UNITED STATES
NUCLEAR REGULATORY COMMISSION

ORIGINAL

IN THE MATTER OF: DOCKET NO: LRP

INQUIRY INTO THREE MILE ISLAND
UNIT 2 - LEAK RATE DATA
FALSIFICATION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

INQUIRY INTO THREE MILE ISLAND UNIT 2 - LEAK RATE DATA FALSIFICATION

Docket No. LRP

Nuclear Regulatory Commission
Fifth Floor Hearing Room
East West Towers
4350 East-West Highway
Bethesda, Maryland

Thursday, September 25, 1986

The hearing in the above-entitled matter convened at 8:30 a.m.

BEFORE:

JUDGE JAMES L. KELLEY, Chairman
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C.

JUDGE JAMES H. CARPENTER, Member
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
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JUDGE GLENN O. BRIGHT, Member
Atomic Safety and Licensing Board
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U.S. Nuclear Regulatory Commission
Washington, D. C.

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U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

C O N T E N T S

RECESSES:

NOON - 2235

E X H I B I T S

PERSONAL RESUME

NAME: Dennis J. Boltz

BUSINESS ADDRESS: TMI Nuclear Station
Rte. 441 South
Middletown, Pa. 17057

BUSINESS PHONE: 717-948-8309

EDUCATION:

High School Graduate - 1966
- Northern Lebanon High School
  - Fredericksburg, Pa.
  - Curriculum -- College Preparatory

Attended
- Lebanon Valley College
  - Annville, Pa.
  - Chemistry Major
  - 1966/1967
- Penn State University Capitol Campus
  - Adult Continuing Education
  - BSME Program
  - 1984/1985

LICENSES:

NRC Senior Operator License
- SOP-2784
- Three Mile Island Nuclear Station
- Unit 1
- Active August 1976 to Present

NRC Reactor Operator License
- OP-3615
- Three Mile Island Nuclear Station
- Unit 1
- Active August 1974 to August 1976

EXPERIENCE:

January 1985 to Present

Employed by GPU Nuclear Corporation as Simulator Development and Training Manager at TMI. Responsible for the development and presentation of all GPU training conducted on the TMI Basic Principles Training Simulator, the Power Safety International simulator at Lynchburg, Va., and future training on the TMI-1 Replica Simulator. Acting as GPU Test Director during factory and site acceptance test programs for the TMI-1 Replica Simulator.

April 1982 to January 1985

Employed by GPU Nuclear Corporation as Supervisor of Simulator Instruction, responsible for planning, preparation, conduct and supervision of all simulator training programs pertaining to TMI. During developmental stages of the TMI BPT and Replica Simulator projects responsibilities included development of simulator specifications, malfunctions and graphics requirements, simulator acceptance testing and instructor training.

January 1977 to April 1982

Employed by Metropolitan Edison Company as Administrator - Nuclear Technical Training (licensed operator training instructor) at TMI. Responsibilities included "courseware" development, classroom instruction and trainee oral and written evaluations. Participated in 2 training programs until April 1979. Collateral duties included participation in Radiation Emergency Plan drill scenario development, Operations Support Center coordinator, technical advisor to Emergency Support Director and refueling supervisor in Unit 1.

October 1975 to January 1977

TMI 1 Shift Foreman - Nuclear, responsible for coordination and supervision of operating crew and safe operation of the plant during startup, shutdown and full-power operation, and maintenance/refueling outages.

October 1969 to October 1975

Employed by Metropolitan Edison Company as TMI Unit 1 Control Room Operator (Unit was declared commercial in September 1974).

P R O C E E D I N G S

JUDGE KELLEY: Good morning. Just a brief word or two about last evening's off-the-record discussion of sequence of witnesses beginning next week, following the reappearance of Capra and Russell, and the appearance of Christopher on some individual responsibility questions. I'll just read off the names in the order in which they were proposed by numerous employees. That was, for the first week -- that is to say, beginning sometime next Tuesday the sequence would be Mr. Frederick, Mr. Faust, Mr. Coleman, Mr. Scheimann and Mr. Congdon; and for the following week the proposed sequence would be Mr. Zewe, Z-e-w-e, Illjes, followed by Conaway, followed by McGovern, followed by Kidwell, followed by Wright and followed by Mr. Mehler.

We discussed this at some length. This represents roughly most of shifts A and B, with some other people filling in because they were available. The Board had a couple of reactions. We can get another B or two worked in, meaning Mr. Mehler, Mr. Chwastyk, if we can, that would be available. Mr. McBride is looking into that. But in general we recognize the difficulty getting everybody up here in shift order, so it would seem to us that the proposed sequence was the best we could do under the circumstances and that's the way we should go.

It was noted that Mr. McGovern, although part of

the time was on shift F, was on shift A, so that got us more of that shift represented.

We don't know how long people are going to take, so this is sort of a rough guess. Our sense of it was that we might get through a little more than this number of people and that what we really needed was sort of a rolling time expectation. That is to say, we might give a specific time to somebody coming from California, some such place as that. But people closer should be asked to be ready on, say, a two-day time frame so they can be a little flexible and come down here when we need them.

The main thing is to be able to keep the hearing going and just not have to wait. But I think that's a fair summary of what we talked about. Are there elements there I left out?

MR. MC BRIDE: None that you left out, Judge Kelley, but I just wanted to report in addition to the fact that we appreciate the Board's indulgence on the people who are coming from great distances, what I tried to do to accommodate the Board's concern that there might not be enough people for the first week, was to ask one of my associates this morning to place calls to a number of these people and particularly with respect to Mr. McGovern, who, as the Board noted, spent some of the time on A shift, to see if we go faster the first week than I had anticipated, the Board

thinks we might go, we can get Mr. McGovern here sometime during that first week, slotted in.

We are also trying to reach Mr. Mell and Mr. Chwastyk to see if we can satisfy the Board's desires with respect to the second week. I may be able to report back to you later today. Otherwise I'll just have to give you a call, perhaps, and give you a report if I don't know by the end of today.

JUDGE KELLEY: In any event, are we clear on the availability of the first two or three: Frederick, Faust, Coleman --

MR. MC BRIDE: We are clear on Frederick and Faust. We are going to be checking on Mr. Coleman. I believe we are clear on him. But my best understanding is that Mr. Frederick and Mr. Faust will be available. Mr. Frederick, unfortunately, had to go to California this week on business so we have been missing him a bit, but the messages that we had were that he would be available.

JUDGE KELLEY: Thank you. We expect to hear from two witnesses today, Mr. Dennis Boltz and then Mr. Harold Hartman later. Is Mr. Boltz with us this morning? Fine.

MR. BLAKE: Judge Kelley, while Mr. Boltz is coming up to take his seat at the witness stand I note that I have distributed to counsel and have provided to the Board, two documents, one of which is a personal resume for

Mr. Boltz, two-page document; and the second, a document that Mr. Boltz can describe, which is double-sided, about a two-page document whose subject is "Category IV CRO Training Program."

(The document follows:)

JUDGE KELLEY: Thank you. Good morning, Mr. Boltz.

Whereupon,

DENNIS J. BOLTZ

was called as a witness and, having first been duly sworn, was examined and testified as follows:

JUDGE KELLEY: I'm sure you know from Mr. Blake, in general the background and circumstances which led us to call you here. We have had, from the beginning, some interest expressed in the training opportunities that were provided to operators in the time frame of during and before the accident at TMI-2, in particular with respect to these particular operators. We had given some thought to calling a witness and when the subject kept cropping up as we got into our evidentiary hearing, it became apparent that it would be useful to have someone like yourself join us.

We have some questions to put to you.

EXAMINATION BY THE BOARD

BY JUDGE KELLEY:

Q First of all, would you like to describe the time frame and your responsibilities with respect to training at that time, and then perhaps also describe the documents you brought with you this morning?

A Sure. The 1978-79 time frame, I was in the training department at Three Mile Island as an instructor

assigned to the licensed operator training group. My responsibilities at that time included the development and presentation of classroom training in the training trailers that we had at that time as well as the development and implementation of evaluations, both written weekly quizzes, annual NRC-time evaluations, and on-shift, in the plant, oral exams, of people who were in their initial qualification program as well as those who were already licensed and qualified by the NRC to operate the unit.

MR. MC BRIDE: Judge Kelley, just for clarity of the record I wonder if, before we get into the discussion of these documents, whether we could just mark them with exhibit numbers so that the record will be clear.

JUDGE KELLEY: Why don't we mark them initially and then counsel can consider whether they are going to have any objections to them. It's just the one document that I have; is that correct, Mr. Blake?

MR. BLAKE: Yes, sir. I would suggest that Mr. Boltz's resume just be physically incorporated into the record as though read.

JUDGE KELLEY: Why don't we at this point in the transcript, incorporate Mr. Boltz's resume. We don't have to make it a separate exhibit.

But the document that we have before us is entitled "Training Department Administrative Memorandum

Number 5, Change 2." The subject is "Category IV CRO Training Program." It is dated October 8, 1976. I take it it simply describes what the program was or was to be?

THE WITNESS: Yes. This describes the control room operators initial training program which was in effect in the 1978-79 time frame.

JUDGE KELLEY: All right.

(Exhibit 16 identified.)

JUDGE KELLEY: Perhaps I can just take a minute to look over this document.

MR. BLAKE: Let me give you the benefit of my having looked over it. Mr. Boltz searched training records. As I understand it -- he would have to confirm it -- but this was the one document he could find specifically referencing to leak rate testing. The one reference to leak rate appears -- and the pages are not numbered -- about halfway through the document on the left-hand page right at the bottom of the page. You will find VII-b, "calculations performed." And the quote is, "capable of using computer for calculations of leak rate, peak balance, reactivity balance, et cetera." That's the sole reference and the reason that I have provided the document today.

This document also, as you review it -- in my review of it -- you'll find it's a cover letter of three pages and then it purports to have three enclosures. I, in

my review of it could only find explicit reference to an enclosure 2 and a number of other documents in here, number of other pages which I would think, from the cover sheet, are probably a part of or maybe all of enclosure 3.

I find no enclosure 1. This was the way the document was located in the microfiche files. We didn't try to improve on it. This is what we got.

JUDGE KELLEY: Right. Thank you.

(Recess.)

BY JUDGE CARPENTER:

Q Good morning, Mr. Boltz. Thank you for coming on such short notice.

A Good morning.

Q The Board is well aware that some of our questions will strain your memory to ask you to recall things as they existed eight years ago. I'm sure, since you have been involved in the training program over an extended period of time, it's kind of hard to decide when the situation was as it was then and when it changed. With that recognition of the strain on your memory, we would like you to engage in it.

I would like to ask you if the training program in the time period 1977 to '79 included consideration of Administrative Procedure 1010, which describes the technical specifications for surveillance programs?

A Is your question did it include that?

Q Yes.

A Yes, it did.

Q Was the function of the exception and deficiency list made clear in that program? Do you recall the extent of the consideration of Administrative Procedure 1010 to make the exception and deficiency mechanism clear?

