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NUCLEAR REGULATORY COMMISSION

THREE MILE ISLAND
INVESTIGATIVE TASK FORCE

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1 MR. TSAGGARIS: -- in the TM things, all right? You know,
2 I've heard that in every plant I've ever worked in, all right,
3 and I could never understand why, you know, the budget gets cut;
4 maintenance is the one that gets cut and the TM program is the
5 one that suffers. I mean, in variably. And -- oh, Tsaggaris
6 speaking. And I just can't understand why that's the one
7 that's one over and over and over again, and I'd like to get
8 your impression of, you know, being here at the plant level,
9 you know, it seems to me that everybody here at the plant
10 level, every senior supervisor understands that thought.

11 MR. LOGAN: I asked about that because again,
12 being new and being here and being very TM-oriented, I had
13 tried to rationalize it, you know -- why? And this is strictly
14 my opinion that it was a follow-over, perhaps from the plant
15 where I -- again this is hearsay, but the concept there was
16 that you run something it craps out, and you replace it because
17 it's cheaper in the long run from the standpoint of down time.
18 This was the approach. Whether that's true or not I don't know,
19 but that certainly seemed to be the policy here. It was
20 cheaper to run something until it stopped running, and then to
21 (inaudible) to follow some plan or routine for everything in
22 the program. I'll say, I'd have to say that in the problems
23 that we encountered in Unit 2, I was also frustrated over every
24 piece of gear that we had was unique to the plant.
25

1 You'd try to find some similarity of problems that
2 would -- well, was in Unit 1 or anyplace else, and to find out
3 you'd call the vendors. That was frustrating in that the plant
4 can't accommodate something (inaudible) really old. And you
5 think a pump is a pump. The plant itself is not (inaudible)
6 but when you'd expect to find a standard pump and take it in,
7 you couldn't.

8 MR. KEATEN: This is Bob Keaten.

9 Along that line, Joe, did you see a substantial
10 difference between the primary side of the plant and the
11 secondary side?

12 MR. LOGAN: Yes. The majority of, I'd say, signifi-
13 cant problems I felt they had was with the secondary plant,
14 disregarding (inaudible) during my tenure. The majority of
15 the problems, the big problems, I felt were in the secondary
16 plant. And I, again, I felt probably were due to the lack of
17 emphasis as I (inaudible) from the D.C. and things of that
18 nature in the secondary plant as opposed to the primary plant.

19 MR. KEATEN: Did you think that that lack of emphasis
20 extended into plant operation and maintenance? In other words,
21 did the secondary side of the plant sort of get shortchanged?

22 MR. LOGAN: In maintenance?

23 MR. KEATEN: Yes.

24 MR. LOGAN: Well, that's where our primary emphasis
25 was, maintenance, was in the secondary plant. And we had, we

1 had in the short I was there, we had, as I recall, one
2 good size job that finally cracked, and some valves and
3 pressurizer kind of instrumentation kinds of things. The
4 rest of the problems were all with the secondary problems.

5 MR. KEATEN: So in some sense, you were trying to
6 allow maintenance activities to catch up to the secondary side
7 of the plant to where the primary side was?

8 MR. LOGAN: We were trying to finish construction,
9 in my estimation, of the facility.

10 MR. KEATEN: Talking to a different aspect for a
11 moment, did you feel comfortable with the watch standing
12 procedures and the turnover procedures, and the fact that
13 they (inaudible)?

14 MR. LOGAN: Comfortable in the sense that they were
15 essentially the same procedures that were used in Unit 1.
16 They were fairly successful. They were different than I was
17 used to in many respects, and there were things that I had in
18 the back of my mind that (inaudible) had the opportunity to
19 before the accident, but I cannot say that I found fault with
20 them at that time. They were effective, and I say this
21 because in some cases, I realize that things were not being
22 passed along, that I was the person that thought of them
23 previously, and there were certain things that weren't going
24 on that I wanted to see done; for instance, plant tours.

25 You gave a foreman out of his control room time to

1 see what was going on in the rest of the plant, and he was
2 stuck there basically because of the paperwork pile that
3 he had generated. This was part of his presence there. I
4 didn't feel that the people in the control room were as aware
5 and here I'm basically talking about this building, were really
6 aware of what was going on in the plant outside, the mainten-
7 ance, the condition of the plant, leakages that might exist,
8 this kind of thing. He would leave the control room in an
9 emergency type of situation only. One of the steps that I was
10 trying to take, was to lead him out of there and to ease his
11 curtailed existence because, you take him out of there then
12 the paperwork doesn't get done and the work doesn't get done
13 because those (inaudible). This type of thing.

