Transcript of Proceedings

UNITED STATES OF AMERICA

PRESIDENT'S COMMISSION ON THE ACCIDENT AT
THREE MILE ISLAND

DEPOSITION OF: DONALD R. HAVERKAMP

Bethesda, Maryland

August 3, 1979

Acme Reporting Company

Official Reporters

1411 K Street, N.W.

Washington, D. C. 20005

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DEPOSITION OF: DONALD R. HAVERKAMP

Room 6-211
7735 Old Georgetown Road
Bethesda, Maryland

August 3, 1979
2:36 p.m.

APPEARANCES:

On behalf of the Commission:

STAN HELFMAN, ESQ.
Associate Chief Counsel

DWIGHT H. REILLY
Technical Staff

GARY M. SIDELL, ESQ.
Associate Chief Counsel
2100 M Street, NW
Washington, D.C.

On behalf of the Nuclear Regulatory Commission:

PAT D. DIXON, ESQ.

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Donald R. Haverkamp	3

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P R O C E E D I N G S

Whereupon,

DONALD R. HAVERKAMP

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

EXAMINATION

BY MR. HELFMAN:

Q Would you please state your full name for the record?

A Donald Richard Haverkamp.

Q Please describe your present title with the NRC and briefly describe your functions?

A My title is Reactor Operations Inspector, assigned to the Reactor Project Section Number 1 in the Reactor Operations and Nuclear Support Branch, Region I, currently assigned as a member of the 3 Mile Island IE staff of the Resident Office of Staff at 3 Mile.

Q Have you ever had your deposition taken before?

A No. I have not.

Q Let me explain to you some of the characteristics of a deposition. You have been sworn; your testimony today is being given under oath and although we are in the relative informality of the NRC Building here in Bethesda, your testimony will have the same solemn force and effect as if it were given in a court of law.

At the conclusion of the deposition, your testimony

will be reduced to transcript form by the court reporter, and in the course of time, you will be afforded an opportunity to review the deposition and make any changes in it you feel are necessary.

You should be aware, however, that should you make substantial changes in the deposition, we would have an opportunity to comment on this and that could substantially affect your credibility.

Therefore, it is important that you try to be as accurate and complete as you can today. For the same reason, it is important you ask for clarification of any question that You do not understand before attempting to answer it.

For the benefit of the court reporter, it is necessary to give audible responses since the taping device and the court reporter would have difficulty recording gestures such as nods of the head.

For the same reason, it is important that you allow me to complete the question, even if you anticipate where it is going before you provide your answer and I will try to allow you to finish your answers before I ask the next question because it makes it difficult for the court reporter to pick up two people talking at the same time.

It is our practice, at the conclusion of the deposition, to recess it rather than terminate it, in the event we have further questions to ask of you. We simply reconvene the

deposition and continue. Do you have any questions about the foregoing?

A I have no questions.

Q You were asked to bring your resume with you. Did you do so?

A Yes. I did.

Q May I have that, please?

A Yes.

MR. HELFMAN: We'd like to have this marked as the first exhibit to the deposition.

(Whereupon, the document referred to was marked Exhibit 1 for identification and received in evidence.)

BY MR. HELFMAN:

Q Is this resume, what you have provided, marked as Exhibit 1 -- accurately relate your educational, professional and employment background?

A Yes. It does.

Q Could you describe briefly what your duties are as a Reactor Inspector?

A My specific duties as a Reactor -- let me ask you a question first. Are you speaking of before the accident or as of right now? The duties have changed.

Q Before the accident.

A Prior to the accident, I was a Project Inspector with broad responsibilities for the overall inspection of the 3 Mile Island. I had had other facilities assigned previous to 3 Mile. Project Inspector is a person who coordinates the inspections that are performed by specialists, performs his own inspections in the operations areas, specifically in the areas of the control room, reviews of logs, records, equipment, configurations plant tours, also review of licensee reports, review of all correspondence that comes into our office under the docket of either 3 Mile Unit 1 or Unit 2, review the inspection reports that are prepared by the inspectors and concur in their reports.

Q What do you do with the reports that you either prepare yourself on the basis of your own inspection or in which you concur, which are prepared by specialists?

A When I review the report, if I find an error in the report, or something I do not agree with, I bring it to the attention of the author. If it is something we cannot resolve, if I am not satisfied with the resolution, I then bring it to the attention of my supervisor, the Section Chief.

Q If you conduct an inspection of your own -- you've indicated that you do some of your own inspections -- at that time, did you prepare an inspection report?

A Did I prepare an inspection report?

Q Yes?

A Yes. I guess in elaboration of that, I prepared

several reports associated with 3 Mile, not just a written report.

Q Where did that report go after you prepared it?

A After I draft a report, it goes to my supervisor for his review and these reports get concurred in by various levels of supervision, at least a Section Chief and a Branch Chief and in some cases, depending on the nature of the findings, the reports get reviewed by the Deputy Director or the Director of our office or by Headquarters.

Q Let me show you a document which bears the date, April 20, 1979, signed by Eldon J. Brunner, Chief, Reactor Operations and Nuclear Support Branch, addressed to Metropolitan Edison Company, a two-page document which covers -- the document which bears the title -- excuse me, bears the name United States Nuclear Regulatory Commission, Office of Inspection and Enforcement,Region I, carries your signature with the date April 17, 1979 and two report numbers 50-289/79/08 and 50-320/79/07, and ask you if you have seen this document before?

A I have seen that document before and it appears complete.

Q Are you including in that, the cover letter?

A Yes, the cover letter and the details.

MR. HELFMAN: We would like to have this marked as the second exhibit to the deposition.

(Whereupon, the document referred to was marked Exhibit 2 for identification and received in evidence.)

BY MR. HELFMAN:

Q Will you please describe, for the record, what this document is that we have just hand-marked as Exhibit 2?

A The document is a report of an inspection which I had performed during the periods of March 19 to the 23 and March 26, 1979.

Q Was that an inspection of TMI-2?

A An inspection of 3 Mile Island Nuclear Station, Units 1 and 2. The inspection was done entirely on-site at the station.

Q Did the inspection cover a number of days, the actual on-site inspection itself?

A Yes. It covered the days from March 19 through the 23rd and then March 26, 1979. The purpose of the inspection was as described in the report. Do you need any elaboration on that at this time?

Q Yes. Could you briefly describe what the purpose of the inspection was?

A I was looking at the -- the purpose was with respect to Units 1 and 2. With regard to Unit 1, I was looking at previous inspection findings, that is, those findings which had

been unresolved or certain items were not complied with during previous inspections and the licensee's followup to those findings.

I was also looking at the various licensee events that occurred at both Units 1 and 2, recent events that were reported in licensee reports. Also I was performing a tour of the Unit 1 areas, specifically because Unit 1 was near the end of a ~~year of~~ yearly refueling outage at this time and I was looking at the preparedness for starting up the facility at the end of the outage.

Q What were your purposes with respect to Unit 2?

A Unit 2, the only purpose was looking at previous licensee events, licensee reports. That inspection did not take me to any Unit 2 areas. That is, it did not take me to the control room, the auxiliary building, or the turbine building. It just required that I talk to various engineers and superintendents and look at some records that were available in a trailer complex that was inside the gate, but not physically at the Unit 1 though -- excuse me, Unit 2 part of the plant.

Q Do you recall what LER events?

A I would have to go through this. There were several; actually I can refer to them by number, if you want. The following events were reviewed; this was a documentation of a review performed in the Region I office upon receipt of the reports -- the written reports for the events, including the

non-compliance notification, 78-26, that has to do with the environmental area of non-compliance.

Q What did that involve specifically? Do you recall?

A It is as described in the report ~~as with a~~ IWFS pH -- ~~with a~~ IWFS discharge ~~of the~~ limit for pH from the industrial waste filter system exceeded -- it was 9.1 which exceeded the permit limitations, the range of which was 6.0 to 9.0.

Q Was that discharged into the Susquehanna?

A Yes. It was.

Q Any others?

A The licensee report 78-73 and 78-74, which were 30 day reports -- do I need to read all -- do you want me to read each LER for the record?

Q If that's the list, let me take a look at it. If there are any that I want further information on, I will ask you.

A While you are looking at that, I can explain that the our inspection of LER's is really a two-fold one. It is a review in the office where we are looking at the correctness of the report so that, we understand it, is it complete, is it a problem that requires immediate followup or is it something that we can defer until a later time to go to the site to review or is it a problem that really requires no additional followup because it is of a minor nature?

These -- the guidelines for performing this inspection are provided in our Inspection and Enforcement Manual, in Manual

Chapter 92700. It is the specific criteria for inspecting LER's.

Our program requires that a certain number of our 30 day reports be inspected; it is a sampling inspection. We look at the accuracy of the report on-site. The program requires that we inspect all of the prompt reports at the facility, and this is the program that existed prior to the accident.

Then, of course, we document the inspection in our report.

Q As a result of your on-site inspections in March of 1979, did you reach the conclusion that the various non-compliances that were noted -- previously noted, had been closed out or that the non-compliances had been corrected?

A I do not understand that, non-compliances, in relation to what, the previous findings?

Q Am I using the word correctly? You have a list of some two-odd of apparent failures or non-compliances?

A These are not necessarily non-compliances. A licensee, ~~in that report~~ event report -- is any event which is deemed reportable by the technical specifications that could be a component failure for example, you would be required to have two operable diesels. If one diesel is not operable because of an equipment malfunction then that requires a 30 day report. It does not mean that the facility was operating in non-compliance of the technical specifications.

Q Is there a word that we can use that would describe these various things?

A We call them events; they are licensee events. The event just means it is a non-routine matter at the facility, which is required to be reported by the licensee and it may require some review by inspection and enforcement for either generic applicability or have our own assessment of the licensee's.

Q It was your conclusion, after having conducted inspections in March of 1979, that the problems noted, as a result of the events listed on these two pages in Exhibit 2, were satisfactorily dealt with by the licensee and were no longer events?

A I have to take a look here. We are addressing another paragraph of the report right now. Most of the LER's that are documented in the report were satisfactorily closed out or considered satisfactorily closed out. Some of the reports were closed out based on review in the regional office and did not even get reviewed on-site. Those specific ones are documented as such in the report.

The following LER's required some additional corrective action or additional review. They included Unit 2 LER 78-74/3L, which concerns the diesel generator failure to start.

Q Had the diesel generator failed to start at the time you conducted your inspection?

A No. This is the report of an earlier failure. I do not have the date but this is an event that happened in 1978, probably in December, although I do not have that report at hand.

Q Did that remain an open event subsequent to your investigation because the diesel failed to start during your inspection as well?

A No. It did not. It remained an open event because the LER -- the report did not fully describe the corrective actions that were taken by the licensee. It was considered that the report had to be updated to better reflect the corrective actions that were taken.

Q The diesel had been fixed?

A The diesel problem was fixed; the reporting problem was not. There was another LER, 79-04/3L, concerns an inoperable valve BS-V-1B, which is a building spray system valve. That LER was left open because the valve was repaired using -- it was temporarily repaired and our program requires that the modifications of equipment, that we leave the event report open until the permanent corrective action is taken and they had not completed the permanent.

Q Did your inspection in 1979 require that you take a look at that valve and see if that had actually been temporarily repaired?

A It is -- it did not require that, no.

Q Did you?

A No. I did not. This was inside the reactor building and I did not have to go into the reactor building at that time to look at that.

Q How did you know the valve had been temporarily repaired?

A It was reported in the LER and I verified that it was temporarily repaired by looking at some records and having discussions with the various engineers at the facility.

Q Is that particular valve a safety-related item?

A Yes. It is.

Q Does that mean that it is a testable item?

A This would be a testable valve, yes. It was tested after repair. The fact it was temporarily repaired does not mean it was improperly repaired. It is just that it had to do with a valve stem problem; a spacer was used -- a temporary spacer was used to get the right adjustment for operating the valve rather than manufacturing a new valve stem. The valve worked satisfactorily with the temporary repair.

Q Had anyone from NRC verified that that valve worked satisfactorily with the temporary repair?

A I verified that when I reviewed the repair because part of our review was to look at their post repair surveillance, at least look into documentation of the fact that they had tested the valve and the valve they were testing was

satisfactory and I did do that in this case. We did not observe it but it was, by looking at their records, related to the testing.

Q The licensee then did the test on the repair that the licensee made?

A Yes, and that is normal.

Q And the licensee then made a report describing the test that they conducted?

A It is not a special report; it is just an additional test was made. The normal test was made after doing the repair to verify the operability.

Q This was done by the licensee?

A Yes. That is part of the change modification -- excuse me, Let me look at this again, please. The testing of any component that is repaired is covered by the work request that is used to accomplish a repair.

Q What is the work request?

A That is a document that the licensee uses to identify the specific nature of a problem associated with a component, the corrective maintenance that is required to fix the problem, the acceptability of taking that component out of service, because -- which is based on an operator's verification that the equipment can be removed from service for repair. It also includes, in the quality control, requirements that need to be complied with such as non-destructive testing, witnessing by

quality control inspectors of the work, if it is a safety component, also the post-repair maintenance or testing to verify its operability.

Q In your determination that this temporary repair had been done, and was satisfactory and the valve was properly operating, did you review this work request?

