure Dick Sieglitz would be familiar with, the supervisor of Unit 2, with this.

CRESWELL: O.K. There, like I said there are 8 items here. Let me go through the first one, Pyrometers per press rod and safety valves readings were you familiar with some plans to use pyrometers on the safety valves?

SHOVLIN: We've done that in the past. We've done that in Unit 1, I'm sure that's...

CRESWELL: Why do you do that then?

SHOVLIN: Well, that gives you an indication, it gives you temperature of leakage.

CRESWELL: So, have you done this on Unit 2 before?

SHOVLIN: I quite frankly I can't, it was possible, I left Unit 2, I wasn't involved in the startup of Unit 2 as I told Tony, I have been

up about a year now up involving Unit 1, but I'm sure the supervisor of Unit 2 is knowledgeable of everyone of those, and should be on the no-name outage list for Unit 2, in the event that they did have a trip, these are the areas where they'd go in and they would work on.

CRESWELL: There is an item here - tanks refilll, what does that mean to you? Shield tanks refill?

SHOVLIN: I don't understand that, shield tanks refill. I understand check all RCS insulation in place, we do that.

CRESWELL: What does that mean to you?

SHOVLIN: To me to be sure that its, there's none that's missing, that it's made up right, correctly, that you don't have no voids.

CRESWELL: Is there a previous occurence or event that may have affected the positioning of that insulation?

SHOVLIN: No, it's just, the people install it ... that they make it up right ... the workmanship more. The dipping ... I quess that has to do with the seal leakoff. Not that I know. In mode 5 get CRD stator cool back in of course mode 5 is when you can gain enterence to the reactor building. And I'm not familiar with disconnect WDGV28AV.

CRESWELL: Well, we've been doing some looking on that Dan, those, that construction there is involved with a vent line from the steam generator over to the waste gas processing system. Did you know of any abnormal conditions in that area?

SHOVLIN: No, personally not, but I'm sure if there was any, that Sieglitz, supervisor of Unit 2 would be familiar with it.

FASANO: Dan, we gather that, in your current job that you have, Mr. Sieglitz who really would know the details .

SHOVLIN: Of each particular work function on Unit 2, right.

FASANO: Because it was a list of items that the people were doing, auxiliary operators, which appeared to require maintenance and apparently, it seemed like maintenance efforts were being directed toward Unit 1 to get back it on line, at least this is the impression that I had. There were which ... some of the items that we had that apparently the auxiliary operators would take care of would be the turning gear on the feedwater pump, like ' think it was feedwater pump 1B.

SHOVLIN: That's their normal function.

FASANO: If it doesn't turn the ... they go down and turn it. Eventually I guess you, maintenance, would get this as a job to probably correct.

SHOVLIN: If they've experienced ... getting it back on jack and gear, yes.

FASANO: And the problem that existed was the hydrogen makeup on the M UT, the makeup tank, where apparently an operator went down and ... valved to put hydrogen in.

SHOVLIN: That's an operator's function, to open and close valves.

FASANO: But eventually its the corrective action that would have to be made so that you could this couldn't, this wouldn't have to be done through an alternate route. This would be my ... I don't know.

SHOVLIN: If it was by virtue of an design deficiency they would put in a work request which would call for a change modification. We have over, I'm sure there's over 400 and some change mods right now on Unit 2 and that could be.

FASANO: This would be if ... the work request would go to Sieglitz

SHOVLIN: The work request should go to Sieglitz and he would identify it as a change to a system.

FASANO: And the pressurizer heater breakers, they seem to be giving the operators a problem I guess this would be in the I&C or the electrical?

SHOVLIN: No, it would be electrical.

FASANO: Electrical. And again this is ... things that you wouldn't be really involved in? It would be Mr. Sieglitz.

SHOVLIN: Oh yes, that would be true of a work request with the Unit 2.

FASANO: Do your subordinates discuss some of these things with you, and how do they ... reports that you see?

SHOVLIN: I get involved especially when we prepare to go into an outage or a no-name outage list. I review that, one of the main reasons I would look at it is to see who am I going to assign the work to, it's going to be the contractor, or I'm going to assign it to my own people. And look at the man power requirements for Unit 1 or Unit 2 of where do I have to shift the emphasis.

FASANO: From the information that your subordinates were suppling you or had supplied you prior to the event, what did you perceive as the maintenance activities that would be required on the unit?