A I'm aware of the contents of the 1010 procedure and what it spells out to do with an exception or a deficiency. The training that would have been received by the personnel on that procedure would have been on-shift, on-the-job, and really supervised by the shift supervisor who was on at that time. I don't know if you picked it up or not, but in this CRO training program description, which we brought in today, AP-1010 is included as an OJT item to be completed on shift.

MR. MC BRIDE: Could the witness direct us to the place in the memo?

THE WITNESS: It would be on the back of the handout here, under "enclosure 2." The section is "administrative procedures" and it's about midway down the page.

BY JUDGE CARPENTER:

Q I see that.

So that both the instruction and the evaluation of

the training, I note that the action code is action code D, which says, on the first page of enclosure 2, under D: "Discussion, the individual must show orally that the evolution is understood to the satisfaction of the shift supervisor, shift foreman or the licensed training coordinator as denoted by an asterisk." So that the instruction, as I understand it, the instruction in this procedure was then followed by an interrogation by the instructor, just an oral interrogation?

A Yes. And actually the evaluation, as included here on enclosure 2, would have been done on shift by either the shift supervisor, the shift foreman, or a licensed individual on that crew who was already familiar with the procedure.

Q With respect to the subject that is before us, namely, the conduct of leak rate tests at TMI-2 in the time period 1978-1986, so far there has been no example of when a test was run and either an exception or a deficiency noted. That's the reason for the question.

In your mind, would the training program have failed to instruct the operators when they ran a surveillance test, and there was some exception to be noted or some deficiency to be noted, that they should simply do so and submit it to their foreman?

A Sir, that time frame that we are talking about

here, the scope of training that was performed by the training department was pretty much the textbook type of topics, the theoretical, the big picture procedures as the plant heat-up, start-up, things like that.

Things that were carried on during daily operations of the unit as it operated, that training was pretty much left up to the operating crews themselves, so that the instructions on how to handle an exception or deficiency would have been handled by that particular crew and the members of that crew, rather than the training department themselves.

Q How could the training department be sure that the several crews all took the same approach to evaluating any of these items in enclosure 2? I see them listed, but I'm curious what sort of assurance the training department had that each shift was essentially at the same understanding of what was involved in each of these procedures?

A As we operated at that time we really had no mechanism to really do that. That would have been coordinated within the operations department.

Q Thank you. Along the same line, did the training program include consideration of administrative procedure 1012, that describes requirements for operating logs?

A Sir, within this category IV, training program, right after the admin. procedure 1010, you'll also find lists

at AP 1012 for the shift relief and log entries. And, again, that was performed as parts of the on-shift, on-the-job training program for the control room operator initial qualification.

So, again, that type of training would have been performed on shift rather than in the classroom.

Q Is it fair to say that the training department at that time did not really have good control of the extent of training that each individual operator got, because you weren't -- didn't have any oversight over the activities of the individuals that were doing the training?

A That's really a judgment on my part, but we had to rely heavily for the operations and on-the-job training aspects of their training programs with qualified personnel on shift, to support the training and qualification of the new people that would be placed into the control room positions.

With that in mind, this on-the-job training program with the sign-offs, noting the people who were in the licensed operator training group at that time, the Unit 2 shift supervisor, shift foreman, or the already-qualified control room operator, probably were more qualified to do these on-shift-type evaluations than the training personnel at that time.

Q Thank you.

The next question forces you to speculate, or try, with the reservation it is unavoidably going to be a speculative response. Were there any conditions under which the results of surveillance tests might be properly discarded described in any part of the training program? Can you think of any examples when an operator might have been taught that it was acceptable to run a surveillance test and discard the result of that test?

A No, sir.

Q Do you suppose there was any emphasis on the importance of retaining each and every test result?

A I guess I don't know how to answer that because the scope of what the training department training was, at that time, was very limited. Again, it was sort of the textbook type of training.

Q Thank you.

Did the training program include any material on the leak rate surveillance test? Was the need for this surveillance in order to operate the plant safely presented in the training program?

A The only reference we could find to leak rate testing surveillance tests in training program descriptions is what I presented here today. I can only speculate that since it was an every-shift operation that occurred when the unit was on line and at hot conditions, there apparently was

deemed to be no training need since it was a normal evolution.

Q Thank you.

MR. MC BRIDE: Judge Carpenter, may I just interrupt for clarification of that last answer? The witness referred to this being an "every-shift" surveillance, and according to his resume he has never been an operator at Unit 2. I wonder if you can clarify whether in fact he has personal knowledge of how frequently these were performed.

BY JUDGE CARPENTER:

Q Did you understand the question, Mr. Boltz?

A Yes. I did. As I recall it, the technical specification required interval is every 72 hours. However, the unit did it more frequently for their own surveillance purposes.

Q I think Mr. McBride wanted to inquire as to how you were aware of that? How do you have that knowledge? What was your involvement with TMI-2?

A Just as an instructor. However, knowing the people on shift and knowing the practices at Unit 1 at that time. Maybe I'm just assuming they did it at the same frequency as TMI-1.

Q The Board will accept your qualified answer.

Turning to a little more of the technical aspects: Was the meaning of the required "steady state"

conditions that are described under the surveillance procedure, or specified in the surveillance procedure, made clear in the training program?

A Sir, again, this procedure would have been taught on shift rather than in the classroom, so I can't answer that.

Q Can you tell me from your familiarity with the surveillance procedures, whether "steady state" was required under any other surveillance procedure?

A Yes, sir.

Q So there were a number of cases where the individual carrying out the test had to assure himself that there was steady state?

A Yes.

Q What kind of things were those? I'm just curious as to whether they were frequently run tests or things that were infrequent.

A One particular that comes to my mind is the heat balance surveillance, where the indicated reactor power is compared to a thermal calculation. For that calculation there to be accurate they would have had to maintain steady state conditions.

Q For how long a period of time?

A That calculation takes about 10 minutes.

Q How long do you have to keep the plant at steady

state to have a valid surveillance; about 10 minutes?

A For the run of that calculation.

Q Can you think of any that require keeping the plant at steady state for an hour, other than the leak rate test?

A No, sir.

Q Thank you.

I have some other questions that really go to details that are based, I think, on your description of how the training was carried out and just go beyond.

For example, the material, the exhibit you have given us this morning, mentions the use of computer for leak rate testing. One of the questions I had was whether they were properly trained to carry out hand calculations for the leak rate test. As far as you can tell; you don't have any firsthand knowledge of whether that was done or not?

A That's right. The only reference to leak rate testing in this training program is through the use of the computer and not the hand calculations which would be performed if the computer was out of service.

Q Since, I think, it is always expectable that a computer will be out of service once in a while, it would seem to me an essential part of the training. Also, I think it's nice to verify that the computer is producing appropriate answers to some calculation by carrying it out by

hand, once in a while.

As you see, our interest really goes to -- down to a level where I don't think you are capable of helping us, in terms of whether these operators were prepared, if the computer was malfunctioning, they thought it was malfunctioning, to turn in the procedure to the description of how to do it by hand. But we'll ask the individual operators.

Thank you very much.

BY JUDGE KELLEY:

Q I just have a few questions. I want to be sure I'm clear. The document here that we put in as an exhibit was prepared, I take it, by the training department but it isn't so much an outline of what the training department itself does as what the program consists of. And most of the outline here is done on the job; is that right?

A That is true for this program.

Q I realize this is the program in that time frame.

A Yes.

Q I'm clear that you didn't cover how to do a leak rate test in your training classes in a sort of step-by-step way. Did you -- when you say it's a textbook type thing, does that include, for example, a lecture on reactor core physics and that kind of thing?

A Yes, sir. On the average, the fellows that went

through this program, near the end of it got five days of classroom lecture. That consisted of principles of reactor theory and core physics as you mentioned, control systems and transient response for the unit.

Q In that five-day classroom presentation, to your recollection was there any discussion of surveillance requirements, like leak rate tests?

A No. There would not have been.

Q Did these trainees receive training on simulators, prior to being licensed?

A Yes, sir.

Q I hear references to "going to Lynchburg" for example, where I gather there's a B&W simulator. Would a CRO trainee do that?

A Yes. At the end of his program he would go through a three-week course down at the B&W simulator at Lynchburg.

Q Would he run a leak rate test down there?

A No, sir. The training that they received down there that involved leaks, reactor coolant system leaks, was geared towards the emergency procedure implementation, recognition of symptoms and dynamic responses of the plant rather than the actual surveillance test itself.

Q So the surveillance tests, theory and practice, were entirely given over to on-the-job training?

A Yes, sir.

Q Could you tell us whether, as a part of training, there, any time was spent on procedures for reporting safety concerns? Let's suppose -- let's put some flesh on that.

I'm a reactor operator and I'm assigned to a shift and I'm told any time I get a bad leak rate test, just throw it way. And it seems to me that's not the right way to do -- not the right thing to do with a surveillance test, yet that is what is being done.

Was there any procedure in place at the time whereby a person could get his concerns heard above the level of his immediate boss?

A Are you talking about in-plant procedures?

Q In-plant.

A There was no formal procedure for that at the time; no. However, I don't know of anything that would have inhibited that.

Q I happen to be aware of, usually in the context of quality assurance programs now, reactors quite typically have even provision for anonymous reports. People don't want to be -- get in trouble with their boss. They can call up hot line and report some concern. Those, I think, are fairly recent developments.

There wasn't any such formalized procedure at that time?

A No, not within the company.

Q Not that you know of?

A Not within the company.

JUDGE KELLEY: I think that's all the questions the Board had. We didn't have written questions submitted. Am I correct about that? I don't think we set a particular deadline for that matter.

MR. MC BRIDE: Well you asked us to get them in if we knew we were going to have a question but we didn't know what he was going to say so we didn't know what to ask.

JUDGE KELLEY: That's true. Do you have follow-ups?

MR. MC BRIDE: Can we have a moment?

JUDGE KELLEY: Sure.

Follow-ups from anybody else?

MR. BLAKE: Judge Kelley, I have offered some questions to the Board simply for clarification because we've talked exclusively about this one document.

JUDGE KELLEY: Sure. Fine.

Does anyone else have questions?

MR. MC BRIDE: We have none, your Honor.

JUDGE KELLEY: Okay.

MR. MC BRIDE: We would like this exhibit introduced in evidence, though.

JUDGE KELLEY: Is there any objection to

introduction of the exhibit we have numbered 16, the training memo?

Fine. So ordered.

(Exhibit 16 received.)

BY JUDGE CARPENTER:

Q Mr. Boltz, we have just a few clarifying questions. The first reads: Exhibit 16 relates to category IV, CRO training. Would you please indicate whether this was the only category of CRO training at TMI-2 in the 1978-1979 time frame?

A Within that time frame, this is the only category of control room operator initial training; yes.

Q There are no other categories of CRO trainees on the job at that time?

A That's right. The only other category that remained at that time was category 1, and that person was fully qualified and licensed by the NRC.

JUDGE KELLEY: Well, there being no further questions, Mr. Boltz, we very much appreciate your coming and appreciate your time and responsiveness to questions.

Thank you very much, you are excused.