14 MR. KEATEN: Had you considered trying to augment
15 the control room itself in order to get some more people to
16 get the paperwork done?

17 MR. LOGAN: At this particular time I hadn't because
18 I had not really, in my own mind, completed the assessment
19 of what the problem was. I had spoken with Gary not in the
20 control room room area other than just problems leading out
21 of the control room. I had discussed with Gary getting some
22 assistance from Reading from our ops analysis group to come
23 down and do a study on productivity in our maintenance depart-
24 ment because we were not, at a productivity, I don't feel,
25 anywhere near where we should be.

1 MR. KEATEN: Um, hum.

2 MR. LOGAN: And one step from that would have been
3 to go into our operations department. Because my main concern
4 right at that particular moment was maintenance that we were
5 just not getting done. There was something wrong with (inaud-
6 ible) and we need to hash out and change. Whether it means
7 more people to process the paper, the assessment process,
8 the paperwork itself, I don't know. But it certainly detracts
9 from getting the work done.

10 MR. KEATEN: On this question of the general
11 procedures and your awareness of the common perception of
12 whether it's correct or incorrect that the EFV-12 valves
13 weren't even closed over the course of some 42 hours and not
14 even being detected, if that in fact is what happened, are you
15 surprised that it went undetected or not?

16 MR. LOGAN: Well, I'd have to say yes, I am and
17 would be disappointed. Although I -- it appears that they were,
18 I feel that the valve operators up there are well trained and
19 they are very conscientious. That's what bothers me when
20 they would be missed for over that length of time.

21 If the other supposition is that there is a cover
22 over the indicator lights or a color (inaudible), again,
23 that -- if that is true, then I'm a little concerned that we
24 had this situation that could have existed where you would
25 be able to cover something like this.

1 of an accident?

2 MR. LOGAN: I would say so. In my own mind, it
3 would have. Because you have more people up there. Certain
4 things that could have gone wrong just distracted the CROs from
5 what he should have been looking at. He may have been involved
6 in some manipulating that (inaudible) manipulation or
7 something. Right or wrong, I could see where that could go on.

8 MR. LONG: How do you feel about the possibility
9 of sabotage?

10 MR. LOGAN: I discount that. At the same time, I
11 couldn't believe what had happened down at (inaudible), either.
12 But I just have to respond (inaudible). For two reasons. One,
13 I think that there's other ways, much easier ways to sabotage
14 than something like that. That would have been -- in order
15 for a guy to say, hey, I'm going to sabotage the plant by
16 turning those valves, unless he was covert (inaudible) with
17 the guys up on the panel, my first thought would be well,
18 they'll recognize it. That wouldn't be the way that I would
19 think a very shrewd individual would try to sabotage a plant.

20 MR. KEATEN: I think that they actually did recog-
21 nize that. It took them eight minutes to (inaudible).

22 MR. LOGAN: Yes. Not to say that I believe that
23 two nuclear trained guys would go in there and pour
24 hydroxide around.

25

1 MR. LONG: If they weren't very well-trained they
2 would have put in chloride.

3 VOICE: That's true.

4 (Laughter.)

5 MR. LOGAN: I couldn't imagine that.

6 MR. WALSH: Joe, with regard to the number of watch
7 standers used in a commercial plant and the definition of the
8 responsibility of the watch standards, for example, the control
9 room watch standers of which there would be one one man who
10 would specifically observe the control of one side of the
11 plant. Do you have any comments on that? Do you think that
12 what's being done is proper and adequate for most cases and
13 emergencies or do we need to look at that some more?

14 MR. LOGAN: Well, as many of you are aware, unit two
15 has something like twelve trips per year, from year-to-year
16 approximate casualties, which were fairly well handled up
17 until this one. So if you could say in retrospect whether they
18 were handling them all right, (inaudible) handling them all
19 right, it bothers me, or it bothers me coming from, like I say
20 from different elements, and seeing the smaller number of
21 operators in such a large plant- the total operators across
22 the board, of ops operators and licensed operators and the
23 control room operators, in retros -- in terms of the --
24 automation is so much greater. And, as long as it works
25 properly, it improves the effectiveness. If you have problems,

1 however, I am not quite sure that we have enough people up
2 there. As you know, we have more than what the license requires
3 and they've been required when you have casualties, in order
4 to more efficiently handle a casualty (inaudible) put that
5 number in there. The casualties that we've had up to now
6 simply have been handled pretty well.