A Yes. That is documented in the inspection report.

Q Did you review anything else?

A I reviewed the change modification documentation that was associated with the work request.

Q Was that also prepared by the licensee?

A Yes. It was and I reviewed the minutes of the PORC meetings. PORC is the Plant Operation Review Committee which documented the fact that this work request had been performed, and the modification was approved.

Q Is that a licensee -- Plant Operation Review Committee, is that a licensee committee?

A Yes. I verified that the PORC was tracking the repair of this valve and the fact that they had not yet closed that out because it was a temporary repair. So the licensee was keeping track of the fact that it needed permanent repair in the future.

There is one additional factor in this particular problem that I looked at; that was the generic applicability since it was a bent valve stem. I looked at other valves of

similar design that were used at the facility.

Q You physically looked at the valves?

A I didn't look at them; I identified them by records and talking to various licensee personnel and looking at drawings.

Q Documentation prepared by the licensee?

A The licensee or their contractor, yes. It wouldn't be much good to look at a valve because you cannot identify a valve that easily by the looking up and trying to -- the way to identify valves of similar design is to look at the records. There were 18 other valves of this particular manufacturer that had similar stems that could be susceptible to the same problem so that was an additional aspect that was being reviewed by the licensee. That is another reason for leaving the events open.

Q When you discovered a potential generic concern, did you ever communicate that to the Bethesda office?

A No. The licensee's review was not yet done. It was still kind of in the earlier stages to find out whether or not there was a need for a permanent repair. That is really what it was up to resolve -- I did not feel that the other valves had to be modified. I did not have enough information but I thought that the licensee needed to address that matter. My management was aware of that because they reviewed the report and we talked about it.

Q And that generic concern is stated in your report?

A That's correct. Another licensee event that was left open or unresolved was the licensee event report 79-05/3L, concerned a small crack in a pipe weld in their decay heat systems, specifically in the B Decay Heat Pump Discharge Relief Valve.

The crack was believed associated with the manufacture or with the construction of the piping, fabrication of it and there was an evaluation in progress by the architect engineer to determine whether additional pipe hangers were necessary, so that the problem would not repeat itself.

This is another problem that was being traced by their Plant Review Committee. Since the information was not available to determine whether or not it could be closed out, it was left as an unresolved item.

Q Where was that pipe located?

A This would be in the auxiliary building in a pit about 30 feet below the basement level in a sump.

Q Did you inspect that pipe?

A No. I did not. I did not go into any -- I have inspected that pipe, but not for this particular reason, during previous inspections but this inspection, I did not go to the auxiliary building.

Q Did you rely primarily on documentation which had been prepared by the licensee?

A Yes. That was the whole purpose of this inspection, was to review that documentation which supported the licensee event and if there was any, based on looking at the documentation to actually look at the equipment, then I would have done that.

Q Did you rely on anything other than documentation that was prepared by the licensee?

A The only documentation prepared by the licensee or their contractors and discussions with the various licensee representatives.

Q Any others?

A The last report that was left unresolved was LER 79-10/1T. This LER is somewhat different from the first two that I had discussed because as a prompt report, actually this is a 10 day or 14 day followup to a prompt report. The other LER's were 30 day reports.

Q Does that indicate some greater urgency with respect to this matter?

A Yes. It means that there are several criteria that require prompt reporting of problems. One of those is operating in non-compliance with the technical specifications, which was the case for this report.

The report described the boric acid mix tank being out of specification and the physically operating in violation of Technical Specification 3.1.2.9, requirements.

The LER was considered inadequate in that it did not

fully describe the corrective actions that were taken by the licensee.

Q Where is that particular component located at the facility?

A The boric acid mix tank is in the auxiliary building again, ~~Building~~ Unit II.

Q Did you look at that tank in the course of doing the inspection with this report?

A No, because it had no relevancy with the problem identified.

Q The problem was with the report?

A The problem was with the report, yes.

Q What was the problem with the report?

A It did not identify why the boron concentration was high, why it was out of the specification.

Q Had that problem been corrected by the licensee by the time you did your inspection?

A Yes. It had. I do not have the date of that at hand.

Q Was it prior to March?

A Yes, prior to March.

Q Did you conduct --

A -- It may have been in March. I am not sure if it was March or not.

Q At the time the licensee took corrective action, so far as you know, did you inspect that tank to determine whether

or not the corrective action had, in fact, been taken?

A There is no way -- the problem was that the concentration within the tank was out of specification. It was returned to specification. By looking at ~~that side~~ the inside of the tank, you cannot tell what the concentration is of the boric acid inside of it. That is done by a chemical analysis.

Q A sample would be taken and then analysis done on the sample?

A That is right; that is how they found out it was out of specification in the first place, but they had fixed the problem and they had the corrective actions -- the immediate corrective actions were considered adequate.

Q Did they take a sample and do an analysis after the correction had been taken, so far as you know?

A Yes. They did. In fact, I looked at similar sample records.

Q You reviewed the licensee's -- the report of the licensee's analysis of the sample which was taken following the corrective action?

A Yes. I did. I also reviewed or determined that the concentration of the boric acid mix tank was correct at the time of my inspection, that the problem had not recurred since the time they first identified this.

Q How did you assure yourself of that?

A By looking at the licensee's records of the sample

results. We do not do our own independent measurements of the boron concentration; that is not part of our program. Sometimes you do watch the licensee perform a calculation or perform an analysis. The measurements are done very frequently.

Q Are there any other items?

A That was the last item associated with Unit 2. I may have to look at that for previous findings. I think it was Unit 1 only.

Q Are nuclear reactor plants subject to on-going inspections apart from inspections such as this which concerned itself with particular events and the LER's?

A The inspection program for 3 Mile Island, Units 1 and 2, is covered by our manual chapter which takes various modulues. I don't know how much detail you want me to go into on that at this time, but I guess I could only refer you to the manual, Chapter 2500 of our IE Manual, which includes different types of inspections during construction, pre-operational testing, start-up testing, end operation and also decommissioning phases.

Q Did TMI II have its operator license in March of 1979?

A Yes. It did.

Q Is a plant which already has its operator license, subject to periodic on-going inspections which are not related to particular open events or LER's?

A Yes. Most of the inspections that we perform are

programmatic as we are looking at quality assurance program or environmental monitoring program, the surveillance program, things of that nature.

These inspections, prior to the accident, were done pretty much on the annual frequency where specialists in those areas in our office would review the licensee's program for maintenance or for calibration and surveillance, things of that nature and they would also look at some specifics, not just the program requirements, but also some specific records of the maintenance or records of surveillance.

In effect, they would try to witness some of those activities. That was part of their inspection.

Q When you say an annual inpsection, do you mean once a year, or an on-going?

A Once a year inspections. At 3 Mile, we do not have a resident inspector assigned. They were scheduled tentatively for the fall of 1980 to have a resident inspector, to my knowledge. So the inspections were performed from the regional office, the King of Prussia, and that meant that I would go perform my operations inspections about, for example, once every three months. I was required to review the plant operations.

Q At TMI II?

A At TMI II, and also operations at TMI I, but usually did those as doing separate inspections.

Q You used the term annual inspections and yet you did an operational inspection every 3 months?

A That's correct.

Q In what sense are you using the term annual inspection?

A The annual inspections, you have to look -- it's difficult to answer this in this type of form, but you have to look at the manual chapter and the entire schedule that is used to develop the inspection program for that year. It is a coordinated inspection plan which I direct and the other project inspectors conduct those plans with their facilities. We recommend the guidance as to what inspections had to be done. It is our responsibility to schedule those, and see that the inspections are performed.

Q Did you inspect operations at TMI II more often than was required if an annual inspection is all that is required?

A I perform -- I went -- the operations inspections were required every 3 months on a quarterly basis. That was for plant operations, inspections meant to review logs, records and a facility tour and there were certain specific things we would look for in those directions.

I also did annual inspections of, for example, the organization or the program changed. I participated in some annual inspections, for example, of the emergency planning, although I was not the lead inspector for those.

In addition to that, I went to the plant on a frequent basis, because reviewing the licensee events that occurred and reviewing the previous inspection findings that other inspectors had, and doing what I have always called independent inspection, about 80 percent of our time -- of our inspection time, was pre-programmed. We were given the guidance that about 80 percent of our time on-site or during inspections was to be in accordance with the modules that were developed in the inspection procedures, that were established.

About 20 percent of my time was to review other areas that we felt were necessary to look at but were not specifically delineated in the program.

Q When was the last time that you conducted an inspection such as that prior to the more limited inspection you conducted in March of 1979 at TMI II?

A Before that, that inspection was in some regard an independent inspection because it was where we got our manual chapter requirements, we were looking at licensee reports. The manual requires that we look at 5 percent on the 30 day reports. I was reviewing a larger percentage of those with the concurrence of my supervisor.

The independent inspection I did primarily consisted of going beyond the scope or the frequency of the programmed inspections.

Q Prior to March of 1979, when you did this inspection

which is detailed in Exhibit 2 to the deposition, when had you conducted an inspection of TMI II?

A I do not have the schedule with me. To my recollection, the last ~~Penn~~ plant operations inspection was in January 1979. There was also a management meeting conducted at the Region I office in February of 1979 and I believe that was the last inspection at II. I just do not recall an earlier inspection in March. As I said, I would have to look at the records to verify that.

Q Are you referring to this meeting as an inspection?

A There is an inspection report prepared; it is actually a meeting of licensee management and Region I management. The meeting was conducted at King of Prussia.

Q What was the purpose of that meeting?

A That was to review -- the purpose of the meeting was to review, in a general sense, the weaknesses or specific concerns we had identified during the previous 3 to 4 years. In this case, the meeting was for Units 1 and 2. It provides an opportunity, one, for our regional management to identify who the licensee management is and vice versa.

Part of the reason for the meeting was for each branch chief or section chief, and the director, of course, to identify themselves in their own areas of responsibility. We have had telephone calls, the licensee management; they would put down who they were talking to.

Another aspect of it was to review some of the

licensee events that had occurred during the previous year in the case of Unit 2, because it really covered the period since the license was issued in February of '78 or the past 4 years for Unit 1 because it had been that long since we had had a management meeting. The meetings are supposed to be conducted at a 3-year interval.

Q Two questions occur to me. You said that the license was granted in February of '78. Are you referring to the TMI II operator's license?

A Operating license, that's correct.

Q Do you recall the precise date?

A February 8, 1978.

Q The second question, with respect to the meeting that you have described where events which had occurred at the plant over the preceding years or months were discussed with management, did that concern only open events or unresolved LER's or did you discuss generally all sorts of problems and events that had occurred?

A First meeting was fairly general in nature. It was not a specific rehashing of every event that happened during the previous 4 years. I had prepared a list of the licensee events that had occurred, tried to group those according to either a prompt report, a 30 day report, and also as to the cause of the event, if it was personal error, design deficiency, procedural inadequacy, things of that nature.

Then I also provided some comparison between Metropolitan Edison -- that is, the 3 Mile Island facilities and other operating plants. Also I prepared a listing of all non-compliances that had occurred since the last management meeting, or the 3 Mile Island ones.

Q Did you bring with you the list of events you compared -- the comparison of the list of non-compliances to which you referred?

A No, but that information is available at the regional office.

Q Would it be possible for you to arrange for copies of these three items to be sent to us?

A Would you state that again?

Q Let me give you a piece of paper -- or you have one there. Why don't you jot them down. The first is the list of events that you questioned; the second item would be the comparison which you prepared of TMI II with other operating plants; and the third item would be the list of non-compliances that you prepared.

A To my knowledge, these things have already been provided to the inquiry team.

Q Which inquiry team?

A They may not have been provided to the ~~present~~ President's commission.

Q Who were you referring to?

A The NRC Inquiry Team.

Q Is that Rogivin inspection team? Do you know how to spell Rogivin? Would you spell it for the reporter, please?

A R-o-g-i-v-i-n.

Q You also indicated that an investigation report was prepared as a result of this meeting?

A An inspection report, yes, documented the meeting and the list of attendees.

Q What was discussed?

A In general? Yes, in general terms.

Q Could we also be provided with a copy of the report?

A That is one of our inspection reports. Do you have all of our inspection reports?

Q If you saw our document room, we may very well have it.

A You want me to specifically provide this?

Q Yes.

A Okay.

Q I assume you did not bring a copy with you?

A No. I did not. This is it.

Q Let me show you a document that I found in my file dated February 26, 1979. It has dockets numbers 50-289 and 50-320 in the upper lefthand corner of the first page. It bears the signature of Boyce H. Grier. That is B-o-y-c-e G-r-i-e-r. The subject indicated on the first page is "Combined

Management Meeting" repeats the docket numbers and would you describe what this three page attachment is?

A The attachment to the report is a listing of the persons who attended the meeting, which was held February 9, 1979. These are the attendees both of the Metropolitan Edison Company and also the NRC Region I people. In addition, it describes the areas discussed during the meeting, which is somewhat of a standard summary of the type of meeting.

Q Are minutes normally kept of such meetings?

A No.

Q Are these meetings tape recorded?

A No.

Q Is a court reporter present during these meetings?

A No..

Q Did you take notes during the meeting?