SHOVLIN: First of all, I was involved when we found out that we had main steam relief valve deficiencies. The Ionergan valves were not designed to support our.. I'm heavily involved in a project like that.

I don't get, he doesn't call me up and tell me that he has a slight leak on a electromatic valve going to the reactor coolant drain tank. Unit 1, we've had leaks from the reactor, from your code valves and into the reactor, where we can no longer control the reactor coolant drain tank overheating and the cooling system would not do it. We had to shut down because of that.

FASANO: When was that?

SHOVLIN: Back in the early part of Unit 1. But, I'm saying that, it was identified, there's a certain amount of leakage that you can have and it's controlled, and if you go beyond that, you've got to come to either a hot shut-down or a cold shut-down.

FASANO: The reactor coolant drain tank for Unit 2 has been modified to allow cooling ....

SHOVLIN: Greater cooling capacity.

FASANO: Have you had any problems about the shutdown, the leakage, after that?

SHOVLIN: No.

FASANO: How much leakage can you take now in the reactor coolant drain tank, without shutting down?

SHOVLIN: Right off-hand I don't have the numbers, but I know of course that the leakage and the heat-up in the ... you start building up pressure in it and you know you have a rupture disc on there which has a rated pressure so you certainly, you're not going to exceed that.

FASANO: I have one other item here that the feedwater valve 16 recirc, it was tagged out, it was one of the ones where apparently the tag was covering one of the lights on the emergency feedwater twelve valve, I believe on the console. Did you know why that was tagged out, do you have any idea? This again would be your

SHOVLIN: Sieglitz would know that. He should have some records that support that.

FASANO: Let's see, I believe something came up on Furmanite, the use of Furmanite I guess then he still would be the person to check on the valve?

SHOVLIN: Right. We do use Furmanite. It's under a controled fashion that we use it.

FASANO: It's our understanding that while Furmanite was used on that particular valve body that some of it got into the air...

SHOVLIN: Some of it got into the air control system.

FASANO: Do you have a problem with that?

SHOVLIN: We didn't, have a problem with that. Before we inject any Furmanite in any valve, we'll have our engineering scrutinize it very closely. And have their approval ... PORC approval.

FASANO: Did you make modifications to your procedures after that event happened?

SHOVLIN: That's possible that we have but I'm sure that it was because of the workmanship and technique that the Furmanite engineer injects his Furmanite. That certainly is, and the grooves and the area that he pumped it into, would be looked at.

FASANO: As your subordinates get their no-name work and no-name outage work list and they review it and also any of the current problems, do they discuss this with you if it appears to them that it needs to be discussed?

SHOVLIN: I usually sit in on the meetings, when it's a reality. Usually the jobs that we're going to do .

FASANO: So you have time to ...

SHOVLIN: Oh yes, of yes, oh yes a no-name outage list you're meeting on that at least once every two weeks during normal conditions and review it, with each discipline, which includes engineers involved. It's not just, you just don't put down all what you want in. So it is scrutinized, continually being scrutinized on what you're going to do.

FASANO: So you have an overall feel for just what condition that plant is in. What, could you sort of give us an idea of how you saw Unit 2 at just prior to the March 28th event.

SHOVLIN: Quite frankly I looked at Unit 2 as a better running plant during the same time frame, the ICS, we had fewer problems with the ICS, that I think were, is probably was attributed to expertise that, things we've learned on Unit 1. You got a better, a finer tune-up, so as far as the overall, the integrated control system was a lot smoother during the same time frame as Unit 1. My biggest problem on Unit 2 was I felt it was, in many areas, a maintenance nightmare, where you didn't have the room to work. The valves were congested, close together, and if you're going to work on a particular valve, it's quite possible that you might have to work on two valves, I'm saying that, that's a design deficiency.

FOSTER: We're going to take a break and change the tape.

FOSTER: We're going to continue with the interview of Mr. Shovlin. The time now is 11:55 a.m.

SHOVLIN: We were limited in power when we first went commercial due to heater drain pump problems that we've had. We got down to all 3 heater drain pumps, we had to work on and we got down to one, so we didn't have enough...

FOSTER: You had...

SHOVLIN: Limitation in power.

FOSTER: I think I took a walk in that area and I noticed there was I believe one heater drain pump out, now apparently was being pulled.

SHOVLIN: It went to the factory and...

FOSTER: So you did have one out during prior to March 28th?