7 And I think this one, when it has been recognized
8 that (inaudible) the equipment handled improperly. And I
9 don't think it's just those 10 little people could have done
10 anything more than recognize that it was an equipment problem,
11 more than actual manipulation of valves and pumps and things
12 like this. You can have only so many people --

13 MR. WALSH: As I understand it, in Unit 1 there
14 used to be a division of responsibility of control room
15 operators for primarily monitoring the primary plant and
16 another to monitor the secondary plant. I don't know how
17 long this dates back, but then that concept has been going
18 such that there were two operators there, either one of which
19 could back the other one up in all activities at the plant.

20 MR. LOGAN: Well, I'm not sure of any agreement that
21 was there in handling the casualty. We have one CRO with the
22 assigned responsibility for the plant. That was manipulation
23 influencing reactivity. In effect, we had two. In a
24 casualty, of course, a casualty procedure calls out for specific
25 actions that are to be taken automatically, and each of the

1 licensed operators had been aware of these and you have to be
2 aware of where everything is. So when a casualty occurs, one
3 of the CROs goes to the, I would say, let down section to turn
4 unit trip or something else, because certain things have to
5 go on there. Another operator has to be in front of the feed
6 water regime, if you will, because there are certain things
7 that have to be observed there and one has to be in front of
8 the turbine because there are certain things that have to
9 happen there.

10 The guy normally, the RO that's there, he glances
11 over there to see if the turbine is tripping and he goes over
12 and checks the let down valve, for instance, type of thing.
13 Those other two guys would normally filter in the two panels
14 to the right and just because if they see anyone misreading
15 they can go that way because they know what has to be done.
16 They go where a person (inaudible).

17 Now, I don't know if that's ever been discussed,
18 you know, where they discuss this among the CROs, if
19 this happens, I'm going to do this; you do this. I don't think
20 that that's true in terms of recognizing when that guy goes
21 you ought to be able to cover the panels that are not covered.

22 I know the forsmen may assign one of these guys,
23 you know, where they take a particular test problem, of the
24 feed water, if (inaudible) he helps with the feed water. Maybe
25 any one of the three during a casualty -- nobody is in charge

1 but the foreman. He specifically directs action, that you
2 actually do this, do that. (Inaudible.)

3 MR. WALSH: That seems to work out well enough.
4 that you don't think that it is specifically (inaudible)?

5 MR. LOGAN: Well, I haven't gone into any great
6 deep thinking on that and I'm basing this on what I have seen
7 in the past that seems to have worked. I would want to look
8 very carefully at changes.

9 MR. KEATEN: Joe, this is Bob Keaten.

10 Along the lines of adequacy of the staff, you and
11 others have indicated that implementation of the emergency
12 plan seems to have gone fairly well. But, do you think that
13 would have been equally true if the necessary implementation
14 had occurred early in the morning, at 2:00 in the morning, with
15 the number of people that there would have been available then?

16 MR. LOGAN: I'll have to say in this particular
17 accident, I don't think it would have been. Now, in the past,
18 there have been (inaudible) on the back shift. There have
19 been just shift supervisors on and just the normal compliment
20 of control room operators and they've worked out fairly well.
21 In this particular instance with the multiple casualties that
22 we had experienced, we wouldn't have been able to draw on
23 that reservoir of people. In the casualties that had an
24 accident, lets say, had run during the night when they had
25 one guy to say, you watch the plant, while the other CRO

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that were there and the ops operators all man the board and made the calls and I don't think that we would have made it through that thing without those (inaudible).

MR. KEATEN: What is your conclusion in terms of what should be done in terms of preparing for future emergencies

MR. LOGAN: Well, as you know, we have recently put on one additional (inaudible). I think that we would probably end up adding more people. We may bring in, for instance, we may bring in more maintenance after this, because they have training for emergency planning. I think maybe we would probably end up adding (inaudible). I think that that was an area where management recognizes that when (inaudible) in an accident. And, I think the bottom line is that we're into (inaudible).

MR. KEATEN: Along the same line of people, I would appreciate your opinion as to the usefulness of the so-called shift engineer that is used simply (inaudible)?

MR. LOGAN: (inaudible).

MR. KEATEN: In this one or in general, do you think that is the right way to augment staff?

MR. LOGAN: To be very frank with you, I -- in concept my impression of this individual job, or what this individual is going to do, would be to augment the expertise of the shift supervisor at that level, not at some duty level. But would be a super (inaudible) there. So I would see the extra

1 of what was going on at the (inaudible) level, to get an
2 individual like that according to how he (inaudible), we could
3 afford, though taking him as he is in the individuals that we
4 are going to have, we are pulling on some very qualified
5 engineers; they're going to be a big help to us.