A I took some notes but I do not have them any longer.

Q Do you know if anyone else took notes during the meeting?

A I recall that most people at the meeting took notes for their own purposes but I do not recall the specific individuals.

MR. HELFMAN: Let us have this marked as the next exhibit, which I believe is Exhibit 3, this February 26, 1979 document concerning the combined management meeting.

(Whereupon, the document referred to was marked Exhibit 3 for identification and received in evidence.)

THE WITNESS: I want to point out one thing in relation to this meeting, it was not an enforcement meeting. It was -- in other words, it was not a meeting called because of specific concerns identified during inspection which would necessitate a higher level meeting between our management and theirs. It was a routine meeting that was conducted for all licensees, meetings -- this was done for refamiliarization because licensee management changes and our management changes and it is to bring the principal members in face-to-face contact with each other about once every 3 years, in addition to identifying these problems.

BY MR. HELFMAN:

Q You've indicated that to the best of your recollection, the last previous inspection you had done at TMI II prior to the March series of inspections was in January 1979?

A Yes.

Q Let me show you a list of inspections conducted at TMI II from the period February 6, 1978 through March 2, 1979 and ask you if this appears to be an accurate and complete list of the inspections that were conducted and the results of those inspections?

A I cannot answer that question from this list because there is no inspection number associated with these dates and I do not know, I cannot tell without looking at -- I go by a sequential number. I would have to have that information available, also the findings. Somebody else has prepared the list.

Q This list was not prepared by you, in other words?

A No. I did not prepare the list. It may be accurate, but I cannot tell you that by looking at this right now. I would point out there is much better information available from my computer printout that does identify inspection by number, date and the specific non-compliances.

Q Do you have that computer printout with you?

A That is available from our office files. It is called an enforcement summary. That would be the name of it.

MR. HELFMAN: This will be off the record.

(A discussion was held off the record.)

MR. HELFMAN: Let's go back on the record.

BY MR. HELFMAN:

Q Would it be possible for you to provide us with the computer list -- computer printout list of inspections to which you referred?

A Yes.

Q Do you think you could arrange to have that done within a week?

A Yes.

Q Let me show you a document which bears the title, "Three Mile Island Nuclear Station Procedure Change Request" and ask you if you have ever seen it before? It bears a recommendation date of 8/10/78 and an approval by a unit superintendent dated 8/15/78?

A I will further identify this as a procedural change request number 2-78-707, associated with Procedure 230-M27A/B Provision 3. To answer your question, I do not recall seeing this before.

MR. HELFMAN: We would like to have this document marked next in order to the deposition, Exhibit 4.

(Whereupon, the document referred to was marked Exhibit 4 for identification and received in evidence.)

BY MR. HELFMAN:

Q Are the EF-V12A/B valves considered safety related items?

A To my knowledge, they are safety related.

Q They are safety related?

A Yes.

Q When you conduct inspections of a nuclear facility, such as TMI II, is your primary focus directed towards safety related items?

A The answer is yes; the primary focus is for safety related items. Perhaps something different to express, is that the focus -- is that it complies with the technical specifications and license requirements.

Q So the answer is yes?

A Yes.

Q When an investigation is conducted on-site of any facility, would a safety related item such as the valve described in Exhibit 4 have been the subject of an inspection?

A Let me answer that question in two parts. First, the investigations are not normally performed -- investigations are performed and investigation is usually done in response to an allegation that is made concerning the facility, but the safety related items you are referring are not necessarily inspected but it is more the controls, things like the procedures that are used to operate safety related equipment, which is what we have here, is a temporary change, actually a procedural change request for a procedure that is used to test the motor-driven emergency feedwater pump valves, the valves you referred to as EF-V12A/B.

Our inspection program is a sampling inspection and may or may not review the specific procedure change request.

Q Does this procedure change the sort of change which would constitute a violation of tech specs?

A It appears to me that is true, although I have not

personally done the investigation; other people have looked into this change. I have heard their discussions of it and I believe that shutting those valves would in fact violate the technical specifications.

Q Was this investigation that you have just referred to a post-March 28, 1978 investigation?

A Yes. It was.

Q To your knowledge, was any investigation done between 8/15/78 and March 28, 1979 concerning this change in procedure?

A There was no investigation, nor was there any inspection, to my knowledge, done of this procedure.

Q Between the period 8/15/78 and March 28, 1979, did you or people on your staff conduct an inspection of TMI II procedures?

A May I see the list you have of inspections?

Q Yes.

A I do not think that inspection was performed by procedures or procedure changes during the time period that you mentioned. I believe there was an inspection shortly before then in a period, as I recall, of around July 1978. The procedures were reviewed, although I cannot identify from that list. However, procedures -- I look at procedures -- certain procedures, during every inspection, are performed. It just happened, this is not one of them. I do look at other procedures because I review the implementation.

Q Is the licensee obligated to call such procedural changes to your attention?

A Only if the procedure change constitutes a change as described in 10 CFR 50.59 (a). Those changes require prior NRC approval. The licensee is allowed to make changes to the procedures as described in the FSAR.

Q Is the licensee authorized to make changes in procedures which would result in a violation of tech specs without NRC approval?

A No.

Q So with the change that is described in this procedure change request for this sort of change, which the licensee would be required to report to you?

A The licensee would not be allowed to make such a change, no, indeed. In the first place, if the licensee had identified that the change was made after the fact, that would be the basis for a prompt report.

Q We note at the bottom of this Exhibit 4, box number 10, entitled, "Approval" and it reads, "Manager generation Quality assurance." There is the notation NA where the signature would go and a slash where the date would go.

Does this indicate to you that quality assurance was not afforded an opportunity to approve of this change in procedure?

A Yes.

Q Is this normal procedure for procedural changes such as this?

A Yes. The manager of generation quality assurance, as described in this change form, is required to approve those changes that concern certain administrative procedures that are listed in their Administrative Procedure 1,0001. That is, he has to approve some of their station administrative procedures because those are the procedures that implement quality assurance requirements.

He does not necessarily have to approve the individual operating procedures or ~~service~~ surveillance procedures by their current program.

Q The administrative procedures that you refer to, would they be built within a form such as this, the same form?

A Yes. This form is used to document and effect a permanent change to a procedure.

Q Can you explain how it is that this procedure change request and the apparent change in procedure was not called to your attention or did not come to your attention?

A No. I cannot explain that.

MR. HELFMAN: Off the record.

(A discussion was held off the record.)

MR. HELFMAN: Let's go back on the record.

BY MR. HELFMAN:

Q As a part of your duties as a inspector, do you

review or inspect instrumentation in the control room to determine whether it is functioning properly?

A I review whether the parameters that are indicated by the instruments are within technical specification requirements as opposed to whether the instrument is functioning properly, which is another part of our inspection program. That would be their surveillance or calibration of the instruments.

I review the indicated information not necessarily the instrument.

Q You review the indicated information to determine what?

A Compliance with the technical specifications. For example, is the level of the ~~boron and~~ borated water storage tank within specification within upper and lower limits? Is the temperature of the cooling system within the limits?

Q So you use the indications to determine whether other components are within tech specs?

A That is correct. This is done by the program once every 3 months. We select, on a random basis, the ~~primaries~~ parameters we want to verify.

Q Do you review control room instrumentation layout or location?

A No. Design of the control room is not within my -- the inspection effort.

Q Is it within the duties of any inspector that you know of, or any NRC department that you know of?

A I do not know of any inspector or any individual in inspection enforcement that reviews the design and I cannot ~~design~~ answer for NRR.

Q You indicated that there is an inspector that inspects or determines the range of instrumentation. Is that someone who reports to you?

A Not necessarily the range but the operability of the instrumentation. There is -- the operability is based on calibrating the instrument at a specific frequency and then doing a surveillance that is a check of the electronics associated with the instrumentation on a more frequent basis and then comparing instruments of similar parameter, such as you have for instruments that measure temperatures. You compare one against the other to check and see that they are working.

Other inspectors assigned are performing inspections on those areas. They do not report to me but they are specialists within our office and I review their reports. ~~There are specialists and they report the reports.~~

The range of ~~our~~ instruments, the ~~other~~ instruments, may be inspected but it is not because our program requires it but because an individual may be looking at a temperature instrumentation or pressure or level and just by happening to observe the instrument, he might happen to know of an error but

it is not ~~for the error~~ programmed inspection that does that.

Q Is something left to the discretion or the whim of the particular inspector?

A You could call it that, perhaps the independent inspection effort of an inspector.

Q And independent meaning what he may take upon himself to look at?

A To look at the ranges, that is correct. There is no programmed -- there is no modular or inspection requirement for us to look at the ranges of instruments.

Q There are, as you know?

A That's correct.

Q Would the fact that repaired tags on instruments in the control room hung down and covered indicators or controls or other items on the control panel is something that would fall within the duties of an inspector to note?

A Yes.

Q Do you recall when the last time was that you walked through the control room at TMI II prior to the March '79 -- I think before you answer the question, since you referred to this list a number of times, we ought to have it marked as an exhibit. This will be Exhibit 5 for the deposition.

(Whereupon, the document referred to was marked Exhibit 5 for identification and received in evidence.)

MR. HELFMAN: This is a purported list of inspections conducted at TMI II, starting with February 6, 1978 and up to March 1979.

BY MR. HELFMAN:

Q Are you ready?

A The last time I recall making a tour of the control room is in January. I believe it was the period January 8 to 11, although I cannot recall the specific dates. That is when I believe I did the last operations inspection.

Q Would that inspection have taken you through the control room on more than one occasion?

A Yes, frequently. There were other NRC individuals that were in the control room, to my knowledge, since that time.

Q Do you happen to know who they are?

A They were operating licensing examiners. I believe the individuals are Bruce Wilson and Bruce B-o-g-e-r, Boger. They were at the 3 Mile Island Station during the same period when I was doing my inspection in March which was around -- in March '79, like March 13, 16, 19, about that time period. I am not sure but it's about that time.

Although they were performing examinations of the operators, the licensee --

Q Do you recall if when you walked through the control room on those several occasions in January of 1979, you noticed that instruments were out of calibration?

A I do not recall noting that, no.

Q Did you notice whether tags were hanging from instrumentation, covering other instrumentation on the control panel?

A I did not note that the tags in place were covering indications or other controls.

Q Were there tags in place when you toured the control Panel in January?

A Yes.

Q Did you note that they were not covering other controls or indicators on the control panel?

A I did not note that they were not covering the indications either.

Q You did not note one way or the other?

A I did not specifically look for that in my inspection.

Q During your January on-site tour of the facility, did you have an opportunity to look at -- before I ask that question, let me ask you if there is a position indicator in the control room for the EF-V12 A and B valves?

A Yes, there is.

Q Do you recall whether you noted, during your inspection of the -- your tour of the control room in January of 1979 that the valves were in a closed position instead of open?

A I did not look at those valves during that inspection or the indications.

MR. HELFMAN: Off the record.

(A discussion was held off the record.)

MR.HELFMAN: Let's go back on the record.

BY MR. HELFMAN:

Q You indicated off the record that you did not understand one of my previous questions concerning miscalibration of instrumentation. Do you recall now whether you noticed that any instruments in the control room were out of calibration when you walked through the control room in January 1979?

A Yes. There were instruments used for various purposes including the sensors for pressure or temperature or radiation monitors that had stickers on them, indicating that the valves were out of calibration.

In the cases where I observed these stickers, I looked at the instrument to find out if there was a technical specification requirement to have the instrument in service and the cases, I do not have the specific instruments at hand, I cannot recall them, but the ones that were out of calibration were not required by technical specifications. They were for information purposes.

Q Did you do any reports which indicated the lack of calibration or the out of calibration condition of these various sensors and monitors?

A No, since they were considered non-safety related.

Q Do you recall whether -- is the quench tank

pressure ~~temporature~~ instrument considered to be safety related?

A That's a tough question. To my knowledge, it would not be considered safety related because there is no technical specification requirement that the licensee monitor or record quench tank pressure or level or temperature.

Q Do you know where in TMI II the quench tank pressure or level indications are located?

A Yes. Actually they are right where the drain tank that is equivalent to a drain tank -- the instrumentation for the drain tank is on the back side of the panels that the operator is facing. Actually if you are looking towards the center of the control board, it is on the left portion of the control board, on the back side of that panel. So it is not actually in sight of the control operator.

Q Are there any other indicators which are out of the sight of the operator as far as you can recall?

A The indications ~~were~~ for the ventilation system, such as fans, valves associated with the ventilation system, are also on the back side of these panels.

Q Would this include the ventilation system in the auxiliary building?

A Yes.

Q Any others?

A I just cannot recall them right now.

Q Is putting such indicators on the back of a control

panel a violation of any requirement or spec as far as you know?

A No.

Q Do you recall whether the pressure and temperatures sensors which you referred to and noted were out of calibration, sensors which detect pressure or temperature of items which are part of the primary coolant system boundary?

A I do not recall any such sensors being out of calibration.

Q Are the radiation monitors considered to be safety related items?

A No.

Q Are the instruments which detect or display what they are monitoring considered to be safety related items?

A Would you repeat that, please?

Q I asked a preliminary question, are the sensors or are there indicators which indicate what the radiation monitors are monitoring?