SHOVLIN: Yeah, but that would not,... Two would give you 100 percent.

FOSTER: In the condensate system and also the condensate polishers and it is a different design than Unit 1 and apparently the operators

were having a difficult problem unclogging the resins. I guess your men would be knowledgeable of this?

SHOVLIN: Well, we would be knowledgeable as far as the change out system... changing out the resins and the resins. Especially if it got into our instrument lines or unless...yes, they would be familiar with that. We would be the one who have to blow out the lines. That problem is the backwashing of your resin beds. Where the water pressure exceeds the air pressure that you're using.

FOSTER: This takes me back just prior to the occurence and one of the things we'd like to know and I think you probably would, is the basic cause of the initiation of the trip just so that we have facts. Do...this evolution of unclogging, unclogging lines, has this ever caused a failure of the polisher valves to go closed?

SHOVLIN: No, where they got water into the air system had been a problem before but I don't ever recall particularly the clogging of the resins. I know because of the water getting into the air system during the startup, I believe we did have the same situation. Unit 1 you have a bypass around which if that valve closes the inlet closes your bypass valve opens and you're still... you don't lose suction automatically you don't lose suction to your feed booster pump and your feed pump. And I think that would be a reasonable change to make, look at the system to make the changes that have affect.

FOSTER: What corrective action were taken after you had these problems before?

SHOVLIN: As far as the...

FOSTER: ...water in the air lines.

SHOVLIN: The drainage and the blowing out of the the, that's normal...

FOSTER: Just drain the water...

SHOVLIN: Drain the water, yes, more frequent drainage of the water out of the system.

FOSTER: But that really didn't correct the problem?

SHOVLIN: Apparently the problem we just had that precipatated our...no, it didn't correct the problem.

FOSTER: Did you...have your people gone done there and looked at that system since the event?

SHOVLIN: I can't say that...I don't know. _____ When you say my people my I & C people or the supervisor...

FOSTER: People reporting to you?

SHOVLIN: I'm sure that they've had and they will have recommendations how to improve the...

FOSTER: In November, early November I believe its November 4, of 1978 there was a loss off feedwater event. I think the reactor was about 90% power when it happened. Do you recall the outage that resulted from that event?

SHOVLIN: In November?

FOSTER: Right.

SHOVLIN: No, we had an outage, I don't if it was November, it was because of the Lundigen valves, ok. We had a complete changout of your...we had a mainsteam line rupture because of the valve. I don't know if that was November or...yes, it was.

FOSTER: Main steam line rupture? How did that happen, elaborate on that what caused it?

SHOVLIN: The Lundigen valves were not designed to take the reactor forces...of the valve...of the flow condition that existed when the valve lifted. And we've had the expansion joints carry away.

FOSTER: The liners.

SHOVLIN: Yes, right, so then they went in and of course they've changed all the Lundigen valves out with Dresser valves.

FOSTER: But that was done before November of 1978.

SHOVLIN: I'm trying to think if that was when we had the outage or not. I'd have to...

FOSTER: You said something about a rupture, a steamline rupture...

SHOVLIN: Well, I'm talking about that's mainsteam...these valves are in your mainsteam line...where your expansion joint in the line, in the mainsteam line.

FOSTER: But you can't recall any outage activity in November attributable to a loss of feedwater event?

SHOVLIN: We did do a startup I had...the same condition...I'm sure at least one other time that I know...now time frame I don't know...that we've experienced water getting into the air systems closing the same valve.

FOSTER: That's on the condensate system.

SHOVLIN: It's on the condensate system. But I don't...I'd have to go back and look at the...

FOSTER: But have you had any safety relief valve problems after you installed those Dresser type safety relief valves?

SHOVLIN: Since we put the Dressers in have we had new problems?

FOSTER: For instance if blow-back wasn't set properly.

SHOVLIN: Ok, and it remained open. Yes that could have happen.

FOSTER: Do you recollect anything like that happening in November?

SHOVLIN: It happened,...I don't know if it was November or not, pin it down to a time frame but I know we had a problem I think at least two valves as I recall. They had a problem with the blow down. I'm sure Sigmus could document and give you the exact time frame.

FOSTER: I have no more questions. Except to ask you if you have any comments about anything including NRC?