6 And I think in an accident, they could help immensely
7 in providing backup within this concept of having him step
8 back maybe. It's a good idea. Given a, you are going to have
9 to have him gain an appreciation of the plant, however, that
10 going to take time. For those that are not, you know, on-line
11 the way the thing ties together, the way different communications
12 function, and what have you, would certainly take time. Cer-
13 tainly the mechanics of the accident would be varied, but maybe
14 the big thing would be having (inaudible) step back, lets say
15 and look at it.

16 MR. KEATEN: Given that what you're trying to do is
17 protect both the general public and the plant, if you had had
18 the choice, would you select the type of individual that has
19 now been classified the shift safety engineer, or would you
20 add a third control room operator?

21 MR. LOGAN: I never thought about it (inaudible).

22 MR. KEATEN: Part of my thought about the third
23 control room operator is coming back from some of the dis-
24 cussions that we've had with some of the operating staff is
25 that, if you had a third control room operator, then maybe

1 the shift foreman would be the guy that stays in the back or
2 even the shift supervisor (inaudible).

3 MR. LOGAN: I'm not sure that would work that well
4 without -- because one of the concerns I had is that he would
5 become just a runner for the shift supervisor.

6 I believe, I genuinely believe that we should go
7 more to the engineers and operators that are out there. As I
8 mentioned earlier, in most accidents, I'm not so sure that
9 additional manipulators in any way would help this particular
10 problem. I think, what is needed more is a specialist who
11 really stands back in a detached sense. Because you get too
12 close to the thing. I think this is one of the problems that
13 we've had is with people who are too close to the problem.
14 They were looking at individual things rather than the course
15 of the whole problem. You'll find in time that we'd get much
16 more (inaudible).

17 MR. KITTELSON: This is Kittelson.

18 If there was accurate communication between the aux
19 operator people than what went on out in the plant and the CROs
20 do you think that the CROs were adequately informed as to what
21 was going on?

22 MR. LOGAN: Well, the surveillances, you know, when
23 they're running surveillances normally, there aren't communic-
24 ations. Because one of the, my feelings again, on an area in
25 which I was working, is getting the aux operators more out in

1 the plant on a full-time basis as opposed to be (inaudible)
2 to do one certain job and come back to the (inaudible).

3 It was one of the things that I was trying to foster there,
4 that they should be reporting to the foreman conditions that
5 they're finding. For instance, (inaudible), or leaks, minor
6 leaks occurring; any leakage that you would see. Because again,
7 the construction syndrom that exists there, where you see a
8 pack of things that (inaudible). Picking up and so forth.
9 To me, part of our problem is that a philosophy that has
10 existed from the construction, has to be turned around. It's
11 kind of difficult getting operators to accept the fact that
12 they can do mechanical jobs that is not a contract violation.

13 (Laughter.)

14 This type of thing. Still having some problems with
15 that, but there again, there's an attitude. I was working along
16 this line getting them out, as far as the communications between
17 the group, if there was something that they were told to do I
18 felt that they were certainly keeping the control room informed. Now
19 in so far as observing the observation, I didn't feel, was
20 going the way I would like for it to be going. You know, in
21 other words, they weren't reporting the fact that, we're getting
22 a heluva lot of water down on the ground around the feed pumps
23 and it's slippery down there and it could be a safety hazard,
24 or if there's water around the vacuum pumps, you know, some
25 things like this. Because, you know, when I would come in and

1 do it myself and (inaudible), they weren't aware of it.

2 That answers your question in that regard. I didn't
3 feel that there was adequate communication. Again, that was
4 one of the reasons I was advising pulling them out of the
5 control room, because I didn't feel that they really understood
6 the physical conditions of the plant. You know, they could
7 look at the dials and they could work the levers, or if they
8 started losing vacuum they could start (inaudible).

9 But it's the stuff that you do before is what
10 prevents that from getting --

11 MR. KEATEN: This is Bob Keaten.

12 A different kind of question, Joe. Based on your
13 knowledge now of the plant and what happened, what do you
14 feel were the major pathways for releasing radiation into the
15 environment?

16 MR. LOGAN: I'll have to say that the water that we
17 got into the aux building and subsequently after that
18 exposure, the water getting into the makeup tank and we
19 it all and some of this had been placed around the reactor
20 core as coolant in the B compressor, gas compressors, with that
21 hole in it, it was the inability to hold it in the gas lines
22 in the building which was being taken out by the (inaudible).