A Yes. You have instrumentation that monitors and indicates the iodine or particulate activities.

Q As detected by the monitors?

A That's correct.

Q You have indicated that the monitors themselves are not safety related. Is the instrumentation which displays what the monitors are sensing considered to be safety related?

A No, not to my knowledge.

Q Do you have a personal opinion as to whether that is a reasonable classification of radiation monitors?

A Safety related as defined, are those systems or requirements that are required for the safe shutdown of the facility or for -- I forget the exact definition, but anyway, for accident response. Radiation monitors are not required by that definition. They are not considered safety related but they are important. To me, they are important, but there is no legal requirement, to my knowledge, that they be operable.

Q Is the definition of safety related, in your opinion, too narrow or is it appropriate?

A I can only give my opinion.

Q That's all I am asking for.

A Having requirements for safety related systems is too narrow to impose upon utilities. I believe that you should look at the individual sensors and assess the importance based on the system they are associated with, such as these radiation monitors which are important from a health and safety standpoint and from an exposure control. It is very important yet there are no requirements and I think the requirements should be much broader placed upon the licensees.

Q Is this opinion of yours based on post-TMI I and II transient learning?

A I had that opinion prior to the transient.

Q Have you communicated that opinion to anyone within NRC?

A Yes, informally.

Q Informally?

A That is, in discussions with my counterparts and supervisors.

Q Was anything formally done with respect to your feelings or the feelings of those you discussed this with by way of a formal recommendation, report or memorandum to the NRC?

A In the case of the radiation monitors, I believe that one of our inspectors, Karl -- I believe it is with a K -- B-l-u-m-l-e-e -- he was assigned as a radiation specialist for the facility and one of the areas of concern that he had identified was the fact that they had a lot of radiation monitors that were out of service and this was identified by memorandum internally, they sent out to our office. I do not know just how far they got, if it went to headquarters or if it stayed within our office. It is in the inspection reports.

Q Would you be able to provide us with a copy of Mr. Blumlee's inspection report concerning radiation monitors?

A I should be able to get that.

Q I assume you did not bring a copy with you?

A No. I didn't.

Q On the basis of our post-TMI transient learning, are

you presently aware that for TMI II there was no shift change procedures in the control room?

A I do not understand your question. First of all, to my knowledge, there was a shift change procedure that existed. Whether or not it was in the control room, I don't know but the files are right there in the control room and there was a procedure, an administrative procedure that there were control room operator duties and responsibilities which addresses, at least in part, shift changes and on previous inspections -- if this is the type of procedure you are referring to -- I verified that at least the procedure was in the files and that is in the control room.

MR. HELFMAN: Let's go off the record for a moment.

(A discussion was held off the record.)

MR. HELFMAN: Back on the record.

BY MR. HELFMAN:

Q When you referred to a shift change procedure which was in existence that you were aware of, what sort of a shift change procedure are you referring to?

A It is a procedure that specifies some very basic -- a few requirements that the operators must at least determine the status of the plant before they relieve the watch and that sometime during the shift, they are supposed to review their records and they have to describe at some point when they review these recors. It is a minimum list.

Q You said this requires that the operator review the status of the plant. Is that the operator that is going off shift or the operator coming onshift?

A The operator coming on shift. It is both the operator -- you have the control room operator, plus the shift foreman and the shift supervisor and I believe it addresses those three positions.

Q Do the shift change procedures require a detailed statement by the operators or foremen who are going off shift to relate to the operator and foremen who are coming onshift as to the standards of the plant?

A The procedure does not require that the operator coming on the shift have a detailed turnover of plant status. For example, there is no requirement that the shift foreman tour the facility before he takes the shift. There is no requirement that the person operating the controls coming on shift physically walk the control room panels and verify that all the valves are in the right position. There is no requirement that they look at all the enunciator alarms and verify there are no abnormal alarms, things of that nature.

It is more of a verbal turnover of the plant status. The -- is on line at 99 percent power, things of that nature and it would require that any other service equipment be identified to the person coming on the shift, that is technical specification required.

Q But basically a very general statement?

A A list, a minimal list of items to be addressed during a turnover and some things in fact are allowed to be reviewed after the fact. That is, the logs are allowed to be reviewed after the turnover is complete, after the operator assumes the watch.

Q And after the persons who know about the entries they made in the log have gone?

A Yes, because in some cases you have to review the logs since your last shift so obviously all those people are not going to be there at the time. That is impossible but they have to review. If it is a ~~floor~~ four shift rotation, they would have to look at the whole day's or the ~~block~~ back entries.

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Q In your opinion, is this shift change procedure adequate?

A In my opinion, it is in compliance with our regulations.

Q Are the regulations adequate?

A That's a matter of judgment.

Q What is your judgment?

A I think that the requirements for shift turnover should be more specific and should require, in my personal opinion, an operator come on an hour before his shift to tour the plant and become familiar with the shift and of course, that has to be paid for, but that is not my problem. There

should be a more extensive turnover of information.

Q As an example, as we know in post-TMI learning, the EF-V12 valves were closed. Would the present shift change procedure require the operator going off shift to notify the operator coming on shift of that fact?

A To my knowledge, if you were aware of that fact, it would require that because that would be -- it's really not a fair question because having those valves closed, by the technical specifications, those valves are closed which puts both the ~~drains~~ trains of emergency feed water inoperable, then the plant could operate for 1 hour before they have to shutdown and so it is just an unlikely situation that you would have that happen and the operator be aware of it.

Q Be unaware of it?

A No, it is unlikely it would happen and have the operator be aware of it because if he were aware of it, he would open a valve. It is possible that it could happen and not have him be aware of it because there is no alarm that goes off if somebody were to shut the valves.

There are a lot of lights in the control. The valves could be open or operated remotely. It is possible to operate the valves remotely, not in the valve room, not in the control room.

Q These valves to which we have been referring are the valves in the auxiliary feed line or the main feed water line?

A In the emergency feed water line.

Q The auxiliary feed water line?

A It is called the auxiliary feed water line at Westhinghouse facility but emergency feed water line at B&W design.

Q You've indicated that the plant could only operate for a hour so these valves were closed -- let me understand you correctly. Are you saying that if both valves on the emergency feed water system are closed, the plant would be able to run only for a hour or so even if the main feed water system were opened?

A That's correct, according to technical specifications. I do not have the technical specifications with me but during operations of that power, if the plant was operating as it was operating on March 28, they are required to have two trains of emergency feed water in service. That is the pumps, valves, the line up ready to operate if needed.

The technical specifications ~~are~~ allow one train of emergency feed water to be out of service for a certain period of time, say 8 hours, althou .. I do not recall that time, that would be for maintenance purposes or if you have a problem, you are allowed to operate for a certain period of time with only one train available.

The specification for emergency feed water system only addresses having one train out of service. It does not address

having both trains out. However, there is a general provision in the technical specifications which I believe is Specification 303 that says if you are beyond -- if you are operating in excess of those conditions that are allowed by the tech specs, such as having both trains valved out, then you are shutdown within 1 hour. There would be a cold shutdown within a certain period of time afterwards.

Q When you referred to having to shutdown the plant, if both of the auxiliary feed valves are closed, are you referring to an automatic shutdown, automatic trip of the reactor that would automatically occur or are you referring to a requirement as to what the operator must manually do if he discovers this to be the case?

A This is -- ~~operated state~~ operator takes manual action to shut the plant down.

Q In other words, these two valves that we referred to, the EF-V12 A and B valves could both remain closed and yet the plant could continue to operate?

A Yes, it is physically possible for that to happen, yes.

Q So if during the shift change procedure an operator who is going off shift either did not know or did not inform the operator coming on shift, that these valves were closed, the plant could conceivably continue to operate for another shift or more, for days, for weeks, for months, with these

valves closed; is that correct?

A That is correct, to a point, because those valves are checked for their operability on a monthly basis, I believe.

Q By whom?

A By operators, that means you have to cycle the valve, you have to operate the valve. Normally, it would be open but you have to demonstrate that it is capable of closing so you stroke the valve shut and open the valve to demonstrate that it works properly.

You also had to perform checks of the pumps, the emergency feed water pumps. So during these evolutions you identify the fact that the valve was closed. ~~If you did not identify, you'd presume it.~~ DRH DRH

Q You would presume from that -- if we presume hypothetically that these valves were closed from August 19, 1978 through March 28, 1979, that those operators who were performing these tests on the valves were aware that they were closed in violation of tech specs?

A No. We were looking earlier at a change that was made to a procedure. That is used during the -- could I have the procedure?

Q Exhibit 4?

A This procedure is used to perform the monthly verification of the operability of the motor-driven emergency feed water pumps and in addition, it performs a verification

of the valve operation. So this change -- what the procedure is referring to is the fact that the valves were closed in order to perform this test and at the end of that test, if we had the whole procedure here, we could look at it, you would see that the valves were reopened upon completion of the test or should have been reopened to return the system -- to online the fact that both valves were closed at the same time is contrary to tech specs.

Q Closed during the test?

A During the test.

Q And we know, as a result of post-TMI II learning, that these valves were closed during the transient which occurred on March 28, 1979; is that correct?

A I have heard that but I was not a member of the investigation team so I cannot address that.

Q Are you aware that following TMI-II, it was discovered that the condensate polisher bypass valve manual, hand valve wheel was not in position? In fact, it was not even on the valve?

A The hand wheel was not on the valve? I was not aware of that.

Q Is that something that an inspector would be expected to observe on a walk through?

A It is something that he might observe. That is a system we do not normally inspect because it is a secondary

system and does not have any safety related significance. It is not an area that I typically would inspect when I go to the plant.

Q Are you aware of any requirement that the licensee keep plant blueprints up to date so as to accurately reflect any modifications that were done to the plant during the OL stage or subsequent after an operating license was received?

A I am aware of the fact that there are requirements for drawing control and that the drawings be updated, yes.

Q Is it one of your duties as an inspector to insure that that requirement is complied with by the licensee?

A It is not an area I typically would inspect. We have the specialists that would review the quality assurance aspects of plant operation and that is one of the areas that they inspect.

I may happen to look at a drawing and by chance note that it is not up to date but that is not because the program led me there, but just that I perhaps was familiar with some work that was performed and observed later that the work was not reflected on the drawing.

Q Does inspection to determine compliance with this requirement fall within the areas that you, as a supervising inspector, are required to deal with, whether or not you personally go out and inspect these plans?

A Would you repeat that?

Q You have indicated that there are a number of technical inspectors that do actual inspections and that you review their work, you review their reports?

A For concurrence, yes. I am not a supervisor of these inspectors. I am more a coordinator of their records. Now, the question was?

Q The answer is -- the question was, is it one of your obligations to determine whether or not the licensee is complying with the requirements that their blueprints or plans are kept up to date so as to reflect all modifications in the plans in the plant?

A I guess -- I cannot say that's my personal obligation but my obligation is to review the reports of these other inspectors and determine whether or not they are correct from an enforcement standpoint.

If the problem they are addressing or identifying, is in fact, legally in non-compliance or if I agree with the fact that they are in non-compliance, these inspectors have their own supervisors, they are in a different section within our branch. It is their supervisory responsibility to see they are doing their job in that regard, not mine.

Q If it were reported to you by one of these technical inspectors that the licensee had failed to update their blueprints so as to reflect modifications of the plans, would you deem this to be a violation of tech specs?

A If they had made no attempt to update the drawings, yes. If this were somewhere in the revision stage, you know, the drawings in the control room were not reflective of the actual design, that would be a different matter, but if the modification were performed and the modification were never reflected in the drawings, that would be a non-compliance.

Q To your recollection, had you, at any time, been informed with respect to TMI II, Met Ed had failed to keep their blueprints up to date?

A I recall previous occasions of non-compliance concerning drawing control. I do not recall the specifics of those.

Q Do you recall whether this was in connection with TMI II?

A I think it was TMI I because the TMI II hadn't had an operational quality assurance inspection since -- it had never had one since the time they had the operating license.

Q Had they had one up to the time of the March 28 transient?

A No. They had one recently, just within the past 2 to 3 weeks, that they had an operational quality assurance inspection. One thing to keep in mind is that a finding of this nature, that is applicable to Unit 1, also would apply to Unit 2 as far as corrective action that is taken for the plant because there is no distinction between the administrative procedures for procedural requirements for Unit 1 and the requirement

for Unit 2.

If a problem is found in that area, then the corrective action that is taken would apply to both units.

MR. HELFMAN: Off the record.

(A discussion was held off the record.)

BY MR. HELFMAN:

Q Are you aware of whether Met Ed has assigned responsibility for bringing the TMI II equipment drawings up to date?

A I had no specific awareness of the assignments in this area, no. I was not aware.

Q One way or the other?

A No.

Q Did you participate in the TMI II QA evaluation which was conducted more recently?

A No. I did not.

Q Do you know when this evaluation was done for TMI II?

A It was done for both TMI I and II during the period of about July 15 through August 2.

Q Normally do inspectors such as yourself cooperate in the performance of a QA review?

A Normally, yes. That is generally the time that I would look at the organizational aspects of the quality assurance program and I would schedule my organization inspection at the same time as the quality assurance inspections of design control, procurement control and things of that nature are done.