(Witness excused.)

JUDGE KELLEY: Let me inquire, I have not met Mr. Hartman. I'm wondering whether he might be in the room? He's not due here until 10:00.

Off the record.

(Whereupon, at 11:00 a.m., the hearing was recessed, to be reconvened at 12:00 p.m. this same day.)

AFTERNOON SESSION (12:00 p.m.)

JUDGE KELLEY: On the record. Mr. Hartman, my name is Judge Kelley. On my right is Judge Bright and on my left is Judge Carpenter, and we make up the Presiding Board in this inquiry. I say "inquiry," it's sort of an unusual case for the NRC. We spend most of our time in licensing cases. This is not a licensing case, it's a case in which we have been directed by the Commission to hold hearings and compile a record in order to find out about leak rate falsifications in the time period during which TMI-2 was operating.

We appreciate your coming down here today. Let me just state, as background -- I spoke with you, oh, sometime maybe in mid-August and then wrote you a letter on August 29, in which I sent you copies of prior statements that you had made with respect to this matter. It may not be every statement you have ever made, but it's a rather large collection of statements that you made at one time or another, including, I might refer principally to the lengthy deposition-type statement that you made to Mr. Rockwell back in October 1980. There was also a lengthy deposition taken in some litigation between B&W and GPU, and also a statement that grew out of an interview with NRC people. Those were ones -- we looked over all the statements, but they seemed to be the ones that raised questions in our minds that we wanted

to pursue with you.

I did not send you copies of two very extensive investigative reports that we have in the record in this proceeding, for this reason: As I mentioned to you on the phone; one, these reports are voluminous, 25 volumes or something. The main point, I think, is that they don't really focus on you directly. One investigation by Mr. Stier, who was commissioned by the company, focused on present employees at the time that he conducted his investigation and you were not one of those. And then the NRC investigation focused on licensed operators at the time of that investigation, which you also were not.

You are referred to a few places there, but you weren't a focus of principal concern. I think I can say it is my understanding that those investigations, apart from not focusing on you directly, do not reflect on your activity, except insofar as you have, yourself, stated that you did -- such as you stated you add hydrogen to effect a test at one point or another. And that's reflected in those statements. But it's not, for all those reasons, our intention to inquire to you today about those investigations. But rather about your own statements.

If you want to review those reports we can make them available to you but, as I indicated in my letter, our main interest is in your prior statements.

Just a couple of other preliminary comments. In addition to your statements, the basic format, and this is oversimplifying, but the basic format that we are following here is this: We have heard very extensive testimony from NRC and outside experts on the technical aspects of leak rate. We are now hearing from you. We heard a gentleman this morning talk about training at TMI at that time. The NRC inspector, Mr. Haverkamp was here yesterday. But starting next week we are going to be hearing from a succession of present and former employees, some of whom worked with you. And some of whom are, let's use the right word, some of whom, the investigators believe, manipulated tests or took other improper action, so they are here to present their side of the story.

In a couple of cases, particularly, we have gotten prefiled testimony from most of these people and in a couple of cases it includes people you worked with, such as Mr. Bernard Smith and Mr. Booher, and we have this testimony filed with us. It is not yet an official part of the record in this case because they haven't appeared yet and sworn to it. Nevertheless, it is what we understand they propose to say and insofar as, in some places these statements talk about you, we would like to have you have a chance, now, to comment and react. So, in addition to questions based on your statements, we'll have a couple of questions which will

involve your listening to or looking at portions of statements of others that we would also like you to comment on.

I might just say that generally, it has been a long time since these events occurred, eight years plus, and we do, in some instances, want to ask you about particular statements you made about what happened and what a person may have done. All we are asking for is your best recollection of those events.

If you don't remember you don't remember. We understand that the passage of time is going to be -- or may be a problem with witness testimony in the case.

I'll begin with some questions that the Board wants to put to you, and then, following that, we have a set of questions proposed to us by the counsel for the employees and we also have a set of questions from an Intervenor in the case, Mrs. Marjorie Aamodt, and we'll be putting most of those questions to you also.

Whereupon,

HAROLD WAYNE HARTMAN, JR.

was called as a witness and, having first been duly sworn, was examined and testified as follows:

JUDGE KELLEY: I should add that the Board's questions grow out of a review of your statements. They are not arranged as neatly and logically as one might hope. In

fact they might sound rather random. That's the way the statements read to some extent, but you'll understand if we don't progress in what seems to be an entirely logical order.

You have testified in the past that you used hydrogen, hydrogen additions, as a means of effecting a leak rate result, hopefully getting a result that would come in under the 1-gallon minute.

EXAMINATION BY THE BOARD

BY JUDGE KELLEY:

Q I want to confirm my understanding. Did you ever see anyone else use hydrogen for that purpose?

A Not that I can recollect. The only thing I know is that I got the information from other operators, that that's one way that they could get a good test.

Q This was just common knowledge among operators, would you say?

A Yes. I believe so; yes.

Q Do you remember any names, as to who may have told you that?

A No, I don't. I don't recall.

Q And you have said before that you hadn't seen others, that was actually adding hydrogen. I wanted to confirm that?

A Right. That's correct.

Q Now, in cases when you would add hydrogen in a leak rate test for that purpose, did you inform your -- your immediate supervisors were -- Mr. Smith was the shift supervisor, as I understand it, and Mr. Hoyt? Am I correct?

A That's correct.

Q He was the shift foreman.

Did you inform them that that's what you were doing?

A Not that I can recall. One thing does stick in my mind, however. When I got to the point when I tried the hydrogen addition to affect a test, I found out that the hydrogen bottle and the automatic addition system was out of Commission, that they had to add the hydrogen by hand. So that by manipulating the external control in the control room, it was actually doing nothing. That was some period very close to March, I would say maybe three months prior, that I can recollect.

Q So, if you weren't able to add the hydrogen by means of the control panel, how was it accomplished?

A Then you had to contact an auxiliary operator that was stationed in the auxiliary building, close to the hydrogen addition station, to do a manual add.

Q You'd just call him on the phone?

A That's correct.

Q Would you discuss with him why you wanted it

added? Or would you just tell him to add some amount of hydrogen?

A As I can recall it was just to add, just to add the hydrogen, for no specific reason other than the pressure was low in the makeup.

Q Switching from hydrogen to additions of water to affect the test, did you, yourself, use that technique?

A Not directly but I know -- I think it was done on a shift that I was working on, I believe. I don't know how many times.

Q Did you actually observe this being done?

A I believe on one occasion.

Q Do you recall who it was?

A It was Ray Booher.

Q Mr. Booher. I have heard the term "jogged water addition." I don't know if you have heard that in the past or not. Does that mean putting in a little bit at a time?

A Yes. That's correct.

We had a -- the makeup, which has a level recorder on it, that indicates the level on a continuing basis and at that time we had considerable leakage through some valves. I believe they were the pressurizer relief valves at that time.

Q This is what time frame, roughly?

A Three months before the accident.

Q What, January, perhaps?

A Perhaps.

Q Okay.

A With the leakage the indicated leak rate would slowly decline over a period of time, as indicated on that level recorder. If you added a batch of water, say 50 gallons, it would show up as almost an immediate rise in the level indication. But if you jogged it, the tendency was to just reduce the slope very slightly of the decrease in water in the makeup.

Q When you say "level indication," do you mean strip chart there?

A That's correct. Strip chart.

Q Right. So if you were to use the term "jogged water addition," if I wanted to accomplish that, would my purpose be to get in a significant -- get in enough water to affect the leak rate result and have it not show up on the strip chart? Was that the reason to do that?

A That's correct.

Q And you say you saw Mr. Booher do that; is that right?

A Yes.

Q How did you know that that was what he was doing?

A Well, I asked him. I said: What are you doing, Ray? And he said: Well, if you just put in a little bit of water at a time you can slow down the rate of decrease in the

makeup level which, if that level stays up, then your chances of coming in under 1 gallon per minute leak rate, you stood a better chance of doing that.

Q Was it possible -- I understand what you just said. But might he have been adding water in that manner for any other purpose than influencing the leak rate result, in your opinion?

A No. In my opinion, no.

Q Do you recall, in that particular instance, whether the addition of water in this jogged, small amount manner, was logged?

A I can't recall.

Q You don't recall whether you checked the log one way or the other.

A No, I don't remember.

Q Would it have been Booher's responsibility to make the log entry if it were going to be?

A If it were going to be made; yes, it would have been.

Q Do you recall at the time whether you felt pressure from your superiors to get a good leak rate?

A I felt pressure at times.

Q How did that manifest itself?

A Well, I guess I was very frustrated at having to do the leak rate tests on a continual basis. It was like

during the mid-shift it was constant. You'd run the test, if you get a good result you turned it in. If you didn't, you'd go back and start it again. And sometimes we'd run as many as six or eight on a shift.

Most of the time we did the test it was a hit or miss type thing. You know? We just took a chance that we'd come up with a leak rate that was acceptable.

Q You are familiar with, you recall, the action statement procedure whereby if you weren't getting -- I'll put that differently.

Did you, at the time, understand that you had to get one good leak rate -- I'll put "good" in quotes -- leak rate, every 72 hours?

A That was my understanding.

Q The pressure to get a good leak rate, that you felt -- were there times when you were pushing up pretty close to the 72-hour limit?

A Yes. Quite frequently.

Q Did you notice any difference in pressure when that was the case?

A Yes. A little bit. If we didn't have a "good" leak rate we'd have to go into a hot standby, I think was the term. Basically shut the plant down, not generate any electricity.

Q Did there ever come a time when you did have to at

least start to shut the plant down because the 72 hours had passed and you hadn't gotten a good leak rate?

A I don't remember.

Q You said in a statement given to the NRC on July 26, '83, along this same line, I'll just quote it and see what you recall about it. The question was:

"Question: Can you describe what you meant by the comment, 'there was a lot of pressure on us to get good leak rates'?"

And your response was, in part: "Bernie Smith, maybe or maybe not in jest, told me to get a good leak rate, 'type one out if you have to.' Do you recall that comment?

A Yes, I do.

Q And the circumstances --

MR. MC BRIDE: Can we have clarification whether he recalls the comment or recalls the testimony?

BY JUDGE KELLEY:

Q I'll ask both. Do you recall making the statement to the NRC?

A I recall both.

Q He recalls both. Okay.

Could you, to the best of your recollection, give us the circumstances surrounding that statement?

A Well, the best I can recollect, we were probably getting close to the 72-hour period where we needed to have a

good leak rate on file. I believe we were on the mid-shift, or 11:00 to 7:00, which is the normal time to run such a test.

My feeling is that he wanted our shift to do it, to get one so that day shift didn't have to run one. I know day shift gets kind of hectic, sometimes, and I just wanted to get it out of the way.

Q Would it have been possible, if you take Mr. Smith's -- the statement that you attribute to Mr. Smith, if you take that literally and you had gone off to a typewriter, would it have been possible to produce a piece of paper that looked like a printout from a computer? Of course you could do these calculations by hand, could you not?

A That's correct.