23 I realize there is some concern or some question
24 about how the water got into the aux pump, and the only
25 way it got in there was coming from the reactor building

1 through the, instead of going to the makeup tank it was going
2 into (inaudible) directly through those pipes.

3 MR. KEATEN: That was the B waste gas compressor
4 that got the whole thing?

5 MR. LOGAN: Yes. And also, the -- it was just
6 (inaudible). The head itself was -- the head itself actually
7 had a rupture, had a hole that big in it and the entire casing
8 of it had holes in it.

9 MR. WALSH: Is that suspected to be a consequence
10 of things that happened during the accident or --

11 MR. LOGAN: Oh, no, no. I'm sure it probably ^{cavitated} ~~happened~~
12 (inaudible). I say that because I don't know what during the
13 accident could have just, could have caused it. I guess
14 really, I shouldn't have said that. We'd have to analyze it
15 and see if the thing isn't full of water. It may of --

16 MR. WALSH: Water in that system was one of the
17 main concerns early, in light of the damaged drain valves or
18 what they were (inaudible).

19 MR. TSAGGARIS: Tsaggaris.

20 Based on your previous experience and your training
21 experience here, is there any validity to the statement that
22 the training program is geared primarily to passing the NRC
23 exam and not at training an individual to be a "operator",
24 to be a good operator. And does the examination process that
25 the NRC put you through, could you comment on that as to its

1
2 adequacy in determining whether a guy is a good operator or
3 whether he just meets the minimum criteria?

4 MR. LOGAN: Well, I'll take the first part of that.
5 Before the training program, I think the training department,
6 I honestly believe that the philosophy of the training
7 department should be to provide a good operator. I think they
8 feel that they do that; certainly they try to pass the NRC
9 exams very successfully.

10 There are some problems in the training department
11 in people -- under people that they have, in problems in the
12 documentation that they use, for instance, the system descrip-
13 tions are outmoded and inactive. They try to cover the plant.
14 They have very good people to take you through each system
15 and each behavior and ability; and they constantly take you
16 through the control room to see its operation.

17 Now, I feel that they do, obviously, their, one of
18 their primary objectives is to get you licensed at NPO. But
19 I don't think that that is all there is to providing a good
20 operator as well. I want to make very clear, however, that
21 when a person gets a license, he does not magically become an
22 outstanding operator. He is merely -- that's merely one of
23 the stages in the learning -- a very basic stage in the learning
24 process. Perhaps people don't realize this much like suddenly
25 you qualify -- you're merely beginning to learn -- you're kind

1 of given a license to learn, if you will, on your own and you're
2 supposed to be on a leash; you're not turned loose by somebody
3 to go in and suddenly torpedo us.

4 I think that they, at least in my case, and I have
5 to base that basically on my own training, but that's really
6 the only thing I've observed so far, is that when you're
7 -- when a great effort is expended on you to make sure that
8 (inaudible) equipment in order to get that much, they cover
9 you technically as well as they could. There really is a
10 helluva lot to learn in a year.

11 But to go on to the second part of your question,
12 as far as the examination itself: that is kind of a subjective
13 (inaudible) of it, in trying to cover in a two-day examination
14 a year's work (inaudible). I think that the examination that
15 they gave is an adequate examination to see if you understood
16 certain things about the areas that they've examined you in.

17 The walk-through that they take you through that
18 they take you through on is one that basically looks at safety
19 and what they (inaudible) is not how well you operate but how
20 safely you operate. I won't mean to say that they're very hot,
21 but in the limited time they could see you, they're trying
22 to see, do you understand the safety aspects. And, I think
23 again, they do an adequate coverage. Because you can't, in
24 this type of an examination, that's not to say, if they had
25 you for a week, they couldn't do a better job --

1 MR. TSAGGARIS: What do you think they focused on?
2 This is Tsaggaris again.

3 -- on the oral portion of the exam, realizing, if
4 you can, (inaudible) actual casualty running of this plant
5 and observe individuals under actual stress conditions where
6 they did drop off half of the electric status of the plant.
7 The way the NRC conducted the oral exams, they get you in the
8 control room and they basically go through -- one portion of
9 the exam is you go through recognizing symptoms and pointing
10 to controls and deciding immediate actions and that kind of
11 thing, what would be your opinion of this part of the examina-
12 tion process, performing casualties in a simulator atmosphere
13 where an operator was judged not only on his ability to recite
14 procedural steps, but to actually manipulate a plant through
15 a casualty (inaudible).