Q That was not done with respect to the TMI I and II quality assurance program this year because of a temporary assignment?

A Because of my current assignment on the 3 Mile Island staff, the present office staff, that's correct. I do not know if they looked at the organizational aspects of it. Our routine inspection program does not currently exist as it used to before the 3 Mile event.

In relation to 3 Mile Island Unit 2, we no longer have a routine inspection program.

Q But there is an inspection program?

A There is an inspection program but it is not the routine program that we had before the event where we did the quality assurance inspection once a year. I guess what I am saying is that we are trying to do those inspections which are considered the most important on a routine basis.

I tried to get back to a routine program but for the past several months, they were very occupied looking at the specific corrective actions that all licensees had to take after the 3 Mile event.

Q Could you describe generally, I guess, the term interface is the appropriate term to use of the supervisors in Region I and NRC divisions, such as the Division of Project Management and the Division of Operating Reactors? Is there such an interface between all of these groups and if so, how

would you describe it?

A There is an interface on an informal basis between project inspectors such as myself and licensing project managers in either Division of Operating Reactors or the Division of Project Management.

If meetings occur, for example, NRR meetings ~~which~~ we generally get alerted to that by a telephone call from the project manager, if there are specific problems that occur at the facility that we think may require some licensing actions, I may call the project manager to tell him that something is coming his way to alert him of the problem. DRN

There is always the formal chain which is, if we see a problem, or if we have a concern at a facility that we think should require a change in the tech specs, we would put that in a written memo and through our internal management and in inspection enforcement headquarters and then in turn plants with the responsibility would be affected to assign the responsibility to NRR for resolution of this matter.

Q Do you recall if that was ever done with respect to TMI II?

A There were probably occasions of transfer of responsibility for TMI II but I do not recall them.

Q Would it be possible for you to provide us with the memorandums relating to such transfers?

A Yes, that would be possible.

MR. DIXON: Off the record, please.

(A discussion was held off the record.)

MR. HELFMAN: Let's go back on the record.

BY MR. HELFMAN:

Q Have you noted any faults in the supporting documentation provided by TMI with respect to procedure change requests, temporary change notices, change modification requests and special operating procedures prior to the time of the March 28, 1979 transient?

A That's a very broad question. It will take me some time to try to ~~absorb~~ answer the whole thing. I do not recall any significant faults with the change modifications or the TCN's or procedure change requests, things of that nature.

I have not identified specific faults myself.

Q Has anybody reported to you any faults they have noted?

A I have read of the problems concerning temporary change notices, identified by their inspectors. I do not recall now about inspection reports related to but I would say that within the past year, administrative types of problems with the review and approval of the temporary change notices.

Q Have there been numerous such occasions?

A No. I would say that these problems are identified once -- and the corrective actions were taken. Our review was conducted and indicated the corrective action was adequate.

Q Was this pre-March 28?

A Yes, it was.

Q Would it be possible for you to provide us with the documentation on that?

A There was a question asked, if it is just the TCN's, yes, but any faults with design changes.

Q Procedure change requests?

A Procedure change requests.

Q Would you be able to get --

A Modifications, you might as well just review the ~~special~~ inspection reports for the last 3 or 4 years because that is what is in it. I would like to satisfy the request but --

Q I'm referring to a complaint which was brought to your attention by an inspector that TMI provided inadequate documentation or followed inadequate procedures in handling procedure change requests, temporary change notices or change modification requests in the special operating procedures?

You indicated that on one occasion or on a number of occasions --

A I remember specifically a problem with temporary change notices. I do not remember looking at problems in special operating procedures. You know, everything you mentioned, that is their whole program for controlling changes to the plant. That is a program that any problems that are identified would be described in our inspection reports. I do not know how

else to provide the information than to just give you copies of the reports.

Q Could you provide us with the specific report that you referred to regarding temporary change notices?

A You want the information only for Unit 2?

Q Yes.

A For what period?

Q Prior to March 28, 1979?

A After what time period? Prior to but starting in 1976.

Q Would there be numerous such notices?

A I would have to go back to the first inspection that was done on the facility.

Q From the date upon which the operating license was granted, February 8, 1978 through March 28, 1979?

A I can identify the inspections, where faults of this nature were found and described and give you those reports separate from anything else.

Q We would appreciate that.

MR. HELFMAN: Off the record.

(A discussion was held off the record.)

MR. HELFMAN: Let's go back on the record.

BY MR. HELFMAN:

Q With respect to the document we requested from you, is there such a thing as an outstanding items list on the TMI II

which would reflect that information?

A Yes, there is.

Q Would it be possible to request that you provide us with a copy of that list?

A Yes. That can be provided.

Q Would it also be possible for you to note on that list or have noted on that list the particular items dealing with TCN's?

A I can request that someone make those annotations so that they will highlight the types of problems you are interested in.

Q Do you think you might be able to have that done within a week?

A Yes.

Q Thank you. How does the region evaluate the various ways used by TMI II to document track report and resolve non-conformances? Is this done at all?

A Repeat the question, please?

Q Let me ask this way. Does the region look at how Met Ed deals with non-conformances?

A Yes. That is part of the quality assurance inspection such as the one that was just completed yesterday.

Q Would there have been any look by the region at this procedure prior to the quality assurance program that was done post-March 28, 1979?

A Yes. That is part -- during pre-operational tests of the facility, there was an inspection performed that did look at the system that was designed to identify and correct non-conformances. I do not recall specifically the inspection; there were several inspections, prcbably that were done in that regard.

Q How does the region evaluate the ways in which Met Ed documents tracks and reports and resolves non-compliances?

A That we have to defer because that is not an area that I inspect and I think that more properly asked, the person such as George Napuda, who is a Quality Assurance Lead Inspector.

Q How does Mr. Napuda spell his name?

A N-a-p-u-d-a.

Q He is with the region?

A Yes, he is.

Q What occurs when an inspector notices an item which he believes is an important item and he brings it to you for concurrence and you disagree, you decline to concur? What recourse does he have to bring that matter he considers important to the attention of the NRC?

A I do not know if there is any other procedure the office has on this or not, but the normal action would be to address that concern with his supervisor and my supervisor and ~~his~~ this would hopefully be able to resolve any difference.

Q Would the two of you be given an opportunity to present your points of view at some type of meeting?

A Yes, we would discuss it in an open session, probably with our supervisors. It is not -- I do not make the management decisions; all I do is identify problems and then if I have a conflicting opinion about another inspector, then we identify that fact to our supervision and management resolves it.

Q Has that ever happened to you?

A In what regard, have I identified something where another inspector disagreed?

Q Or you disagreed with another inspector,either way?

A Yes. I cannot recall any specifics other than it has happened.

Q Did that result in the matter being taken to the supervisory personnel or management personnel for resolution?

A Yes.

Q And were you the disagreeing inspector or were you the inspector that found the item and felt it was important?

A It has happened both ways. There are occasions when I have found that something that I would have considered a non-compliance or in fact I was later shown that there were conditions that would make it not a non-compliance and vice versa, I have no problem with the final resolution of these matters.

Q In the event that either you or other inspectors are involved in such a dispute were dissatisfied with the resolution

made by management, by your immediate supervisors, what procedure would you follow to take it further along, if any?

A If I feel strongly about a subject, I write a letter directly to the commissioners. I would go through a chain but if I was not satisfied by my management with a particular concern, I would eventually take it to the commissioners if I thought it were appropriate.

Q You would avail yourself of the open door policy, in other words?

A That's right.

Q Do you work with the Division of Project Management in the review of FSAR and the provision of the SER as a formal matter?

A No.

Q As an informal matter, is this done on occasion?

A I have never done that. Portions of the FSAR or the SER may be reviewed during the pre-operational testing phase of inspection but I haven't done those inspections or I really do not know the extent to which the inspection enforcement gets involved. You would have to ask a manager or somebody such as the branch chief perhaps that question.

Q Do you know if the results of the review of the FSAR are used by inspectors such as yourself in planning your surveillance of the facility?

A The FSAR is used as a source of inspection as well as

the technical specifications. Does that answer your question or are you looking for something beyond that?

MR. REILLY: Off the record a minute.

(A discussion was held off the record.)

BY MR. HELFMAN:

Q Does the FSAR, so far as you are aware, concern itself with the particular characteristics of the plant?

A Yes.

Q Do you, as a result, tailor your surveillance procedure in light of the FSAR?

A The FSAR is used primarily during the period of construction and pre-operational testing as a source document for inspection, as a planning document for inspection, because that is the time at which we are looking at the system design more predominantly. After the plant is licensed and it becomes operational, the FSAR becomes less of a reference and at that time, you are looking at design changes, we are inspecting the changes that are made to the design in the form PCR's for procedures or change modifications for systems and the FSAR probably would not be up to date, until the license is issued, so it is used quite a bit for inspection and we do tailor our inspections to it.

Q And the procedure that you developed at the time of the FSAR is more pertinent, continues to be used after the plant is operational, is that correct? Or do you abandon the

inspection?

A No. We do not do system inspections so much after license issuance. For example, during pre-operational testing, we would look at the decayed heat removal system, review the design of that system, review the testing that is done on that system and that is where we review the fact that the system is built as designed and it is tested as required by the FSAR.

We will perhaps do a review of some valves to see that the valve orientations are correct, things of that nature, but once the ~~plan of~~ plant construction is complete, we do not do as much system type reviews. It is more of a generic inspection. My tours will take me throughout the facility and I will look at the valves of 15 or 20 different systems rather than all the valves in the decay heat system.

Q Prior to the time the utility has received the operating license for the plant, what in addition to tailoring inspections to the FSAR is done by the region to insure that the utility is really ready for its operating license?

A I have not been involved with the plant, just before licensing, I took over through Unit 2 at the point of license issuance, so I was not deeply involved with some of these preparations for licensing, however, I do know that we look at their quality assurance program, we look at their organization, the capability of the organization ~~at~~ to support, safe operation.

Q You are not talking about financial capability?

A No. This is just technical capability, but we do these programmatic inspections in the emergency planning and all of our -- all of the areas we inspect during operation, we do them before operation and judgments are made or assessments are made of each of these areas and the plant's readiness to operate based on our findings. In the end, this goes into our report that is given to our headquarters office, Inspection Enforcement and that report, in turn, is transmitted to NRR.

Sometimes we testify at hearings. If there is a hearing, ~~Bureau of License Assurance~~ before license issuance, we have to testify to the licensee's ability to operate the plant based on our inspections.

Q Are there any elements in addition to NRR that participate in this activity?

A There may be; I just don't know.

Q Does NRR ever make specific requests or communicate certain areas that ought to be looked into at the time this is being planned or is it simply completely in the hands of I&E and then the results are turned over to NRR?

A I'm certain that NRR does make certain requests for each plant but I do not know that requests were made for 3 Mile, Unit II. We could find out. Do you anticipate a need to talk to inspectors before the plant was licensed -- do I need to identify those inspectors to you?

Q Sure.

A Paul Kellogg was the project inspector of the facility prior to my tenure and he had the plant for about a year. He currently is a Section Chief in Region II. Prior to him, the inspector was Tony Fasano. Tony Fasano is currently a Construction Inspector in our Region I office. That's F-a-s-a-n-o.

His predecessor was Richard Lee Spessard, S-p-e-s-s-a-r-d. I think he may have been primarily involved with Unit I and I do not know how much he had to do with Unit II.

Q Basically what I was asking is how does NRR get actively involved in the inspection and reviews that are conducted prior to the issuance of the OL?

A I believe there are teams that go out to review the design of the plant, but I do not know to what extent they do their reviews.

Q With respect to reporting and closing out LER's, how do you determine which LER's or events should be brought to the attention of the region or to other NRC elements?

A All LER's received by the office are brought to the attention of our regional management based on their routing that we have in the office. For example, all 30 day reports are reviewed or routed, and generally signed off and initialed by the section chief of the project section that has the plant, his boss, the branch chief, and the ~~pump~~ prompt reports generally get

reviewed by the Director. Therefore, there is some backup; it is not just the inspector that is making decisions as to how significant that area is.

Q Does the inspector make any decision as to which LER's or event reports are to be --

A With the concurrence of a supervisor before inspection, I will tell my supervisor that I am going to review such and such LER's on-site for the following reasons, and I will tell him which ones I am not going to review on-site and give him reasons for that too.

Q How do you determine which LER's require a site inspection or site followup and tracking to completion?

A Our program gives us some guidelines which, as I said earlier, there is -- anyway, there is an inspection procedure that tells us how to review an LER in the office. There is another procedure that tells us how to review the LER at the site and gives us some guidelines for the review.

All reports that are considered prompt reports, and have 14 days, are required to be reviewed on-site. Most that are 30 day reports is a sampling inspection of at least 5 percent per year or so many per year which I think it is 10 but I am not sure of that number and then anything above and beyond that is pretty much in the inspector's judgment, so when you get right down to it, it is the LER, the nature of the problem, that determines whether or not they will get reviewed on-site.

Q Is this pretty much up to the individual inspector or is the supervisory concurrence required in a ~~division~~ decision not to review or to review such an LER?

A There is that decision that is concurred in by the supervisor.

Q To what depth do you evaluate the completeness of failure analysis?