Q So that I guess is the answer to my question: Yes, because you could do these by hand?

A Yes. You could do them by hand, but generally they weren't typed. It was on a handwritten form.

Q You took the form and you filled it out?

A You filled it out by hand.

Q So that initially what I wanted to find out was whether this statement you attribute to him might have been a joke, because it would be impossible to do such a thing? But if you were going to do a hand calculation on a form, I guess it would be possible; is that right?

A I guess what I remember about that whole incident, and especially in the testimony, the reason I said that it may have been in jest was because it was not possible to type one out on the typewriter that they had available for us to use. It was a computer input typewriter and there was no way you could type out the information that we were looking for.

Q So the leak rate test result that one might expect in the normal course of business to see would be either a computer printout or a filled out form --

A That's correct.

Q -- not a typed out test result? There wasn't any such thing in your procedures; is that right?

A That's correct.

Q If there wasn't any such thing in your procedure, though, could he have been serious, do you think?

A I think he was serious to the point where he wanted to see a good leak rate at the end of the shift.

Q So it was a way of, as you understood it, of his making a point without being, literally intending that you'll sit down at the typewriter and type something out?

A That's correct.

Q Were there any other instances that you can recall that illustrate your feeling of pressure to get a result?

A Not that I remember at this point.

Q Okay. Did you receive any training in performing

leak rate tests while you were a trainee, that you recall?

A I don't recall, but I feel that in the training program that would have been part of the training.

Q As I understand it, there were two aspects, maybe more, but at least two aspects to the training program. There was some classroom instruction, but a fair share of it was just - was on-the-job training; is that correct?

A That's correct.

Q . Was your training on leak rate tests on-the-job training, as you recall?

A For physically doing the test and entering the data into the computer, yes. It was on shift. I remember having some discussions in classroom about leak rate tech specs and the requirements, and that sort of thing in the classroom. And I believe at one point we did a hand calculation using some numbers that the instructor provided.

Q About what time were you in training? Classroom training?

A I started as control room operator in September of 1976, I believe. And I was licensed in October of '77. So it would have been in that time frame.

Q '76, early '77?

A Yes.

Q Apart from the hand calculation that you recall as a training exercise and the explanation of the tech spec

requirement, the actual performance of the test was something you learned when you were a trainee in a control room; is that right?

A That's correct.

Q I understand it was your practice, and there's evidence that it was the practice of others, when you got a "bad" leak rate test, you may have taken actions like looked for a leakage, but you threw the test away?

A That's correct.

Q Right. Do you recall your practice in that regard and how it started? Did it strike you as -- well, let me just ask you that.

Let's say you are in day 1 as a trainee in a control room at TMI. And you are told to run a leak rate test. And it comes out 1.3. Sort of a hypothetical situation. I'm trying to get at the origin or how you were first instructed, if you were, to throw away tests over 1; do you recall that?

A No. I don't recall any specific incident like that. But I do remember the practice of, if we got an unacceptable leak rate, I would usually show the foreman or the shift foreman and say, well, we ran the leak rate and here it is. And he'd say: Throw it away -- run -- start another one.

Q Was this Mr. Hoyt?

A Yes.

Q Were you always working under Mr. Hoyt?

A There was occasions when he was on vacation and I would work for someone else, but he was permanently assigned to the shift, so I would have done most of my operating with him.

Q Do you specifically recall -- maybe I'm repeating this -- but going to Mr. Hoyt with a bad test and his telling you, throw it away?

A Yes.

Q Did it occur to you at the time whether these tests might be retained? Did you give that any thought?

A No. If I remember a statement -- and I forget who made it at this point, but, say: Make sure you throw it away so that the NRC doesn't see it laying around. Or something to that effect. They didn't want powers that may be to see the bad results.

Q But you don't recall who made the statement?

A No, I don't. Not at this point. It would have been on shift. It could have been Bernie Smith or Dick Hoyt.

MR. MC BRIDE: I move to strike that last remark.

BY JUDGE KELLEY:

Q Let me just ask you, do you have any firm recollection about either Mr. Smith or Mr. Hoyt saying that?

A No.

JUDGE KELLEY: Okay. I think that clarifies it. We won't strike it.

BY JUDGE KELLEY:

Q Can you suggest what, in your mind, would have been a good reason to throw away tests registering over 1 gallon a minute?

A No, other than the test was out of spec.

My understanding of keeping --

Q Let me give you an example. Say you are running a leak rate test and you start it and you punch in a number, a piece of data. You just make a mistake. You are off by hundreds of gallons, if it's a water thing, let's say. And you know that the test is wrong because you know your own mistake.

Would you think it legitimate to throw away the printout in that case?

A Yes.

Q Apart from that kind of a situation, though, is there any reason in your mind to throw them away?

A I guess at that time I just felt that that was the way it was to be done. You know, if you got a bad leak rate you just have to go back and try again.

Q Did you consider it a possibility that the leak rate test was telling you something real and valid about the

condition of the plant?

A On occasion we did. And we'd go out and look for leaks and try and tighten up the systems. Even after doing that we still had a lot of problems.

I guess I rationalized the thing that the plant was operating in such a transitory manner for the months prior to the accident that there were so many parameters that there could be instrument errors in, in measurements and things like that, that would -- that it would influence the computer's calculation.

It seemed like when the conditions were right you could get a good one. When they were oscillating they tended not to come out so good.

Q Is it fair to say, Mr. Hartman, that in the course of your functioning there as an operator and performing leak rate tests, that you had concerns about the validity or propriety of what was being done?

A At times. I really didn't have much faith in the test --

Q Right.

A -- as done on the computer.

Q Right. But, well, let me give you a quotation from your interview with Mr. Rockwell. It's short. You are talking about running tests and then you said, page 58 of that interview: "The last month we kind of tried to put it

off because obviously we weren't getting anywhere with our concerns."

That suggested to me that you had concerns that you felt frustrated because you weren't getting anywhere with it. What efforts did you make to voice your concerns? Were there channels open to you that you could have used to raise the concerns that you eventually raised later with the NRC and the media?

A At that point I guess there were channels other than my shift supervisor and foreman. But I guess I put too much faith in those guys, that I just aired my concerns to them and felt that they would take those to the higher powers. It was like the chain of command in the political tier, so to speak.

Q We've covered some of this, but could you summarize, in the context of ventilating and expressing your concerns, the kinds of concerns that you raised with Mr. Hoyt or Mr. Smith?

A The only main point that I can recall would have been, and I think I addressed it earlier with the transitory state of operation of the plant. It wasn't what I would consider steady state. There were some operating problems that we were experiencing at the time, which I felt were causing difficulty in running the test.

If I had any concerns that I can recall now, it

would have been: Why weren't some of these other operating problems being taken care of?

BY JUDGE CARPENTER:

Q I would like to ask a little to that. In your mind, if the plant were maintained "steady state" for an hour or more, did you feel the leak rate test would provide an accurate estimate of leakage?

A That was my feeling at the time, yes.

Q Thank you.

BY JUDGE KELLEY:

Q In really the same vein, and this bears on Mr. Smith, the supervisor, let me just quote a section from page 81 of your Rockwell interview. The question to you is as follows, from Mr. Rockwell:

"Question: You said said that a number of times, or at least once, you went to somebody and said: Hey, we've got a problem. Look at these numbers. Do you think you did it more than once?

"Answer: Sure.

"Question: How many times?

"Answer: I don't know. It was just an ongoing concern with me. That is all.

"Question: Can you give me any estimate of how many times you would have expressed this concern to someone?

"Answer: Five, six.

"Question: When you expressed it, who would you express it to?

"Answer: It was usually Bernie Smith.

"Question: And the question is, and Bernie's response was --

"Answer: Well, he would just say, well, we are working on it. We are working on it.

"Question: Did he ever indicate to you how they were working on it?

"Answer: No. Not really. Bernie was pretty easy to work with. I can't remember any of his answers because they just kind of called you down. Then you went off because he said to you in some way, whether it was garbage or not I don't know, but he never said anything to me that "this is what they are doing."

Continuing the same answer, "Well, he might have said at the point they changed the computer 'Well, so we are getting a new computer program, that is fine, that is great.' Then, when the same thing happens after the new computer program, then you ask him again, and of course the problem with the safety valves, I believe that the leaking safety valves, someone had something to do with the results of the leak test."

That's a long quotation but it seems to me that you went repeatedly to Bernie Smith voicing concerns about

leak rate tests and you were put off with sort of vague reassuring nonsubstantive responses.

Is that a fair characterization of that quote? And is that how you recall it?

A That's how I recall it, yes.

Q Let me shift over, now, from your statements to two of the prefiled statements, one by Mr. Bernard G. Smith and another by Mr. Raymond Booher. We could do this in two ways.

JUDGE KELLEY: Do counsel have a feeling on it, to point out portions we want Mr. Hartman to react to? Or I could simply read them out loud. Is there any -- Mr. Hartman, if I read a paragraph to you, do you think you could take that in well enough to comment on it or would you prefer to read it?

THE WITNESS: If you read it that would be fine.

JUDGE KELLEY: Try it that way, then if you say you want to read it you can read it. I'm looking at prefiled statement of Mr. Bernard Smith. Again, this is not yet in evidence, but it's not practical to keep calling people back and forth, so what we have to do here is go with what we've got. If, for some reason later on we have to hear from you or Mr. Smith again, we can do that. But it seems to us expedient and not unfair to go ahead and get your comments on his prefiled testimony.

BY JUDGE KELLEY:

Q Reading from page 2, the third full paragraph:

"Generally, I did not become involved in leak rate testing. The operators reported to me only if they could not obtain a leak rate during the shift. I cannot recall ever having run a leak rate test at either unit. I have been shown that I approved only two tests at Unit 2. Usually, of course, leak rate tests were reviewed and approved by the shift foremen."

Does that seem to you, in retrospect, to be a fair description of that part of Mr. Smith's involvement in leak rate tests?

A Yes.

Q The first full paragraph on page 4 reads as follows:

"If my shift obtained consistently high leak rates, we dispatched auxiliary operators to search for leaks. If the leaks were discovered they would be repaired or measured. I always tried to fix leakage or to see that it was contained safely inside the plant. If leakage were identified and measured, it would be added to the new leak rate. The old one showing results higher than 1 gpm would be discarded. I am sure that if I could not have corrected the leakage problem, I would have entered the action statement."

Do you have any comment on that?

A I guess it depends on what time frame he was talking about. I think at one point we were running leak rate tests and we'd have the auxiliary operators go down and actually make checks and report back. As I recollect, it just became a problem with the computer, that we have gone out and searched so many times for leaks, physically, and the results of those checks yielded nothing, that they stopped doing it.

Q It is a fact, is it not, that you never -- not you personally -- but to your knowledge, TMI-2 never did go into the action statement, the procedures leading towards shutdown, as a result of a leak rate test?

A Not that I can recall.

Q That's consistent with other testimony that we have heard.

This seems to suggest that Mr. Smith is saying that -- according to him, "I am sure that if I could not have corrected the leakage problem I would have entered the action statement."