16 MR. LOGAN: That certainly would be beneficial,
17 obviously, to see a guy operate rather than recite through the
18 one. You know, some people are less able to memorize. Others
19 are good at actually doing things. As far as not being able
20 to stand in front of a guy and point something at him and turn
21 him loose, to know where he goes, to stand in the back and
22 try to point out some things under stress, talking to the
23 person at the actual things they do, as they do it there, and
24 the other thing applies, also. Somehow they (inaudible).

25 I would be -- if you asked me, my favorite (inaudible)
would be observing how people would do something. You could do

1 it at a simulator or actually do it. You would certainly
2 (inaudible). You can't knock that. I don't think there's any
3 comparison in being able to actually manipulate the plant or
4 even the simulator (inaudible).

5 MR. TSAGGARIS: This is Tsaggaris again.

6 There are no NRC requirements for simulator training
7 at all. When simulators are used in lieu of the plant for the
8 startup portion, I know that in Met Ed's program, one week of
9 the simulator training is response to power casualties for
10 initial qualifications, but I don't believe that those
11 results are factored in to the determination as to whether the
12 individual would be adequate to sit for an NRC exam. What are
13 your thoughts on that?

14 MR. LOGAN: What you say is true. The NRC require-
15 ment is reactivity manipulation in order to get a license and
16 that's done, or accepted to use of the simulator. And that's
17 what you, what the simulator results speak to. What the person
18 does in a startup or a shut down satisfactorily. The casualty
19 drills that they have down there are very good and the simula-
20 tion down at the simulator as you are aware, down there, is not
21 does not actually simulate what we have in terms of how the
22 configuration or display the program for indications is close
23 responding and it is very good in that respect because you
24 wouldn't normally have the opportunity to watch them spring
25 things like that on anybody in a regular plant.

1 And you have to weigh, I think, the balance between
2 those two, whether you can afford startup and shut down at
3 the plant as often as you would have to to keep the licensing
4 requirement (inaudible). I think that casualty procedures
5 should be a part. Casualty control should be a part of the
6 qualifications (inaudible). How well the guy responds.
7

8 MR. TSAGGARIS: It just seems to me in retrospect
9 that that's a whole other program. And that may present some
10 problems, you know, downstream, as far as, you know, union
11 problems, or whatever and in making part of the program an
12 evaluation of the individual and casualty conditions.

13 MR. LOGAN: I don't look at it that way, Lex. I've
14 been here a shorter time than you as far as the union
15 problems. I think we create the union problems that we have
16 by attacking the problem in that direction that we have in
17 that direction that we anticipate that we have union problems
18 rather than saying this is a requirement that we have to meet.
19 I see nothing wrong in saying, hey, to get a license, you have
20 to pass this. There is nothing wrong with that. And, in fact,
21 if I had been (inaudible) with a group of people and recognized
22 that they couldn't handle the casualty, I would certainly have
23 no hesitation in saying (inaudible).

24 I don't -- what I'm getting at is I feel that the
25 program that they offer down there really looks at casualty
training, it helps in really evaluating how well they do, even

1 though they only speak to the startup and shutdown in the
2 (inaudible). They emphasize casualty training more than they
3 do startups and shutdowns.

4 MR. TSAGGARIS: What's your opinion of the adequacy
5 of the B&W simulator?

6 MR. LOGAN: Well, I was frankly quite impressed with
7 it for two reasons. One, not seeing manipulations on the
8 regular plant that you get to see down there and you get to
9 recognize different responses and what (inaudible). And I
10 feel that if we had a casualty factored into it like the one
11 we had, we wouldn't have had the fault.

12 Now, you can say that, well, you could have probably
13 a million casualties that you don't have down there that you
14 factor in, but I will say that the casualties that have been
15 presented down there have been, in fact, have in effect, occur-
16 ed at plants at which the training that was received down
17 there, was instrumental in preventing a more serious accident
18 from occurring and the loss of the plant. So, I'll have to
19 say that I respect their training department down there. I
20 think they do real well.

21 MR. KEATEN: This is Bob Keaten.

22 Joe, on a little different subject. I think that
23 it's been fairly well established that the surveillance
24 procedure which was used to periodically test the emergency
25 feed water.

1 feedwater system called for PVB 12A and 12B to be closed
2 simultaneously as a part of that procedure, and that the simul-
3 taneous closure of those two valves is a violation of the tech
4 spec. Yet that procedure was not on the written thing that
5 was used by the support whom I would presume would be sensitive
6 to things like that. I would be interested in your comments.