A Would you repeat the question, please?

Q To what depth or to what extent do you evaluate the completeness of failure analysis?

A I review it to my own capabilities. I am not an expert in all fields. I do not feel I can make an assessment for that judgment to what I consider an appropriate reviewer, somebody with a different metallurgical background or an electrical background. We have inspectors in our office that have those backgrounds, so I personally do not review all of the LER's. Many of them I forward to others for their technical review.

MR. REILLY: Off the record.

(A discussion was held off the record.)

BY MR. HELFMAN:

Q Referring not solely to what you as an individual do, but what the region does with respect to determining the completeness of the licensee's failure analysis, and an event report or an LER?

A The review we perform depends considerably on the nature of the failure. If it is something that appears significant to myself and supervision, we may send a team of inspectors to that plant to determine -- to perform our own independent failure analysis or to review the licensee's depth of analysis. We make our judgments with experience as to which problems are more significant than others.

If it is something more of a routine nature, we don't go to those depths. We rely upon the licensee's familiarity with his own procedures and the disciplines they have established with their engineering staffs, to decide not to -- the licensee has the responsibility for that. We inspect and they fulfill that responsibility.

Q Do you review the licensee's procedures for doing some of your analysis?

A No. I don't.

Q Does the region?

A I do not know of any specific review of that nature. It is more of an individual review. You come across a significant problem, such as a transient, you look at this depth of review or the scope of review with the transient on that failure, then you make an assessment after that.

Q Were you aware prior to the transient of March 28 of this year, that the TMI II had been operating without PORV resulting in downstream discharge by temperatures in excess of

the specified limit of 130 degrees F?

A I was not aware of that leakage before the accident, no.

Q Is this leakage something that should -- which should have been included in inspection or for some reason, is this outside the scope of the parameters of inspection?

A The fact that there was reactor coolant system leakage is within our inspection program or at least is subject to inspection. There are different categories of leakage, controlled, identified, unidentified, limits associated with each of these.

The leakage -- during previous inspections, I have verified a review of licensee records and some calculations of their determinations, my own calculations, that indicated it was within specification.

Q You were aware of the leakage?

A I was aware of leakage problems, that there was something above zero leakage but the limits for identified leakage, I believe, is 10 gallons per minute. I believe they were well within that limit but I do not recall the actual numbers.

I did not know that the temperature of discharge lines was above 130 degrees.

Q In addition to investigating the amount of leakage, is it also within the scope of your investigation or examination

to determine such things as exceeding the specified pipe temperature of a discharge pipe as a result of leakage?

A That is not something I normally would have inspected in the past but it is something I will be looking for in the future.

Q Do the tech specs deal with temperature limits as well as with amount of leakage?

A Would you repeat that, please?

Q You have indicated that you were aware of the amount of leakage through the PORV,and that if it was less than 10 gallons per minute, or whatever the figure was for this particular valve, it would not be in violation of tech specs; is that correct?

A Yes.

Q I am asking whether or not the tech specs also specify that the temperature of the discharge pipes shall not exceed a certain temperature?

A The temperature is not specified in the tech specs and I was not aware of the leakage to the PORV through the electromatic relief valve. I was aware of the fact of the identified leakage because I had looked at some of their surveillance sheets but that means that the leakage is going to the drain tank. There are other paths available for water to get to the drain tank; the most important is that it is a collected system and it is not spraying into the atmosphere

and it is identifiable and is collected.

Q So is it true that so long as the amount of leakage does not exceed 10 gallons per minute, or whatever the figure is, that you are not required or obligated to attempt to trace the source of the leak?

A There are various -- for example, if it was 1 or 2 gallons per minute, I probably would not accept that. If it was like 9.5 gallons per minute, very close to the tech spec limit, I would trace that and check out the source of it, because even though it was within specification, it was close to exceeding it.

Q Did you prepare any documentation relating to your awareness of the amount of leakage at TMI II?

A The only documentation that I can recall that might be relevant is the review of surveillances that I did several months ago. I do not even recall the date but I could find the report that shows that I looked at various technical specifications of limiting editions for operatings operation and review of some surveillance, so if I could find that.

Q Would that indicate the amount of leakage that you discovered?

A It would not indicate the amount; it might indicate the fact that I reviewed a surveillance procedure for leakage determination. I do not specifically recall that I did -- that I looked at large surveillances.

Q Do you recall what the amount of leakage was at the TMI II?

A No.

MR. HELFMAN: Off the record.

(A discussion was held off the record.)

MR. HELFMAN: Let's go back on.

BY MR. HELFMAN:

Q When I referred to a specified limit of 130 degrees F, are you aware of where such a limit is specified?

A That limit is specified in one of the licensee's operating procedures but I do not know the specific procedure. The IE investigation report would probably identify the procedure in the report.

Q Would it have been within your responsibilities to enforce the licensee's compliance with such procedures?

A Certainly.

Q In other words, if you had been aware that a licensee's procedures specified a limit of 130 degrees F, and you discovered that during normal operation, they were exceeding that temperature in that pipe, you would then prepare some type of a report; would you report that as some type of a violation?

A If the temperature were above 130 degrees and the licensee were taking no corrective action concerning that problem, I would consider that at least a potential problem. I would address that with my management. As I said, there is no

technical specification requirement for the 130 degrees but it is within his procedures and the licensee is required to comply with his procedures.

Q Would it be fair to say that this particular procedure requirement was -- the exceeding of this particular procedure requirement was not reported because you were unaware of the requirement?

A That is correct; I was not aware of the 130 degree limit. Nor was I aware of the fact that the temperature was above 130 degrees. It was an area I just had never looked at.

Q Are you fairly familiar with the licensee's procedures?

A I am not that familiar with the operating procedures, only a selective view of them, on an infrequent basis, just to review the procedures, but my previous inspections did not require that I look at each procedure and be familiar with the details of those procedures.

Q Is it pretty much up to the discretion of the inspector as to which procedures to become familiar with and which to enforce?

A The point is that it has never been a part of our job to become familiar with the procedures because that was too detailed. You have to be licensed practically to know what is in the procedures. We are ~~their insurance~~ there insuring that the licensee is fulfilling their responsibilities and making our own independent inspections.

I have only a very small portion of the activities.

Q Is your basic responsibility then to determine that the licensee has procedures and then selectively determine what the procedures are and whether or not the licensee is complying with them?

A That is correct. We do, other inspectors besides myself, review, for example, maybe 10 operating procedures for technical adequacy, maybe five, a certain small number of the operating procedures about once a year and do a technical review.

Q What percentage of the procedures are we talking about when we talk about 5 or 10 procedures?

A I would say less than 5 percent, on the order of 1 or 2 percent of procedures.

Q Do you review operating data periodically when you conduct inspections?

A Do I review operating data?

Q Yes?

A I review operating data in the form of logs which the licensee operators maintain, as logs of the parameters. I am not required to review the log of every hour of every day but I review it. I probably have looked at about at least 50 percent of these logs. There are certain of them that are surveillance records that I look at, that I have looked at 100 percent of the data, although it is not required by the

procedures.

Q Is review of operating data and the extent of the review pretty much up to the discretion of the particular inspector?

A No. Our program requires us to look at logs every quarter We have to look at the control room log and the shift foreman log and any data log sheets that the licensee generates.

The amount of logs we review depends upon the licensee to a great extent because there are no strict requirements, let us say, that the licensee must record these parameters and they may give you 200 parameters to record. The licensee establishes their own requirements for data keeping.

Some facilities, say as Maine Yankee Atomic Power Company, that has minimal requirements for log keeping or data keeping, may be two or three pages per shift. There are facilities, such as Beaver Valley Power Station which has over 40 pages of log sheets that are maintained for each shift.

It is the licensee's discretion; there are no regulatory requirements, so therefore, if you were at Beaver Valley Power Station doing an inspection of logs, you are not going to look at them all.

Q Is this done without NRC concurrence?

A Yes. I don't know what you mean by concurrence but it is done -- the NRC is aware of the fact that there are

different degrees of implementation for logkeeping.

Q Must the NRC concur in the particular logkeeping system adopted by a utility or is that totally up to the utility?

A The only concurrence is that we inspect the facility and we acknowledge the fact that there are no strict requirements and therefore, it is acceptable because it is not unacceptable.

Q It is not unacceptable because there are no requirements?

A That is correct.

Q Were you aware of Met Ed procedure for destroying I think this says as-run check sheet portion of the surveillance test procedures for the EF-V12 valves?

A I was aware of that procedure,of the fact that they did not retain the entire procedure. They retained the data sheets and the sheets that demonstrate the fact that they did the test, not the body of the procedure and other inspectors were aware of that as well. It is not something that I had identified as a problem area before the accident.

Q Is this procedure of destroying portions of the surveillance test procedure within NRC regulations or is this a violation?

A I think that is a matter of judgment. Some inspectors would consider that a violation of regulations because they

think that the body of the procedure shows the step by step changes to valve positions, yet the fact that the licensee completed the procedure and that it was recorded in his control room log by procedure number and date, that could mean to other inspectors that the procedure was performed properly and to the extent to which the licensee is required to keep records is not, in my mind, clearly defined.

Q So this interpretation is left pretty much to the discretion and judgment of the inspector?

A I think of the inspector and supervisors and ultimately it is going to be the judgment of management.

Q Was your not reporting this as a violation of NRC regulations done with the concurrence of your supervisor?

A I do not know if I specifically addressed that with my supervisor. I did not consider it a problem,in my opinion, the fact that they did not keep their procedure was acceptable. I may have been right; I don't know.

Q Have you or the region looked at the operation of the PORC GRC or the GORB committees to determine whether or not they are doing an effective independent review of operations and changes at TMI?

A I have not personally done that as a specific inspection item. I do not know if others have made that assessment.

Q Have you personally sat in on a PORC meeting?

A I did not prior to the accident.

Q Do you spend time in the control room to get a feel for how the operators are doing their job?

A Yes. When I review the log, when I do my log and record reviews, which are activities that can be performed at other locations, I generally like to do those in the control room and I just kind of listen to what is happening around me. I guess, in effect, I am monitoring the operators during that time period.

Q Have you done this during a startup or shutdown?

A The only startup or shutdown I recall at 3 Mile, II that I participated in was the initial criticality which was around March 29, 1978 and I observed that startup from the control room.

Q Have you noted any need for improving or changing any aspects of operating room procedure, layout or design of the control room or its displays as a result of your firsthand observations?

A There is an obvious difference between Unit 1 and Unit 2 control rooms, both of which are designed by Babcock and Wilcox. It is my opinion that the Unit 1 control room is better designed with less instrumentation than the Unit 2 control room because the amount of instrumentation practically overwhelms the operators. It is strictly a judgment consideration but if you look at the enunciator alarms in Unit 2 and

compare that with Unit 1, it is about double the alarms. The control rooms were designed by different architectural engineers.

Q Are you aware of complaints from the operators concerning the control room layout, number of controls and alarms in TMI II?

A I was not aware of any complaints prior to the accident. My personal observation, prior to the accident, was that it was cluttered.

Q Were you in the control room at TMI II on March 29, 1978 when the PORV failed to open?

A No.

Q Do you know if that occurred during a startup?

A On March 28? To my knowledge, it did not occur during a startup. That was based on a report earlier that morning from Licensing Management.

Q You were in the control room later that day?

A No. I was not in the control room until the second day. I spent all of that day in our response center until about 1 o'clock in the morning.

Q We are talking about 1978?

A I am sorry. I thought you were talking about 1979. You said March 28; that is what threw me. Shall we go back?

Q This is the transient where the PORV failed to open on account of an electrical failure?

A Okay, the answer to that question is, no, I was not

in the control room. I do not recall -- I just don't remember right now if that occurred during startup or not.

MR. HELFMAN: Off the record.

(A discussion was held off the record.)

MR. HELFMAN: Let's go on. Do you have a statement to make?

MR. DIXON: Yes. Mr. Haverkamp, at this time, I must leave. You have a right to waive your right to NRC counsel in that event or you could choose not to proceed with the deposition. Do you waive that right?

THE WITNESS: I elect to waive the right to NRC counsel.

MR. HELFMAN: You understand that means your deposition will continue but you will not be represented by counsel?

THE WITNESS: Yes. I do.

BY MR. HELFMAN:

Q Let us continue. What are your impressions of housekeeping at the plant and the second part of that question is, are there any inspection manual items on this?

A ~~That~~ Plant housekeeping is a part of routine quarterly operations inspections that we look at. It is an area that you cannot help but looking at whenever you work around the plants because it is just something that you develop a habit of looking at housekeeping as well as you do other aspects of an operation.

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My general impression is that housekeeping has been satisfactory but not very satisfactory. There were, particularly around the time of startup testing, around the time like of initial criticality, and the shutdown which followed during the summer of 1978, a lot of that is expected because of the activities associated with construction and final phases of startup testing.

It seemed to take quite a bng time to improve the cleanliness conditions. I felt the conditions were improving but slowly.

Q You did not take any official action with respect to Met Ed's housekeeping problems at TMI?

A I cannot recall if I did for Unit 2 or not.

Q Did you for Unit 1 or either of them?