I thought that in the course of your work there, you had many leak rate tests showing leakage in excess of 1 gallon. I thought you further said that you regarded the test as essentially useless and it didn't really show leakage. It was a numbers game. Is that fair?

A Yes.

Q This seems to imply that the test, in Mr. Smith's view, was a valid indication of leakage and whenever he got a high number he went out and looked for leaks. And if he couldn't identify enough leakage he would have shut the plant down and gone into the action statement.

Is that consistent with your experience?

A I'm -- I really -- I don't remember. In the months, really, just three months prior to the accident I don't think that that would apply. Perhaps in the time frame, maybe six months, it would have applied.

Q In those few months before the accident, is that the period of time when you would have regarded the test results as more erratic and unreliable, generally speaking?

A Yes.

Q Do you think, during that period of time, that you or anybody else was taking that test seriously?

A No.

Q This last paragraph I want to ask you about is kind of long. I think I'll bring it around and just let you read it. I would like to read it into the record, too, but you can just read it in text and that way it might be helpful.

Perhaps the reporter at this stage can simply type in the paragraph I'm referring to, the center full paragraph on page 7.

MR. MC BRIDE: Of what document, please, sir?

JUDGE KELLEY: Of the prefiled of Mr. Smith.

MR. MAUPIN: Did you say the first full paragraph on page 7?

JUDGE KELLEY: I'll have to see it again.

(The document follows:)

"Although Harold Hartman was on my shift, I was totally unaware that he was falsifying leak rate tests. I still have difficulty believing that he would do such a thing, because I considered him a competent operator. He constantly brought concerns to me and I would try to correct them depending upon the circumstances. I cannot remember any safety concern that he brought to me that I did not take some action on. I am not claiming that he was easy to work with, however. Even though he had the ability to complete his assignments well, his over-reaction to problems detrimentally affected his performance. I often had to speak to him about his inability to handle pressure and I know that at least one other shift supervisor became exasperated with him. I will always regret that I did not realize the effect that the every day pressures of operation would have on someone such as Mr. Hartman. I wish Mr. Hartman could have understood that it was my responsibility, not his, if he could not obtain a satisfactory leak rate test."

BY JUDGE KELLEY:

Q Mr. Hartman, if you have had a chance to read that over, we'll just walk through it line by line. If you have no comment, fine. Then if you want to make any comment, go right ahead.

The first sentence?

A No. No problem.

MR. MC BRIDE: I'm sorry, what was the witness' response?

THE WITNESS: No problem.

JUDGE KELLEY: No problem. No comment.

BY JUDGE KELLEY:

Q Let me ask, do you have any comment overall on the paragraph?

A I could understand how Bernie could feel that way. That's just generally -- as a general statement about what he said, I can understand how he would feel that way. To me it would be characteristic of him.

Q You don't have any specific -- it is not terribly factual, it's a rather "general impression" type paragraph. You don't have any specific quarrel with any of the -- either factual statements or the assumptions or implications of the paragraph?

A I --

Q I'm not inviting them. I'm just wondering whether

you did.

A He says that "I cannot remember any safety concern that he brought to me that I didn't take some action on." And I know I brought quite a few to him. I guess I became exasperated, the fact that I never saw anything further on them. But there was a few little things that you get feedback on, but some of the big -- bigger items, it just seemed like he would say: Yes, they are working on it. You know. That sort of comment.

Q Is this, this reference you make now, would that include other things other than leak rate matters?

A Yes.

Q Was it primarily leak rate or was the leak rate just one among many?

A I think the leak rate was probably one among many.

Q Okay. Those are the only portions of Mr. Smith's statement I wanted you to specifically focus on. The other portion I wanted to read to you is from the statement of Mr. Bcoher. I'm looking at page 5 of his testimony. It's a fairly short segment. I'll just read it:

"I do not know why Harold Hartman stated I added water to falsify leak rate tests. According to the NRC investigators, he believed that I was not a good operator. Perhaps that is why he feels that I was involved in the conduct similar to his. All I can ask of the Presiding Board

is that it fairly scrutinize the evidence compiled against me and conclude that I did not participate in leak rate falsification."

Any comment or reaction to that statement?

A I think I testified before that I saw him do it. In fact I think I remember seeing, in one of the testimonies that I gave, where they actually showed me a test where I was signed off as the control room operator and then they showed me a log entry which corresponded to the same time frame that the test was run, and that Ray Booher actually added water to the makeup. And he logged it in the control room log but never said anything to me about the fact that he added it, because there is a section on the test where you can subtract the additions that you do make.

Q All right. Okay.

Judge Carpenter has some additional questions. Judge Bright may have a few.

BY JUDGE CARPENTER:

Q Just a few questions. What does the term "steady state" mean that's used in the specification of procedure that the test be carried out during steady state? What did that mean to you during the time you were carrying out these tests?

A At the time it meant that there would be no operations in the plant that would affect the results of the

leak rate test and that, also, that reactor power would be held within a certain limit of change. I don't recall what that change was. But generally, when we ran the test we would try and keep reactor power at the same setting as it was when we started the test.

Q I believe you testified in your conversation with Judge Kelley that the plant for an extended period of time was experiencing oscillations. Can you give me a feel for the time period of those oscillations? Did it go up and down or --

A The oscillations I was referring to was actually during "steady state," operation.

The oscillations were due, as I can recall, to feedwater fluctuations, variations in the feed flow between the two loops. They would oscillate back and forth, which would cause primary temperature indications to oscillate up and down. It was probably, maybe on a frequency of once every two minutes or so, where you would have a swing of, say, T hot, would start at zero and make a complete cycle in about a minute or so, as I can recall. But that was without corresponding change in the reactor power setting.

Q When you finished the test and had to evaluate whether the steady state requirement had been -- had existed, did you check the strip chart recorder for the test period to see what it told you about whether or not steady state had

been maintained?

A Generally we didn't. The operator who was responsible for entering the program into the computer and requesting that the computer do it would inform the panel operator that a leak rate had started and, generally, it was up to the operator to maintain that steady state.

Generally we conferred with each other. I'd say: Hey, Ray, anything going on that I can't run a leak rate?

No problem, go ahead and run it.

And then we would go ahead and do it.

Q But you wouldn't use the strip chart record of what had gone on for the hour just to confirm that the situation really was steady state?

A No.

Q You assumed --

A We assumed that it was. A lot of times when I would run a test and get the results back, we'd look at some things and see if we could figure out what was -- what may have caused the test to not come out. But it was not -- there was no set procedure that we would go through, to make any kind of verification that steady state operation had existed.

Q Turning to a different line, what is your understanding of the portion of the surveillance program that talks about evaluating a surveillance test and classifying it

as requiring either a notation of an exception or a deficiency? Can you tell me what you knew about that part of the program at the time you were an operator?

A That's really digging deep. I can't recall specifics about it.

Q You ran many different surveillance tests, I assume?

A Yes.

Q Did you occasionally file an exception or a deficiency?

A Occasionally.

Q It was not something that you were reluctant to do?

A No.

Q Why, for these leak rate tests, which I think -- negative numbers, et cetera -- some of the questions in your mind, wasn't there ever an exception or deficiency filed?

A Not that I can recall; not on a leak rate.

Q Can you tell me why you didn't feel it was justified?

A I think it was just the general conception of the test throughout the control room operators. I don't think anybody else had much faith in them either and that --

Q Well, you have something that's deficient -- how could it be more deficient than you just described it. There

was general lack of confidence. There was a consensus that there was a deficiency. And yet, from what little I know now, apparently it was never put in writing. No test was turned in that was marked "deficient."

Is that your impression?

A That's my impression.

Q How do you resolve that against the requirement of the license, the operator's license, to abide by the procedures and identify -- an identified deficiency which you and the other operators have failed to identify in writing? Can you rationalize it?

A If I had to come to some sort of conclusion, or rationalize it, the Unit 1 leak rate program was very, very similar. In fact I guess it was the same, other than certain formulas that would measure tank levels and things like that. But it was basically the same program as Unit 1, and Unit 1's worked fine.

BY JUDGE KELLEY:

Q Your training in this regard was on-the-job training and control room training.

A Yes.

Q Do you recall whether or not anyone ever told you one way or the other about filing an exception or deficiency report on a bad leak rate test?

A I can't recall. As far as I can recall, nobody

ever instructed me that I could.

Q If you as a trainee were watching other people do things like leak rate tests and nobody else did it -- you would follow the example that's set in the room, I assume.

A That's correct.

BY JUDGE CARPENTER:

Q You never felt that you would like to file an exception or a deficiency or classify the test as falling in the exception and deficiency program?

A I really don't remember. It was just an overall concern about the test and its validity.

I guess maybe I just, at that point, felt that if I did want to do something like that, that it would get struck down at the shift foreman level.

Q Did you ever have any discussion with the shift foreman about this?

A Not that I remember. I couldn't remember specifics, but I'm sure that I discussed it with him. Not necessarily the exceptions and deficiency part, no.

Q So you had that feeling, but I don't have any basis, in terms of conversation, where he told you that that would be his response?

A That's correct.

Q Turning to another area, I got the impression both you and a number of the other operators thought that the

results of the leak rate test as provided by the computer were questionable. Did you ever carry out a manual calculation to compare it with what the computer was telling you?

A I can recall doing a manual calculation, or several. But I don't remember any specific differences or comparisons that I could make between one and the other.

Q To what purpose did you carry out the manual calculation?

A I really don't remember.

Q Do you remember doing one for the purpose of evaluating what your manual calculation showed vis-a-vis what the computer showed?

A I don't remember.

Q I can't help but be surprised at you reporting to your superiors there was a problem, the easiest way to document -- retrospect, hindsight -- Monday morning quarterbacking is what we are doing here, you see. It just didn't occur to you that that was a way to try to get at it? Perhaps you didn't feel your job responsibilities went that far?

A That would be a valid statement. I guess my responsibility, as I felt that it was, was to run the leak rates and follow the direction of the foreman, in such a case.

Q And finally, in response to Judge Kelley's question, you said the leak rate problem was one among many. Would you characterize the situation, particularly January of '79 through March of '79, as a time period when the foreman and the supervisors remained faced with many, many problems on a daily basis?

A Yes.

Q To the point of having to work overtime, et cetera, to keep up with it?

A I really couldn't say how much overtime they worked. I think probably January through March the control room operators had some but it wasn't -- wasn't all that much, that I can recall.

Q Well, the thrust there I was trying to get at is, do you feel that the leak rate problem perhaps didn't get the attention that it might have gotten if there had been more time devoted to it? It just didn't get to the top of the pile, in essence?

A I guess one could come to that conclusion. I -- I might feel that way, too.

JUDGE CARPENTER: Thank you.

JUDGE BRIGHT: I just have a couple of things here, Mr. Hartman.

BY JUDGE BRIGHT:

Q Do you remember the LER that so much dust was

raised about? The licensee event report dated in October of 1978?

A I believe that concerned the leak rate program, if I recall.

Q Yes. I guess my question is: Were you on shift work at that particular time?

A Yes.