7 MR. LOGAN: I would like to add that it was also
8 reviewed by the NRC. My understanding of the reason that the
9 procedure was changed to shut those valves was from another
10 criteria, the outside cooling, in order to accomplish what
11 they were trying to accomplish in testing the closing of the
12 valve. And I've talked to people that were involved in that
13 approval and the only thing they were focusing on meeting was
14 one requirement of the tech spec that (inaudible) to the
15 safety aspect of it. In some cases, I think we're on a
16 (inaudible) waste a hell of a lot of time and this (inaudible)
17 and whether we're overloading them or not. I would tend to go
18 on the side of saying we are overloading. By that I mean I
19 don't think the plant staff is adequate to handle all the
20 administrative aspects of this in addition to the engineering.

21 MR. WALSH: This is Walsh.

22 Joe, do you feel that the (inaudible) as it normally
23 sits, I mean with, as you say, the maximum limit of the
24 alternate numbers --

25 (Turn tape.)

1 MR. LOGAN: I think in the procedural type of
2 what we are going to look at -- procedures involving valve
3 lineup -- I'm not so sure that that valve lineup flow diagram
4 was thrown up on the board, and the ones that did I would
5 expect to have somebody communicate it. And sometimes, I
6 think that perhaps they may take a procedure or they may go to
7 two procedures and then say, instead of having, for instance,
8 an operator there saying hey, this is what that part of the
9 generator of the special procedures means, and this is what
10 I'm trying to accomplish, here's what I'm doing this time,
11 this is what I would do if I were going through the procedures
12 verifying the ones that were successful. I don't think that
13 necessarily goes on, and I'm trying to change that with any
14 procedures that involve valve lineups where the blueprints
15 put up go valve by valve.

16 Because I have found in some procedures where a
17 valve was missing and was missed all the way from (inaudible)
18 and the shift supervisor approved it.

19 MR. WALSH: Wasn't the main change the procedure
20 that was reviewed? About valve lineup change?

21 MR. LOGAN: Yes, that's what I'm saying. Because
22 in a procedure review that involves a valve lineup, to me,
23 the PORV meeting should include going through that blueprint
24 and saying here's what it means. But if that, in fact, had
25 occurred, I think it would have been obvious that, hey, you

1 can't keep up with the rules changing -- I don't know what
2 I'm saying, but I think that occurs.

3 MR. KEATEN: But -- if the members of the PORC,
4 were they all alternates, or the numbers alternate to
5 allow -- would there have been one guy on that system that
6 had a license? Would he have been -- anybody in there been
7 an extra on an emergency (inaudible) as opposed to, say, the
8 chartered lineup with all the primary numbers in?

9 MR. LOGAN: The composition of the court does not,
10 I don't believe, require a licensed operator.

11 MR. KEATEN: Does not require, but it requires some-
12 body like, is there an operations supervisor on there?

13 MR. LOGAN: Yes, but he is not required. He is a
14 member of the PORC, but he does not have to be there presently.
15 You could have, for instance, a mechanical engineer, an
16 electrical engineer or a nuclear engineer or, you know, the
17 composition of the PORC would exclude -- what I'm saying is,
18 a licensed operator. And that's not to say that the mechanical
19 engineer that's there wouldn't recognize this. But what I'm
20 saying is a person who is eminently familiar with the opera-
21 tion of the tech spec on that particular area, he would not
22 necessarily be there.

23 MR. WALSH: Would it if that procedure was reviewed
24 by, say, a person of PORC status that way, like averages of
25 (inaudible)?

1 MR. LOGAN: Well, it certainly has to be reviewed,
2 supposedly, by the superintendent.

3 MR. WALSH: But that's af^{ter} the fact, right?

4 MR. LOGAN: He signs it.

5 MR. WALSH: He signs it on the recommendation of
6 the PORC.

7 MR. LOGAN: Yeah.

8 MR. WALSH: Because I'm not expecting the unit
9 superintendent to catch a valve lineup.

10 MR. LOGAN: But I have in some cases, but that's
11 when I wanted to go into only one procedure. If I've got
12 that many procedures where I have to get out (inaudible).

13 MR. WALSH: I guess I maybe am asking a pointed
14 question here. Wouldn't you think that the committee that
15 reviews for plant safety should have something on there that
16 looks at tech specs inside and out?