A I know I had at least unresolved items for housekeeping. I do not know if I had identified any items of noncompliance but I had identified my concerns for the housekeeping inadequacies in inspection reports, on more than one occasion. I do not recall the specific inspections.

MR. HELFMAN: Let's go off the record.

(A discussion was held off the record.)

MR.HELFMAN: Back on the record.

BY MR.HELFMAN:

Q Are you aware of the extent to which piping,pumps, valves, and so forth, are identified at the site with respect

to what type of fluid or gas is going through, the direction of the flow and what systems they are a part of?

A That is not an area which I am real familiar with. I do know that fire systems are printed red. Other than that, I do not know of any markings on pipes that would identify a ~~boron and~~ borated water system pipe or decay heat system pipe from a DRH makeup system pipe. I do not believe there are such markings.

Q With respect to pumps and valves, are there such markings?

A The markings for valves would be an identification tag that is attached on the valve operating handle or the valve body. I have not done inspections to verify the accuracy of those markings.

Q Are you familiar with other plants where there are more adequate markings on pipes and valves and pumps?

A I am not aware that the markings are adequate or inadequate so I cannot say if they are more adequate at other plants, just by walking through the spaces. I have done inspections, just checking, for example, to see that valves are open as they are required to be. I look at the marking associated with that valve. I haven't found any problems with that. That is, I was able to identify that that was a particular valve by a tag that is on the valve.

MR. HELFMAN: Let's go off the record for a moment.

(A discussion was held off the record.)

MR. HELFMAN: Back on the record.

BY MR. HELFMAN:

Q Are you aware of a requirement that shielding be provided at the site of hook-up for the hydrogen recombiners?

A No, I am not aware of that requirement.

Q Are you aware that the hydrogen recombiners are considered operational even though they are not hooked up?

A I am aware of the fact that hydrogen recombiners are tested and I have even looked at some of the results of the tests which were performed perhaps a year and a half or two years ago. I am aware of the fact that they are disconnected after that test.

Q Are periodic tests of such equipment required?

A Yes, and the period -- of that test, as I recall, is about every refueling outage; that means it is about once every 18 months that those recombiners are tested. I would have to verify that by looking at the specs.

Q Do you consider that to be sufficiently frequent?

A I can't make that judgment.

Q With respect to your own car, do you think that starting it up and checking it once every 18 months would be sufficient to insure you that during those 18 months, the car was operable in the event that you needed it?

A I'd probably do more damage by ~~studying~~ starting it than if you didn't, in that case, but the frequency of testing that

equipment is established by licensing. I had not evaluated that before the incident. I really do not have any feelings about it now.

Q And as you indicated, you were not aware of any requirement that there be shields at the site where the recombiner would be hooked to the containment building?

A No, I was not aware of any shielding requirements.

Q Now I am just going to be seeking your personal judgment. Do you feel that the inspection program adequately assesses the utility's performance?

A Really, the inspection program we had prior to the accident was in conjunction with a new phase of that program, which was a performance appraisal team, inspection, did provide an adequate assessment of the management's capability to safely operate the plant.

Q Is that new phase that you talk about a pre-TMI addition or is that a post-TMI?

A Was a pre-TMI addition but had never been performed at TMI.

Q Can you think of any ways in which the inspections could be made better or more effective?

A I concur in the concept of having resident inspectors, although I do not concur that it is necessary to have around the clock inspectors. I believe that you should -- that the inspection program would be improved by having inspectors that

are there at the site and more readily available to the licensee personnel.

MR. HELFMAN: Off the record.

(A discussion was held off the record.)

MR. HELFMAN: Back on the record.

THE WITNESS: Bearing in mind that being a resident inspector does not necessarily mean that you are inspecting more but that you are around the plant and able to attend PORC meetings, able to get a better comprehensive view of the licensee's operations because, in reality, you probably are inspecting less than in the other program because you do not have as much time because licensee people are coming to you with questions and press or public in that area are coming to you with questions. You just do not have that many hours in a day to continue with the inspection you are doing.

But, I think at the same time, you are getting a better overall view of the operations, relying more on the inspections that are done by other people and you are more sort of as an overseer.

Another type of inspection would probably be preferable to what we are doing now and that is a systematic inspection. Right now, we are doing program inspections of maintenance and calibration and operating procedures, things of that nature, cleanliness, fire protection.

I think it would be preferable -- more preferable to

conduct a systematic review that is to pick the decay heat removal system as an example, and inspect the maintenance, the surveillance, the calibration and the instrumentation and the actual walk through the piping and things of that nature and to do that on a periodic basis, select different systems and just compare the system against advice and on independent review.

This concept is not new and it is being kind of in the proposal stage as it was before the 3 Mile event, but it has -- it is also kind of in keeping with resident inspector programs.

In addition, there is an apparent need to identify problems that happen at individual facilities and assess their generic applicability at facilities of the same manufacturer or facilities that use the same components such as the same type of valve. We have diesel failure at many different plants; perhaps they are all the same type of diesel. We do some of that in the form of bulletins and circulars where the information is fed back to our management, but I think we could improve on the way we are doing that.

Q In what manner?

A Where it would have to be more through the headquarters organization to have a group that has the technical background either with an I&E or with an NRR and maybe that exists and I am just not aware of it, but I think if there is

such a group, that we need to reinforce it and get the information back to the inspector and ~~stuff~~ staff and the utilities, principally, so that they can take any corrective actions they need to.

We are seeing a reorganization right now in NRR and we will probably see a reorganization in I&E because after we get over the initial impact of 3 Mile, we will have time to sit back and work out these problems.

Of course we are going to have to wait until we get the inquiry group and Presidential Commission viewpoints. I have no other concerns right now or any other recommendations.

MR. HELFMAN: There are no further questions at this time. So as I indicated at the beginning of the deposition, we will recess the deposition, rather than adjourn it. In the event we have any further questions for you, we will reconvene it. Thank you very much.

(Whereupon, the taking of the instant deposition recessed at 6:53 p.m.)

I have read the foregoing pages, 1 through 94, and they are a true and accurate record fo my testimony therein recorded.

_____ 9/7/79
DONALD R. HAVERKAMP

Subscribed and sworn to before me
this _____ day of _____, 1979

_____
Notary Public
My Commission Expires: _____

REPORTER'S CERTIFICATE

DOCKET NUMBER:

CASE TITLE: DEPOSITION OF: DONALD R. HAVERKAMP

HEARING DATE: August 3, 1979

LOCATION: Bethesda, Maryland

I hereby certify that the proceedings and evidence herein are contained fully and accurately in the notes taken by me at the hearing in the above case before the PRESIDENT'S COMMISSION ON THE ACCIDENT AT THREE MILE ISLAND and that this is a true and correct transcript of the same.

Date: August 7, 1979

Eugene Arnow

Official Reporter
Acme Reporting Company, Inc.
1411 K Street, N.W.
Washington, D.C. 20005

EXHIBIT NO 1
WITNESS Haverkamp
DATE 8-3-79 E. ARNOW

DONALD R. HAVERKAMP

Organization: RO&NS Branch, Region I - OIE

Title: Reactor Inspector

Grade: GS-14

Birth Date: 6/30/43

Education: B.S. Engineering, Unite States Naval Academy, 1965

Experience:

1975 - 1977 Reactor Inspector - Principal inspector assigned to inspect reactors in operation, including Calvert Cliffs Units 1 and 2 [redacted] R. E. Ginna/Maine Yankee/Yankee-Rowe (formerly) and Three Mile Island Units 1 and 2 (currently).

1974 - 1975 Navigator/Operations Officer of Nuclear Attack Submarine - Responsible for operation of navigation and communications systems. Coordinated training of 41 nuclear operators. Supervised 17 personnel. (USN)

1971 - 1973 Main Propulsion Assistant of Nuclear Attack Submarine - Responsible for operation of mechanical reactor plant and engine room systems. Qualified as nuclear submarine Chief Engineer. Supervised 21 personnel. (USN)

1969 - 1971 Weapons Officer of Nuclear Polaris Submarine - Responsible for operation of missile and torpedo weapons systems. Supervised 39 personnel. (USN)

1967 - 1969 Division Officer of Diesel Submarine - Assigned various responsibilities in Engineering and Supply Departments. Supervised 19 personnel. (USN)

1965 - 1967 Naval Nuclear Power Student - Completed training at Submarine School, Nuclear Power School and Nuclear Power Training Unit Prototype. (USN)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

EXHIBIT NO.
WITNESS Haverkamp
DATE 9-3-79

et Nos. 50-289
50-320

APR 20 1979

Metropolitan Edison Company
ATTN: Mr. J. G. Herbein
Vice President
P.O. Box 542
Reading, Pennsylvania 19640

Gentlemen:

Subject: Combined Inspections 50-289/79-08 and 50-320/79-07

This refers to the inspection conducted by Mr. D. Haverkamp of this office on March 19-23 and 26, 1979, at Three Mile Island Nuclear Station, Units 1 and 2, Middletown, Pennsylvania, of activities authorized by NRC License Nos. DPR-50 and DPR-73 and to the discussions of our findings held by Mr. Haverkamp with Messrs. J. Logan and J. Seelinger of your staff on March 23, 1979 and with Mr. Seelinger of your staff at the conclusion of the inspection.

Areas examined during this inspection are described in the Office of Inspection and Enforcement Inspection Report which is enclosed with this letter. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, measurements made by the inspector, and observations by the inspector.

Within the scope of this inspection, no items of noncompliance were observed.

In accordance with Section 2.790 of the NRC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you (or your contractor) believe to be proprietary, it is necessary that you make a written application within 20 days to this office to withhold such information from public disclosure. Any such application must be accompanied by an affidavit executed by the owner of the information, which identifies the document or part sought to be withheld, and which contains a statement of reasons which addresses with specificity the items which will be considered by the Commission as listed in subparagraph (b)(4) of Section 2.790. The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified period, the report will be placed in the Public Document Room.

7905200339

No reply to this letter is required; however, if you should have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Eldon J. Brunner, Chief
Reactor Operations and Nuclear
Support Branch

Enclosure: Office of Inspection and Enforcement Combined Inspection Report Numbers 50-289/79-08 and 50-320/79-07

cc w/encl:
E. G. Wallace, Licensing Manager
J. J. Barton, Project Manager
R. C. Arnold, Vice President - Generation
L. L. Lawyer, Manager - Generating Operations
G. P. Miller, Manager - Generating Station - Nuclear
J. L. Seelinger, Unit 1 Superintendent
W. E. Potts, Unit 1 Superintendent - Technical Support
J. B. Logan, Unit 2 Superintendent
G. A. Kunder, Unit 2 Superintendent - Technical Support
I. R. Finfrock, Jr.
Mr. R. Conrad
G. F. Trowbridge, Esquire
Miss Mary V. Southard, Chairman, Citizens for a Safe Environment
(Without Report)

bcc w/encl:
IE Mail & Files (For Appropriate Distribution)
Central Files
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
Technical Information Center (TIC)
REG:I Reading Room
Director, Region IV (Report Only)
Commonwealth of Pennsylvania
Miss Mary V. Southard, Chairman, Citizens for a Safe
Environment

OFFICE OF INSPECTION AND ENFORCEMENT

Region I

AS OF 20 APR 1979 NOTICE REGION 1 HAS NOT OBTAINED PROPRIETARY CLEARANCE IN ACCORDANCE WITH 10 CFR 2.790

t No. 50-289/79-08
50-320/79-07

t No. 50-289
50-320

se No. DPR-50
DPR-73

Priority —

Category C

see: Metropolitan Edison Company
P.O. Box 542
Reading, Pennsylvania 19640

lity Name: Three Mile Island Nuclear Station, Units 1 and 2

ection at: Middletown, Pennsylvania

ection conducted: March 19-23 and 26, 1979

ectors: D. R. Haverkamp, Reactor Inspector — 4/17/79 date signed

date signed

date signed

roved by: R. R. Keimig, Chief, Reactor Projects Section No. 1, RO&NS Branch — 4/19/79 date signed

pection Summary:

nspection on March 19-23 and 26, 1979 (Combined Report Nos. 50-289/79-08 and 50-320/79-07)

reas Inspected: Routine, unannounced inspection of previous inspection findings Unit 1); selected licensee events (Units 1 and 2); facility tour (Unit 1); and icensee followup to a prompt reportable occurrence identified during the inspection (Unit 1). The inspection involved 27 hours onsite for Unit 1 and 17 hours nsite for Unit 2 by one NRC regional based inspector.

esults: No items of noncompliance were identified.

gion I Form 12
ev. April 77)

DETAILS

1. Persons Contacted

Metropolitan Edison Company

Mr. T. Acker, Unit 1 Shift Foreman
Mr. R. Barley, Unit 1 Lead Mechanical Engineer
Mr. M. Benson, Station Nuclear Engineer
Mr. R. Bensel, Unit 2 Lead Electrical Engineer
Mr. M. Bezilla, Unit 2 PORC Secretary
Mr. J. Chwastyk, Shift Supervisor
Mr. R. Dubiel, Supervisor of Radiation Protection and Chemistry
Mr. C. Hartman, Unit 1 Lead Electrical Engineer
Mr. T. Hawkins, Unit 1 Maintenance Supervisor
* Mr. J. Logan, Unit 2 Superintendent
Mr. T. Mackey, Supervisor of Quality Control
Mr. L. Noll, Unit 1 Shift Foreman
Mr. V. Orlandi, Unit 1 Lead Instrumentation and Controls Engineer
Mr. D. Pilsitz, Unit 1 Shift Foreman
Mr. W. Potts, Unit 1 Superintendent - Technical Support
Mr. M. Ross, Unit 1 Supervisor of Operations
** Mr. J. Seelinger, Unit 1 Superintendent
Mr. M. Shatto, Unit 1 PORC Secretary
* Mr. R. Warren, Unit 2 Lead Mechanical Engineer

Other Personnel

Mr. T. Szymanski, Instructor, Career Management Branch, NRC Headquarters

The inspector also interviewed several other licensee employees during the inspection. They included control room operators, maintenance personnel, engineering staff personnel and general office personnel.