Q It is my understanding that you -- that the plant -- that they got a good leak rate test on October 16th. Then, on October 18th the NRC inspector came through and they hadn't been able to get a good leak rate test since that time. And that's how he ran into this problem. Then they fixed it on October 19th, I guess it was, or 18th. The LER is a little vague about dates.

Do you have any idea which shift you were working at that time?

A No, I sure don't.

Q I mean, if you could connect it with the LER? What I'm trying to find out is who was there that morning of the 18th?

A I don't really recall. I don't believe that I was on shift or I would have a better recollection of that, that whole incident. But it is foggy, and I know that the LER exists, but -- and I remember reading it after it had been published, but I'm sure that if I had been on shift at that

time I would have remembered it a little more clearly.

Q Where might that be recorded? Surely there was some list of shifts and when they came on? You did rotate shifts, didn't you?

A Yes.

Q So somebody must have kept a record of it? They've got to pay you --

A Who was on shift at that time?

Q Yes.

A Generally the control room operator has a log. I guess that's the legal and binding record of the station. And he has to sign it when he comes on shift and when he goes off shift. So it would be in there on that morning of the 16th, when the inspector came through. If they knew what time he came through they could look in the log and see who was control room operator at that time.

Q Did Met Ed, or GPU, or who ever it was at that time, did they have a personnel organization out there?

A I believe they did, yes.

Q Did they keep records on whether you were there or whether you weren't there? You know, like T&A here with the government. Time and attendance.

A We filled out a daily time report.

Q It actually showed time periods that you were at the reactor?

A I don't remember, but I don't think there was individual times. There was a date but not times.

Q All you had to do was sign in and say I was here on such and such a date?

A Yes.

Q About this LER, evidently all of the shift supervisors, shift foremen, CROs, trainees, had to read about this LER as something that came down from PORC, and check off as to whether they had read it --

A Yes.

Q -- and don't do it again. Something like that.

A Yes.

Q Can you remember that?

A I remember having to read LERs and initialing the book that we did read it. I don't remember a lot of specifics about that particular LER.

Q The checklist was completed, supposedly, on the 10th of November.

A Yes.

Q So it was very close to the actual LER that went out.

A Yes.

Q But you have no recollection of the actual --

A No, I don't.

Q Okay. Let's talk about something else.

You brought up something that I hadn't thought about before. I hope I didn't miss it in all the testimony that we got from the earlier witnesses.

This hyperactive pressurizer situation, you discussed this at several places, but the Faegre & Benson interview of April 27 and 29th, 1980 of Harold Hartman, do you recall that?

A Which page would that be?

Q I'm on page 25 and 26.

Do you recall that subject about the leaky valves and the pressurizer activity, that whole bit?

A I can recall a little bit about that.

Q I mean you obviously had given the matter some thought?

A Yes.

Q And seemed to have quite a good idea of how the reactor was reacting to all this.

A Yes.

Q In that you made a statement that the pressurizer is actually acting like a distilling plant.

A Yes.

Q By which I presume you meant it was removing boron from the system?

A Yes, it was. It was acting as a chemical concentrator, where the boron concentration would gradually

increase in the pressurizer, taking water from the reactor coolant system, or boron, I should say boron from the reactor coolant system into the pressurizer as a result of the steaming process from the leaky valves. So that the distilled water would come out of the code safeties and go into the reactor coolant train tank and it would concentrate in the pressurizer so that, over a period of time, the reactor control rods would need to be inserted until such time when we would go into an operation we called "recircing the pressurizer," which would more or less place a continuous flow of water into there from the reactor coolant system to equalize the boron concentration between the reactor coolant system and the pressurizer, at which time the rods would then withdraw.

Q You would do that by spraying the pressurizer?

A Yes. Yes.

Q Okay. Now, ordinarily when you spray in the pressurizer, is it not to reduce the pressure in the system?

A That's correct. And there was -- there were auxiliary, or backup sets of heaters that would provide the additional heat as a result of the loss of heat from the spray. It would provide for that additional heat.

Q What I'm trying to get at is the effect on the reactor of this operation. There's nothing wrong with the operation. Just what happens to the reactor?

You state that the control rods are automatically controlled.

A That's correct.

Q So that they would insert the rods automatically as the pressurizer bled boron out of the system, and then it would bring them back out again automatically, as boron was injected and I presume a feed and bleed -- you are already bleeding -- so it would be a boron -- borated water feed?

A That's correct. It would be essentially the same thing as increasing the boron concentration in the reactor.

Okay. Now, did you -- you, evidently, looked at it quite a while.

A Yes.

Q You were interested about all the amount of water that you were pumping out of the system and that sort of thing. While you were looking at the amount of water, did you look at possible temperature swings, small ones? We found out that you don't have to have much of a change to get a big change in the actual amount of water that you have to use to makeup.

A Yes.

Q In the temperature, the pressure, perhaps even the flux pattern, I don't know; associated with this, the rods are automatic but is there lag built in there? It's hard to think of an instantaneous reacting system.

A No. It's slow. It is over a period of time, which I can't recall how long it took us to equalize the boron concentration. I don't remember. But it was gradual.

My general feeling right now would be a couple of hours, maybe, before that proscess would be complete.

Q I wondered if this would cause some kind of oscillation in the apparent amount of water that was in the makeup. See, we have a lot of trouble, looking at those jiggles all over the place, and I wondered if this might be a contributing factor to that, when you are trying to do a leak rate test?

A Just quickly I can't see how that would influence the makeup level except that the level would gradually decrease. If you looked at the whole -- for several hours, look at the general trend of the slope, it would be downward. But as far as the minute oscillations, I don't know where that would come from at this point.

Q So you don't think this would really have all that much effect on trying to do a leak rate test?

A That's my feeling, yes.

Maybe -- now, if I think back, I looked at the code safety problem with the leakage, and having to recirc the pressurizer and view those sorts of operations as -- not necessarily nonsteady state, but they weren't ideal. Okay? It was a problem I saw that could have been corrected and it

was something that, during the normal operation of the plant we had to be constantly aware of because we had certain rod pads that we had to keep rods withdrawn because of the flux patterns and things like that. And it was just something else among other things that created some operating problems for us.

JUDGE BRIGHT: I was just trying to find as many as I can. I guess that's all. Thank you.

JUDGE KELLEY: 10-minute break.

(Recess.)

JUDGE KELLEY: We are back on the record. We have concluded the Board's initial questions, at least, and we'll turn now -- we have a set of questions for counsel from the employees, the other employees, followed, as I indicated before, by a set of questions by Mrs. Aamodt.

MR. MC BRIDE: Judge Kelley, before we begin, would you ask the witness to speak more into the microphone? We are having some difficulty hearing him.

JUDGE KELLEY: Okay.

BY JUDGE KELLEY:

Q Question 1: Is it a fact that at TMI-2 you typically performed leak rate tests on the mid-shift; that is, from 11:00 p.m. to 7:00 a.m.?

A That's typical, yes.

Q 2: Is it a fact that you or other TMI-2 operators

working with you at times performed more than one such leak rate test per shift? I think you said that's true; right?

A That's correct.

Q Is it a fact that the values depicted for unidentified leakage on those tests were erratic?

A I don't recall.

Q In the sense of, I think, of numbers seemingly bouncing up and down.

A Yes.

Q Is it a fact that the values for unidentified leakage that were depicted on leak rate tests that you performed were sometimes negative, sometimes between 0 to 1 gallon per minute and sometimes greater than 1 gallon per minute?

A That's correct.

Q Is it a fact that when you observed leak rate test results for unidentified leakage that were negative, then, say, 2.35 gpm, and then, say, .5 gpm, you did not believe that reactor coolant system leakage was fluctuating by those wide margins?

A That's correct.

Q Is it a fact that you threw away leak rate tests depicting unidentified leakage of greater than 1 gpm?

A That's correct.

Q Is it a fact that, if you ran more than one leak

rate test, it was because you believed that the previous test had produced an invalid result for unidentified leakage over 1 gpm?

A That's correct.

Q Is it a fact, number 8 -- just pick up the numbers again, this is number 8: Is it a fact that you attributed the erratic results of leak rate tests to be due to plant oscillations or computer problems or both?

A Both.

Q Number 9: Is it a fact that you observed TMI personnel working on the computer to correct the leak rate test?

A That's correct.

Q Is it a fact that the only TMI-2 operator that you claim to have personal knowledge of adding water during a leak rate test to affect the leak rate test results is Ray Booher?

A That's correct.

Q 11: Is it a fact that, with respect to the leak rate test during which you claim Mr. Booher added water, you do not recall whether he accounted for those water additions in the leak rate test calculation by entering the amount of water added into the computer?

A That's correct.

Q 12: Was it your opinion that, if Mr. Booher did

account for those water additions in the leak rate test, by doing so, Mr. Booher had complied with the leak rate procedure insofar as water addition was concerned?

A Could you repeat that?

Q Read it again. Was it your opinion that, if Mr. Booher did account for those water additions in the leak rate test, by doing so Mr. Booher had complied with the leak rate procedure insofar as water addition was concerned?

A Maybe a point of clarification. Where -- was he accounting for the water addition? Where are we making that assumption?

Q The question just reads, "did account for those water additions in the leak rate test."

Do you want to clarify it, counsel?

MR. MC BRIDE: Yes, Judge Kelley. The previous question asked, and the witness agreed, that he did not recall whether he accounted for those water additions in the leak rate test calculation by entering the amount of water added into the computer. The supposition would be that he entered the amount of water into the computer in the tail end of the performance of the test.

BY JUDGE KELLEY:

Q So that's the manner in which it is intended.

Do you want me to reread the whole thing?

A Okay. Repeat it.

Q Was it your opinion that if Mr. Booher did account for those water additions in the leak rate test by entering the amount in the computer, by doing so Mr. Booher had complied with the leak rate procedure in so far as water addition was concerned?

A That's correct.

Q I would like to ask a question on top of that question, though. Going back to your earlier testimony, I thought you spoke of a discussion with Booher at the time, in which he, in effect, explained to you that the reason he was adding in these amounts of water was to affect the leak rate test result?

A That's correct.

Q Would you still feel that if he included the amounts in the computer calculation, that -- that what he had done was perfectly appropriate?

A I would make that assumption; yes.

MR. MC BRIDE: May I have that reread, please, the answer?

JUDGE KELLEY: "I would make that assumption, yes" I believe is the answer.

BY JUDGE KELLEY:

Q 13: Was it your belief, while you were a TMI-2 operator, that the leak rate test procedure did not require that hydrogen additions to the makeup be logged?

A I was under the impression that they had to be logged.

Q They did have to be logged?

A Yes.

MR. MC BRIDE: Judge Kelley, do you wish a follow-up now or at the conclusion on that?

JUDGE KELLEY: Let's do them later.

BY JUDGE KELLEY:

Q. 14: Is it a fact that during much of the three or four months preceding the TMI-2 accident, it was impossible to add hydrogen to the reactor coolant system for the Unit 2 -- from the Unit 2 control room?

A Yes.

Q I think you talked earlier about a time when you had to phone an auxiliary operator to add hydrogen; was that in that time period?