17 MR. LOGAN: I would, I think, accept it, yes. I
18 would certainly say that that would be something that would
19 be beneficial, but whether that is is not a requirement as
20 it were. So what I'm saying, that is not a requirement for
21 tech specs for that reason.

22 MR. WALSH: No, but I guess you could word or
23 correlate -- I guess they want somebody from their -- from
24 different fields of expertise, supposedly, to cover the gamut

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1 when you have a meeting.

2 MR. LOGAN: I'm trying to use a word -- just what
3 I'm saying is the composition of the PORC is specified in the
4 tech specs, -- can easily meet the requirement of the tech
5 spec PORC composition and not have a licensed operator on it.

6 MR. WALSH: That may be true, Joe, but I don't know
7 if that's in the letter. Well, what's in the letter of the
8 law, but is it in the spirit or the law?

9 MR. LOGAN: Well, no, I don't think it is, but the
10 only person that you've got in the composition of the PORC
11 that is required to have a license is the supervisor of
12 operations.

13 MR. WALSH: Is his designated alternate required to
14 have a license?

15 MR. LOGAN: The only thing that speaks to as an
16 alternate says that alternates may be appointed by the chairman
17 of the licensing board. (Inaudible). Nor does the supervisor
18 of operations, who very subtly is a member of the PORC board,
19 but he's not available.

20 MR. LONG: This is Bob Long.

21 I think, JOe, that it is necessary that (inaudible)
22 should be changed in that situation.

23 MR. LOGAN: Well, no, I'm not saying -- I agree
24 with him. That's what I'm trying to get at. In my own way, I'm
25 trying to force that type of thing and not necessarily -- I haven't

1 come out and said that there has to be a licensed member
2 there, but I'm trying to lead them into at least looking at
3 the plant itself. Many of these, for instance, the mechanical
4 engineer, is aware of the tech spec requirements in the
5 emergency feedwater system, I'm sure.

6 MR. KEATEN: This is Bob Keaten.

7 I wonder if the solution really is to try to
8 impose additional requirements on the PORC, but that is -- the
9 problem I see there is that I suspect that the members of the
10 PORC are already heavily overloaded, if you look at the total
11 spectrum of their duties. I wondered if a different way of
12 approaching that kind of a problem might not be to have a
13 licensed operator, if necessary, charged with carrying out,
14 for example, a valve alignment review prior to the time it
15 goes to PORC and present his findings before the court and
16 identically, he can also check the thing for violations of the
17 tech spec. Again, you're talking about additional resources
18 rather than just trying to overload this poor court.

19 MR. LOGAN: That might not, certainly might not be
20 a bad idea. And that might admit something fresh.

21 MR. LONG: Another aspect of the court, I've heard
22 a number of people say that the way the system is set up right
23 now, they view a lot of things that probably we think they
24 need not review.

25 MR. LOGAN: I think that's probably true.

1 MR. LONG: But there needs to be a revamp of the
2 requirements that the PORCs review. Some of the things take
3 time, but which really shouldn't require that kind of time.

4 MR. LOGAN: I think that you're right there. I think
5 the interpretation of the definition, everything is not
6 necessarily so associated with the (inaudible) activity of
7 emissions. But unfortunately, every procedure that we have,
8 to the best of my knowledge, goes to the courts. And it is
9 the intent of the tech spec, I think, to bend over backwards
10 to meet more than the intent of the licensing specs. But to
11 face it now that as a result, I think maybe is diluted, not
12 intentionally, but I think maybe the efforts have been diluted.

13 MR. WALSH: Well, I've looked at a lot of procedures
14 and one of the lines here is the staff of the unit recommends
15 approval. And I've seen a lot of operating procedures, but
16 that's marked out as N/A. And I would think that if going
17 to make the PORC -- I think it's overloaded; I agree with you
18 and I think what you have to do is you have to get the
19 people in there that know what they're doing, and to do that
20 you have to cut down the time they're in there. You've got to
21 get the cognizant department heads to make sure that thing is
22 reviewed to his satisfaction regardless of whether he does the
23 review personally, or if his supervisors does it, or an
24 engineer with a licesen does it. But that's the only way to
25 get the court to move.

1 But that bothers me and a lot of procedures I've
2 looked at are totally inadequate, you know. In some areas
3 of the procedures you find a glaring error, but it was marked
4 NA and the cognizant department head didn't review it. In
5 other words people -- (inaudible).

6 MR. KEATEN: Are there other questions? I'm at
7 the bottom of my list. Okay, well, if not, Joe, it was nice
8 having you here --

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End tape.