SHOVLIN: No, like I said I've tried to answer all of your questions to the best of my knowledge considering that it was an unusual...I didn't really feel the full blunt of what happened till after about three weeks and it was significant. I worked very hard during the start...I was here during the start of Unit 1. And you work 16, 18 hours a day and you can see something go down the drain in a few minutes. It has been an experience for me. There are a lot of things that I don't recall and a lot things that I recall now from asking and what didn't we do or what did we say on my last interview.

FOSTER: Would you like to make any comments as to what you advise others to maybe look for or to improve or make suggestion on design?

SHOVLIN: Its apparent, you know, this was a situation that no one ever cranked into their overall posture of training or ever happening. I think, you know, certainly we're in order for more instrumentation in some very critical areas.

FOSTER: What would be those areas?

SHOVLIN: I think you should know what your level is in your pressurizer. You can't go...

FOSTER: The pressurizer or the reactor coolant system.

SHOVLIN: Both. What if in the hot leg or wherever...I think it should be... you know, when you have to go and start in a crisis or emergency, you have to go back to start calculating something. I think you should be more simplified than that, it should be more obvious. You know, you take your pressure and temperature and try to correlate it to levels that's what...,so I think there are areas that we're going to improve and I think as a result of this, I feel its a real severe...it is in the light of a lot of people but I think we're going to be better off. Certainly more conscious of where we have to improve of our committment, how we do business, how we communicate with the NRC, the State, and I'm sure...I know for a fact that you're going to do business differently as well as we are.

FOSTER: Would you care to elaborate on that?

SHOVLIN: Well, I think its just like every other area. You have a level of expertise in your organization. I'm sure you're going to devote some of that level of expertise on site...as well as we probably would improve on some areas. I think the state itself has found out their shortcomings. How they work and prepare to handle a situation like that. Now they know when we conduct our drills that their involvement was just a surface, they never really kept totally in ...I think now there's certainly be a participant so I'm sure there is...but overall I do feel the people that I work with is staying with outside I think they conducted themselves I think...considering the situation...in an outstanding fashion.

FOSTER: Dan, based on your experiences is there anything that can be done in simulation training to prepare people better for a real event?

SHOVLIN: Well, I think you're getting geared up for that now, I think down on your simulator...B&W this is going to part of their training program but you know, extend that far beyond just what's happened. I'm sure there are other areas that you can come up with and say, as a result of what would happen, what other areas can we look into and improve and I think there are going to be other areas that they're going to improve upon. I just hope that you know we don't extend ourself to the point where its virtually impossible to ever operate in a reasonable manner because you can get yourself sometime so restrictive that its impossible to function.

FOSTER: Looking back on your decision to set up the...your, repair group in the control room, would you do that the same way?

SHOVLIN: Oh, yes, yes, because I was there I seen what was going on. Ok, you were a part of it...and you there is no other way I'd ever...quite frankly I did it as as not even thinking...I should have directed myself down into Unit 1...I wasn't even concerned about Unit 1 at the time. I think what I done I thought was the right proper way and I use the people that were at hand. They were not the emergency repair party with their people that I had were there that had to take a particular action.

FOSTER: What about the impact of the number of people in the Control Room?

SHOVLIN: You mean the...no, because we maintained ourselves off to the side and I don't think in any way and I in no way became involved in their...we stayed out of their way and...in fact, I more or less insured that the area around the console right directly in front of the...was being maintained by the people that should be there and not the...

FOSTER: If you set up your group in the Control Room how would you control the health physics access or how would you control the people entering into the contaminated area?

SHOVLIN: Eventually HP they brought their people right back to the same location that my repair party was.

FOSTER: Do you feel like you had good HP coverage for your people?

SHOVLIN: But see, when I look back we really it was a minimum of activity that we were involved in. If you look back there's two specific jobs that were of any consequence and our makeup tank and the bleed tank. Over and beyond that I...unless there was little things like turning on or checking fan was off, there was no significant real...and mentioned about laying down the plastic I do recall that, but I don't ...

FOSTER: Compared to the tapes there was minimum amount of work to do why else would your people be in the Control Room.

SHOVLIN: The thing is though there's still the odd ohm was still there, it was apparent, ok. So we still didn't know we didn't know...in fact, we didn't know just till a few days ago where we're at as far as plant conditions, what we're going to do what we're going to be able to do. So you...certainly you're going to be in standby situation, you don't let everybody just go home and do your thing. So I still feel that I made the right decision there.

FOSTER: Thank you, Dan. We will conclude this interview at 12:10 p.m.