A Yes.

Q During the time that hydrogen had to be added to the reactor coolant system from outside the TMI-2 control room, is it a fact that the hydrogen would have had to be added by an auxiliary operator in the auxiliary building?

A Yes.

Q That's the same point.

16: Is it a fact that you do not recall seeing any TMI-2 operator add hydrogen to the reactor coolant system

to affect a leak rate test result?

A That's correct.

Q 17: Was it your opinion, while you were a TMI-2 control room operator, that the addition of hydrogen to the makeup during a leak rate test did not violate the leak rate test procedure?

A Yes.

Q 18: Is it your best recollection that you do not know whether others on your shift knew that hydrogen was being added to affect a leak rate test result?

A That's correct.

Q 19 --

MR. MC BRIDE: Judge Kelley, I believe question 19 has been answered.

JUDGE KELLEY: Right.

BY JUDGE KELLEY:

Q 20: Is it a fact that, at times, you had a different shift supervisor from Mr. Smith? I think you indicated --

A Yes.

Q -- Smith would go on vacation, for example.

A Yes.

Q Is it a fact that you were extremely anxious when you worked at TMI?

A Yes.

Q Will you elaborate on that a little bit?

A When I left the Island I had gone to my family doctor and he diagnosed labile hypertension, which is stress. And at times I'd have an upset stomach, the nervous twitches in the eyes, that sort of thing, butterflies in the stomach. And I attributed it to the fact that the knowledge that I had of the plant, the faith that I had in the control systems and the systems themselves, I didn't feel as though they would react the way I knew they should react if I would take a corrective action. So, therefore, I was a little bit anxious -- a lot anxious about having to go in there and the thought of having to go through a casualty procedure, manually operating the reactor with controls and having equipment either malfunction or not react as expected.

Q The reference to "casualty procedure," I'm not clear on that. What did you have in mind?

A If we would lose a component or have to take a manual control of a particular function of the reactor support systems or the reactor itself, it would -- we would use casualty procedures as a means of guidance in correcting or recovering from the casualty.

Q The casualty, in this case, is a piece of machinery or component?

A That's correct.

JUDGE KELLEY: Counsel, I think 22 has been

answered?

MR. MC BRIDE: Yes, Judge Kelley. We withdraw question 22.

BY JUDGE KELLEY:

Q 23: After the TMI-2 accident, is it a fact that there came a point when you announced you were quitting your employment with Metropolitan Edison Company?

A Yes.

Q About what time was that?

A I believe it was the Friday after the accident.

Q Next question: Is it a fact that after the time when you quit, you asked Metropolitan Edison Company to rehire you?

A Yes.

Q 25: At the time you asked to be rehired, is it a fact that Metropolitan Edison Company asked you to submit to psychological testing?

A Yes.

Q 26: Is it your understanding that, as a result of that psychological testing, Metropolitan Edison Company chose not to offer you a job with access to the control room?

A Yes.

Q 27: Is it a fact that you first informed the NRC of your allegations concerning leak rate tests only after you became aware that Metropolitan Edison Company would not offer

to rehire you in a job with access to the control room?

A Yes.

Q That concludes that list of questions. If you want to comment any further on the last several, you are free to, or not. It's up to you.

A That's fine.

Q Next we have a series of questions from Mrs. Aamodt. Some of these questions -- they are very short -- some of them have been asked and answered. I think I can cover them quickly. We'll read them into the record but needn't spend time on them.

1: State your position at TMI Unit 1 in the years you held that position. We are restricting this to Unit 2 and I think you described what you did there; is that correct?

A Yes.

Q We are striking question 2 which is, did you perform leak rate tests at TMI Unit 1?

Word by way of explanation, Mr. Hartman, we are allowing some limited testimony on Unit 1 but we are not going into details on what took place at Unit 1. Just as a practical matter, we can't do it.

Number 3 relates to Unit 1. It is also disallowed: When did you begin as an operator at TMI Unit 2? Maybe you can just restate that?

A I believe it was September of 1976.

Q When were you first aware that leak rate tests were being manipulated at Unit 2?

A At this point I can't recall. I'm sure that it's in one of the statements.

Q Your statements go into this in rather great detail. If you wanted to respond, fine. But -- fine.

Number 6: How did you learn to use hydrogen to manipulate leak rate tests?

A Through another operator. At this point I can't remember his name.

Q Okay. Do you recall whether you were literally shown how to do that or someone just spoke of it?

A If I remember right, somebody just spoke about it. I wasn't "shown."

Q You wouldn't need training if you were told, you knew where the appropriate button was?

A That's right.

Q You didn't really need to be instructed in any details; is that right?

A That's right.

Q Okay. 7: Did those who taught you indicate that the addition of hydrogen during a test was a violation of test procedure?

A No.

Q 8: When were you first aware that the addition of hydrogen during a leak rate test was a violation of the procedure?

A I don't ever think I remember that it wasn't, but I don't remember that.

Q Was it your understanding from the outset, when you learned of this from whatever the source, if the purpose of it was to manipulate the result, I gather, you felt that that was improper as a procedural matter?

A That's right.

MR. MC BRIDE: I'm sorry, Judge Kelley. Could we clarify as to what "it" is in that question that he's agreeing to? What is a violation?

JUDGE KELLEY: Adding hydrogen to manipulate a test result, I believe.

THE WITNESS: Yes.

BY JUDGE KELLEY:

Q Did you routinely log the addition of hydrogen to the containment -- I don't believe we are talking about the containment, are we?

A I don't think so.

Q It's to the makeup.

A Would be to the makeup. That's correct.

Q Well, did you routinely log the addition of hydrogen to the makeup?

A I don't ever recall ever adding it for the specific purpose of increasing hydrogen pressure in the tank. If I would have added the hydrogen, I would have logged it; yes.

Q Well, suppose you were adding hydrogen to manipulate the test; would you have logged the hydrogen?

A No.

Q No. The next question really speaks to that. It says: Did you purposefully avoid the logging of the addition of hydrogen during a leak rate test at Unit 2?

A Yes.

Q Did you ever approach your supervision with your concerns about the manipulation of leak rate tests at Unit 2?

A No.

Q Did you manipulate the test because you believed plant management wanted you to do so?

A No.

Q 13: Why did you continue to manipulate leak rate tests following your knowledge of the licensee event report, in response to the NRC discovery of leak rate falsification in October '78?

I think that assumes something that is not in evidence. I could rephrase the question to say: While attempting to use hydrogen to manipulate or what other means you may have used, if there were any other such, do you

recall whether that began before that October-November LER time sequence?

A No. I don't remember.

Q I'm going to disallow 14.

Excuse me a moment. I just want to ponder a couple of these questions.

Number 15 reads as follows: Was it a change in loyalty to the company, following your -- the word "firing" is used. I'm not sure that's accurate. You quit; right?

A Yes.

Q -- after the accident, that moved you to report the matter to the NRC?

A No.

Q Do you feel that the operators are accountable for the manipulation of leak rate tests at Unit 2?

Don't answer that yet. I think that's a conclusion this Board is supposed to reach and not the witnesses. I'll disallow that. I read it for the record.

I believe you've already spoken to question 17, which is as follows: Why was it so difficult to get a good leak rate test at Unit 2? So we'll pass on.

18. This, similarly has been commented on: In your opinion did the excessive leak rate report, in Unit 2, reflect unidentified leakage at that point?

MR. MC BRIDE: I'm sorry, Judge Kelley, I don't

understand the question.

JUDGE KELLEY: I think it means did the test results that you were getting, were they a true indication of unidentified leakage or were they more like random numbers?

THE WITNESS: I don't think they were an accurate indication of unidentified leakage.

BY JUDGE KELLEY:

Q Right. 19: Did you or anyone to your knowledge attempt to determine the cause of tests in excess of 1 gpm? Describe these attempts, if any.

You have already described some of your discussions with coworkers and supervisors. Do you have any knowledge about other attempts, either by yourself or anyone else, to determine the cause of the problem?

A I think on occasion other shifts would start looking for leaks, to identify them. And that would be carried on to the next shift. The off-going shift would transfer to the oncoming shift and they would continue the identification effort.

Q Was that identification effort more pronounced and frequent, say, back in '78 than it was in '79?

A Generally --

Q Well, what I'm getting at, I think if I had been an operator, the more cynical I became about the whole test the less frequently I would look for leaks.

A As I feel it now, that would be correct.

Q Number 20, this is the last question from Mrs. Aamodt: Why was it increasingly difficult to get a good leak rate report -- I think meaning test result -- at Unit 2 during the time prior to the accident?

A In my opinion, at that time, I felt as though the code safety leakage in the reactor coolant drain tank was somehow affecting what the computer was looking at or interpreting. That's still my contention today. I believe that that is why it was increasingly more difficult.

Q Is this related to or the same as leakage from the pressurizer?

A Yes.

Q We have a lot of testimony in the record to the effect that it became tougher to get a "good leak rate" result during that period of time, at least partly for that reason.

What we'll do, then, we've gone through the previously submitted questions and we have a follow-up period. Let's see what that produces.

(Discussion off the record.)

BY JUDGE KELLEY:

Q We have half a dozen or so follow-up questions. The first follow-up question rests on a quotation from your deposition in the B&W/GPU litigation. Do you have that copy

with you?

A Yes.

Q I think you ought to look at it in context. Then we'll ask you the question. Turn to page 264. Actually, go back to 263, toward the bottom, line 18. Does your page read:

"Question: Were there instructions posted that indicated when hydrogen should be added?" Are you with me?

A Yes.

Q Do you want to read the rest of that page, down to line 17 on the next page.

A Okay.

Q The question is phrased as follows: In your deposition in GPU against Babcock & Wilcox, page 264, were you asked --

MR. MC BRIDE: Judge Kelley, may I interrupt because this is our question. I wonder, I think in my haste of writing there you probably did a fairer job than I did in trying to write this question out and I think it would be better to phrase the question whether there is anything in the lines and pages that you just referred him to -- whether he gave the answers that are contained in the lines and pages you just referred him to and whether he was truthful giving the answers. I think perhaps the one answer I pulled out could be read as being out of context unless we give him that

whole opportunity.

BY JUDGE KELLEY:

Q Okay. Having just read, and if you want, you can look again at 263, beginning with line 18, "were there instructions," and so on, down to line 17 on the next page where you say: "No, it wasn't concerned with hydrogen additions," I gather -- as far as you recall, is that an accurate transcript of what was said by you at the time?

A Yes.

Q Do you still believe that that is -- do you adhere to that answer and those answers at this time?

A Yes.

Q Let me backtrack just a bit, though. It's a follow-up question on a follow-up question. The procedure might or might not speak to hydrogen. Let's just assume that that's the case. Let's assume that, except for a reference to "not adding chemicals during a leak rate test," and then you can debate whether hydrogen is a chemical or not, it doesn't speak to it.

When you say that the procedure doesn't speak to it, does it necessarily follow, in your view, that adding hydrogen for the purpose of manipulating a leak test result is unacceptable practice?

A No. Although I don't understand why hydrogen addition would affect the results of the test, my conscience

would tell me that if you would do it to manipulate or to get a good result, it's not right.

Q You say you don't understand it. Is that in the sense that you heard that you could get a different leak rate number by adding hydrogen and you tried it and lo and behold, it worked. You didn't know why it worked. It just worked; is that what you are saying?

A Yes. That's right.

Q And you are also saying, I gather, that your conscience, if nothing else, even if the procedure didn't write it, would tell you that you shouldn't be doing that?

A Right.

Q And that's because you are producing -- I gather it's because you are producing what you know is a phony number?

A Right.

Q You testified this afternoon that you saw Mr. Booher jogging water on one occasion and then you asked him about it at the time. Isn't it a fact that in none of your numerous prior statements did you ever recall having such a conversation?

A I wasn't aware of that; no.

Q Questions from the Staff: You testified today that you can't think of a good reason to throw away a "bad" leak rate test, other than the test being "out of spec."

First, what do you mean by "out of spec"?

A Greater than 1 gpm or less than zero.

Q Secondly, under Administrative Procedure 1010, which applies to tech spec surveillance programs, shouldn't an "exception and deficiency" have been filed for a test "out of spec"?

MR. MC BRIDE: Judge Kelley, I object to that question on the ground that the witness has previously testified that he would have to really dig, I think is the way he put it, to even recall much about that procedure. So I don't think a foundation has been laid to permit him to answer the question.

MR. GOLDBERG: Judge Kelley, it doesn't have to specifically refer to AP-1010. It can just be phrased in terms of the procedures of which he was aware at the time, would an exception and deficiency -- was an exception and deficiency required to be filed with respect to a test which was "out of spec"?

JUDGE KELLEY: Well, we'll allow it. I'll make the observation that we talked some about exceptions and deficiencies and Mr. Hartman's and their filing are not -- but in any case, can you give us a response?

THE WITNESS: I really don't recall. It is back in a faded corner somewhere.

BY JUDGE KELLEY:

Q Is a test being "out of spec" a good reason to throw it away?

A I thought it was. Every time we would submit one that was out of speck, and we'd give it to the shift foreman and tell him that it was not a good one, he'd say, throw it away. It was common practice.

Q Approved by the foreman?

A Yes.

Q You testified that you were shown a test by the NRC where water was added during the test and logged in the control room log by Mr. Booher, but not included in the calculation. Was this a batched, as opposed to a jogged water addition; do you recall?

A Yes. I recall that I testified about that. What I was shown -- this was during testimony, I believe it was in GPU versus B&W; I was shown a leak rate test that I had signed as being valid as a control room operator and it was approved by the foreman. I believe it was Dick Waye but I'm not sure.

And then I was shown a logbook entry in the control room operator's log that showed a 50-gallon addition of demineralized water to the makeup during the time period when the test would have been run. But I don't recall having seen the strip chart of the makeup to know whether it was jogged or batch.

By seeing the log entry, I would assume that it was batched.

Q In the same regard, was it your practice to inform the CRO on shift with you that you were running a leak rate test?

A Yes.

Q Next question: To your knowledge, would a water addition only affect the leak rate test results if the addition were not accounted for by input into the computer?

A That's correct.

Q Next. Would Mr. Booher's explanation to you that he was adding water to influence test results make any sense if he was accounting for that addition by input into the computer?

A No. I'm detecting a bit of, maybe, some time referencing here if I made a statement and answered the question about whether I felt that he was trying to manipulate the test if he accounted for the water additions in the leak rate testing, I would say that he was following procedure.

If he was adding water in a batch and recording it in the log without telling the operator who was running the test that the water addition had been made so that he could correct for it on the test, then I would assume that he did it to get a good leak rate.

Q Let me ask you a related question. I'm trying on my own recollection of testimony two weeks ago, which may not be accurate. But, were you aware of any defect in the instrumentation relating to water additions in the makeup tank, such that you might add 100 gallons and the instruments would say you got 140, something like that? So that you could -- and then, if you wrote down the 100 in your computer calculation, that was perfectly kosher. But you would still get the benefit of defective machine, defective indicators? Are you aware of any such defects in indicators?

A No, I wasn't.

Q Does it seem likely to you that a jogged water addition, done with the intention of manipulating a leak rate test, would be logged by the operator in the control room log?

MR. MCBRIDE: I object, your Honor. That question calls for pure speculation.

JUDGE KELLEY: It's not pure speculation. He was there at the time. Objection overruled.

BY JUDGE KELLEY:

Q Do you have a reaction to that?

A Could you repeat the question?

Q Does it seem likely to you that a jogged water addition done with the intent of manipulating a leak rate test would be logged by the operator in the control room log?

A No.

Q In your signed sworn statement to the NRC on July 26, 1983, you were asked:

"Are you aware of operators jogging water into the makeup to affect the leak? If so, who, and how often did it occur, and, in your opinion, could these instances be in any way conclusively identified?"

Your answer was: "Yes. Ray Booher, myself -- again, my recollection tells me that this was done only occasionally and not as a matter of course. I don't think that foremen and supervisors were aware that this was being done. I don't think the conclusive evidence could be shown to support the "water jogging" effects."

Do you believe today that that statement is correct? We have been over some of this but, in any event, do you believe that statement is correct?

A Yes.

MS. WAGNER: Judge Kelley, we have one more.

JUDGE KELLEY: Do you have that reference here?

MS. WAGNER: Yes. (Handing.)

MR. GOLDBERG: Judge Kelley, there was no verbatim transcript of that interview. That was a record of the interview.

JUDGE KELLEY: I would simply ask for documentary evidence underlying a question the Staff proposes. That is

provide. This is a portion of the NRR report, section 13, is it not?

MR. GOLDBERG: Yes.

JUDGE KELLEY: So it's in the record.

BY JUDGE KELLEY:

Q According to statements in the report of the NRC Staff on this matter, the investigation and report, they interviewed Mr. Blessing, who, I think, was once on shift with you?

A Yes.

Q Was he on shift with you throughout or most of the time or --

A I believe he was on most of the time as an auxiliary operator. Then I don't remember what the exact time it was, he was promoted to control room operator, I believe.

Q For a time the two of you served together?

A Yes.

Q On same shift?

A Yes.

Q The NRR report indicates that Mr. Blessing admitted in an interview with the NRC that he added hydrogen for the purpose of altering leak rate test results. Do you recall from your work with Mr. Blessing whether he added hydrogen to influence test results, to your knowledge?

A No, I don't.

JUDGE KELLEY: Any follow-ups?

MR. MC BRIDE: Can we have take a five-minute break?

JUDGE KELLEY: Surely.

(Recess.)

JUDGE KELLEY: Back on the record, we have one more follow-up question. Mr. McBride wanted to make a comment first.

MR. MC BRIDE: Yes, Judge Kelley, in our haste to prepare some earlier follow-up questions, the factual assumption in one question was that in none of his eight prior statements had Mr. Hartman referred to his testimony today about jogging of water and it turns out that our representation to that effect was incorrect. At page 141 of the B&W transcript, in July and August of 1982, there is a discussion to that effect. I apologize to the Board and to Mr. Hartman for any misimpression that may have been created in that question.

JUDGE KELLEY: Your citation just now is what?

MR. MCBRIDE: Page 141 of the B&W transcript.

JUDGE KELLEY: But the question you had proposed relates to page 156 of Faegre & Benson. I'm a little unclear.

MR. MC BRIDE: Certainly. I understand.

The B&W transcript is among the statements of Mr. Hartman in the Stier report in the record. It's page 141 of that transcript.

It's a discussion of that subject.

This follow-up question, which relates to page 156 of his Faegre & Benson interview of February 1980 is with respect to the same subject but it's from two different statements. That's why it's different page numbers.

JUDGE KELLEY: But the question itself refers only to Faegre & Benson.

MR. MC BRIDE: Yes. I was just trying to make sure the Board wasn't left with a misimpression from our previous follow-up question.

JUDGE KELLEY: Did the previous question refer to the B&W quote?

MR. MC BRIDE: The previous question referred to all of his prior statements, and after the question was put and during the break we became aware of the questions and answers at page 141 of his B&W transcript.

JUDGE KELLEY: Hold on just a moment. We are just having to take a minute to look at context.

MR. MC BRIDE: If you would like I can get you the pages, unless you have them up there.

JUDGE KELLEY: I think we have them now.

Excuse me, I have to confess to some confusion

here. Perhaps you can approach the bench and explain these different references.

(Discussion off the record.)

BY JUDGE KELLEY:

Q We had to look at the context, a couple of transcripts, to understand the context of the question, but I think we can put it to you now, Mr. Hartman.

You earlier testified that you had a conversation with Ray Booher in which you claim that he added water slowly to affect a leak rate test by changing the slope on the makeup strip chart.

In April 1980, in your statement to Mr. Rockwell at Faegre & Benson, referencing the Faegre & Benson report volume 4, tab 6, page 166, you were asked -- and now I'm going to quote from that interview; it's the questioner who I'm now going to quote:

"Question: But was this a subject that was ever discussed with any other individual, if you take and slide the water in, or ease it in, that you can improve the test?" Referring, from the whole context, to jogging water.

I can read the quote again:

"Question: But was this a subject that was ever discussed with any other individual, if you take and slide the water in, or ease it in, that you can improve the test?"

According to the transcript you answered:

"Answer: Yes, I think I did discuss it with at least one person. Possibly others. I can't remember."

Do you recall that? Do you --

A I have it.

Q Page 156?

A Yes.

Q Does that appear to you to be an accurate transcript of what was said?

A Yes.

Q And were you testifying truthfully when you gave that answer?

A Yes.

Q Would you agree that your memory of events at TMI-2, prior to the TMI-2 accident was better in April of 1980 than it is today?

A Yes.

JUDGE KELLEY: Any further follow-up questions?

MR. MC BRIDE: No. No, thank you, your Honor.

JUDGE KELLEY: Mr. Hartman, this then brings us through our question and answer procedure. Let me just say that the Board very much appreciates your coming down and appearing before us today. I'll say again, we asked you to come. You came voluntarily, and we appreciate that.

You can see we are embarked on a very wide-ranging look at this whole thing and I think it's appropriate to note

that you were the person that brought the subject to light many years ago and we think that that was a good thing for you to do. We appreciate it. We appreciate your appearance. Thank you very much. You are excused.

(Witness excused.)

JUDGE KELLEY: Off the record for a moment.

(Discussion off the record.)

JUDGE KELLEY: We are adjourned.

(Whereupon, at 2:50 p.m., the hearing was adjourned, to reconvene at 8:30 a.m., on September 30, 1986.)

CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before the UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

NAME OF PROCEEDING: INQUIRY INTO THREE MILE ISLAND UNIT 2 - LEAK RATE DATA FALSIFICATION

DOCKET NO.: LRP

PLACE: BETHESDA, MARYLAND

DATE: THURSDAY, SEPTEMBER 25, 1986

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission.

(sigt) _____

(TYPED)
JOEL BREITNER

Official Reporter
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