* denotes those present at the exit interview on March 23, 1979.

** present at the exit interviews on March 23 and 26, 1979.

2. Licensee Action on Previous Inspection Findings (Unit 1)

(Open) Unresolved Item 289/77-09-02: Adequacy of Snubber Visual Inspection Surveillance Procedure. Licensee review and approval of the proposed PCR to SP 1301-9.9 is scheduled for completion by May 1, 1979. A special tool has been manufactured to measure snubber piston positions for sufficient stroke to allow for thermal growth without hitting the mechanical stops. This item remains unresolved pending revision of SP 1301-9.9.

(Open) Unresolved Item 289/78-17-01: Licensee Review of IE Circular 78-06 and IEC 78-07. Licensee review of these circulars for applicability and determination of appropriate action has been completed. With respect to IEC 78-07, "Damaged Components on a Bergen-Patterson Series 25000 Hydraulic Test Stand," applicable test stand inspection requirements have been incorporated in SP 1303-9.9. With respect to IEC 78-06, "Potential Common Mode Flooding of ECCS Rooms," a periodic preventive maintenance (PM) inspection is planned for back flow check valves located in safeguards equipment vaults drain lines. This item remains unresolved pending preparation and approval of the PM procedure, scheduled for completion by May 15, 1979.

(Closed) Unresolved Item 289/78-14-01: Adequacy of Alarm Circuits to Monitor Operability of the Reactor Building Access Hatch Interlocks. New limit switches were installed during the current refueling outage, as documented by Work Request #24246 completed March 14, 1979. The limit switches were located to provide proper monitoring of Reactor Building personnel and equipment hatch door interlocks. The inspector had no further questions concerning this item.

(Closed) Noncompliance 289/78-19-01: Administrative Controls for Operating and Surveillance Procedures. The licensee's specific corrective actions were completed as described in MEC letter to NRC:Region I Serial GQL 2071, dated December 29, 1978. The general corrective action included a complete audit by the Operations Engineer of the Control Room file of operating procedures. Additional discrepancies were identified during that audit concerning nonconformance with administrative procedural controls and were corrected by initiating about 35 procedure change requests. Selected operating procedures were reviewed by the inspector and were determined to contain appropriate revisions. The inspector had no further questions concerning this item.

(Closed) Unresolved Item 289/78-19-04: LER 78-27 Corrective Actions. Change/Modification 1165 was approved to replace the core flood tank level transmitters with those of a different design. Work associated with C/M 1165 was performed under Work Request #25057 during the current refueling outage. C/M 1165 has been fully completed with the exception of final drawing revisions. The inspector had no further questions concerning this item.

(Closed) Unresolved Item 289/78-20-01: SP 1302-5.13 Discrepancies. SP 1302-5.13 has been superseded in its entirety by TCN's 79-40 and 79-46. The previous comments concerning SP 1302-5.13 were no longer applicable. The inspector had no further questions concerning this item.

(Open) Unresolved Item 289/78-20-03: SP 1302-6 Discrepancies. Surveillance Procedure 1303-5.5, Revision 7, dated January 30, 1979, correctly identified six D/P instruments, used to perform surveillance of the Control Room Emergency Filters. SP 1302-6, "Calibration of Non Tech Spec Instruments Used for Tech Spec Compliance," Revision 1, included calibration requirements for four of the D/P instruments (DPI-698, -699, -700 and -701), but did not list calibration requirements for DPI-695 and DPI-696, due to an apparent oversight. The referenced calibration procedure for the four listed filter D/P instruments, IC-76, provided for a multi-point check of the D/P indicators. (The inspector determined that all six D/P instruments had in fact recently been calibrated per IC-76). SP 1302-6, Revision 1, also listed calibration requirements for fire protection instrumentation used to comply with Tech Spec requirements.

The Unit 1 Lead Instrumentation and Controls Engineer stated that SP 1302-6 would be further revised to include calibration requirements for DPI-695 and DPI-696. In addition, the method of scheduling (by computer printout) and documenting completion of SP 1302-6 calibration requirements would be reviewed. This item remains unresolved pending completion of these additional actions.

(Closed) Unresolved Item 289/78-20-04: Cage Calibration Scheduling. Decay Heat Pump Flow Instruments DH-1-FI-1 and DH-1-FI-2, Diesel Generators 1A and 1B Megawatt and Volt Meters and Control Room Emergency Ventilation Filter D/P Indicators were satisfactorily calibrated in January, 1979. The inspector had no further questions concerning this item.

(Closed) Unresolved Item 289/78-20-05: Thermocouple Calibrations. SP 1302-14.1, Revision 5, dated March 1, 1979 incorporated changes which resolved the referenced concerns. The inspector had no further questions concerning this item.

3. In-Office Review of Licensee Event Reports (LERs) (Units 1 and 2)

The LERs listed below were reviewed in the Region I office promptly following receipt to verify that details of the event were clearly reported including the accuracy of the description of cause and the adequacy of corrective action. The LERs were also reviewed to determine whether further information was required from the licensee, whether generic implications were involved, whether the event should be classified as an Abnormal Occurrence, whether the information involved with the event should be submitted to Licensing Boards, and whether the event warranted onsite followup.

The following Unit 1 LERs were reviewed.

* -- LER 79-03/3L, dated March 9, 1979 (High Pressure Injection Pump MU-P-1C tripped on overload during surveillance testing, due to a failed lead that connects sections of the motor internal windings).

* -- LER 79-04/3L, dated March 14, 1979 (Emergency Diesel EG-Y-1B tripped on overspeed during surveillance testing, due to misadjusted linkage following governor replacement).

** -- Nonroutine 10 Day Environmental Report, dated February 26, 1979 (Measured level of tritium in river water at stations 9A2 and 9B1 exceeded ten times the control station value, due to location and sampling methods).

The following Unit 2 LERs were reviewed.

** -- NPDES Noncompliance Notification 78-26, dated January 3, 1979 (IWFS discharge pH of 9.1 exceeded permit limitations which allows a pH range of 6.0-9.0).

-- LER 78-73/3L, dated January 15, 1979 (Containment atmosphere particulate radioactivity monitor air pump for HP-R-227 was seized, due to accumulation of water in the sample lines).

* -- LER 78-74/3L, dated January 23, 1979 (Diesel Generator DF-X-1B did not start during surveillance testing, apparently due to partially clogged fuel oil filter).

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* denotes those LERs selected for onsite followup.

** denotes those environmental reports subject to generic and selective onsite followup during a subsequent environmental inspection.

* — LER 79-01/3L, dated February 1, 1979 (RB Pressure Hi-Hi Channel A monthly functional test was not performed when scheduled, due to technician error).

* — LER 79-02/3L, dated January 23, 1979 (Adequate documentation was not retained to verify T.S. 3.3.1 surveillance performance, due to personnel error).

— LER 79-03/3L, dated February 2, 1979 (Quadrant power tilt steady state and transient limits were exceeded when Control Rod #6-12 dropped into the core, due to a blown fuse in the B phase).

* — LER 79-04/3L, dated February 2, 1979 (Valve BS-V-1B position indication was inoperable due to a bent valve stem).

* — LER 79-05/3L, dated February 2, 1979 (Small crack in decay heat piping weld due to vibration).

* — LER 79-06/3L, dated January 31, 1979 (Borated water source - BWST - boron concentration surveillance was not performed when scheduled, due to personnel error).

* — LER 79-07/3L, dated February 26, 1979 (Travelling Water Screens were inoperable in Mode 5, due to significant build-up of debris causing a high differential level across the idle screen system).

— LER 79-08/3L, dated February 9, 1979 (Setpoints of two feedwater line rupture detection pressure switches were outside allowable limits due to instrument drift or steam leakage).

* — LER 79-09/3L, dated February 26, 1979 (Boration system flow path verification surveillance was not performed in Mode 5 after the makeup pumps were tagged out, due to inadequate procedure).

* — LER 79-10/1T, dated February 26, 1979 (Boron concentration for boric acid mix tank was in excess of the T.S. limit, and appropriate corrective action was not taken due to personnel error).

* denotes those LERs selected for onsite followup.

The above LERs were closed based on satisfactory review in the Region I office, except those selected for onsite followup.

4. Onsite Licensee Event Followup (Units 1 and 2)

For those LERs selected for onsite followup (denoted in Paragraph 3), the inspector verified that the reporting requirements of Technical Specifications and GP 4703 (Original) had been met, that appropriate corrective action has been taken, that the event was reviewed by the licensee as required by Technical Specifications, and that continued operation of the facility was conducted in conformance with Technical Specification limits.

The inspector's findings regarding these licensee events were acceptable, unless otherwise noted below.

-- Unit 2 LER 78-74/3L described the failure of Diesel Generator DF-X-1B to start during surveillance testing. The event cause was attributed to be a partially clogged fuel oil filter, although the cause could not be positively determined. The corrective actions included changing the fuel oil filters, changing the air intake filter, and draining and refilling the fuel oil day tank. The LER did not fully describe the corrective actions taken. This LER will remain open pending additional review of corrective and preventive actions.

-- Unit 2 LER 79-04/3L described the inoperability of Valve BS-V-1B due to a bent valve stem. The valve was temporarily repaired and returned to service by installing a spacer between the valve and the operator. Permanent repair is scheduled under Work Request C-0647 and Change/Modification 2-0400, as tracked by PORC Action Item 2-79-010. The permanent repair will include removal of the temporary spacer and replacement of the stem with a stem of improved material. The inspector determined that BS-V-1B was an eight-inch Aloyco manufactured valve, and there are about 18 Aloyco valves of different sizes used in safety-related applications at the facility. Licensee representatives stated that the need to replace the stems of other Aloyco valves with improved stems, as a precautionary measure, would be evaluated. This item is unresolved pending permanent repair of BS-V-1B, licensee evaluation of the need for additional generic corrective action, and submission of an Update LER. (320/79-07-01)

-- Unit 2 LER 79-05/3L described a small crack that had developed in a piping weld upstream of the B Decay Heat Pump discharge relief valve. The crack was in the heat affected zone of the weld and was attributed to vibration. The AE is evaluating if additional pipe hangers are required to reduce vibration, as tracked by PAI 2-79-011. This item is unresolved pending completion of the AE's vibration evaluation, final PORC disposition of long term corrective action and submission of an Update LER. (320/79-07-02)

-- Unit 2 LER 79-10/1T described the out-of-specification condition of the boric acid mix tank and subsequent facility operation in violation of Technical Specification 3.1.2.9 requirements. The inspector determined that appropriate immediate and long term corrective actions were taken, but not adequately described in the LER. The report failed to identify the cause of high boron concentration and corrective action to restore the concentration to within specification. Additionally, the basis for the conclusion that the event did not adversely affect health and safety was insufficiently described. This item is unresolved pending submission of an Update LER that fully describes the event, cause and corrective actions. (320/79-07-03)

5. BWST Dome Damage (Unit 1)

On March 19, 1979, the Unit 1 Borated Water Storage Tank (BWST) dome was observed to be partially collapsed. The center section of the dome had collapsed about 2-3 feet. The plant was in cold shutdown for a scheduled refueling outage at the time of discovery of the BWST damage. This event was determined to be prompt reportable by plant management on March 22, 1979, and the inspector was informed of the event description, apparent cause and planned corrective action. Details of the event will be reported to Region I in the 14-day LER.

The inspector reviewed C/M 1309 (Work Request 0784) dated March 24, 1979, which requested modification or replacement of the 24-inch manway cover on top of the BWST with a venting device. The modification was considered necessary to ensure that no significant vacuum is created when drawing down water from the tank. The inspector also reviewed MEC letter GEM 1607 dated March 23, 1979, "Structural and Functional Adequacy of BWST," MEC letter GEM 1615

dated March 23, 1979, "BWST Atmospheric Vent," and other correspondence and documentation related to C/M 1309. Additionally, the inspector observed work in progress on March 26, 1979, to modify the manway cover for continuous venting. The inspector noted that the licensee's corrective actions concerning the BWST dome damage appeared acceptable and had no further questions concerning this matter at this time.

6. In-Office Review of Special Reports (Unit 2)

The special reports listed below were reviewed in the Region I office to verify that the report included information required to be reported and that test results and/or supporting information discussed in the report were consistent with design predictions and performance specifications, as applicable. The reports were also reviewed to ascertain whether planned corrective action was adequate for resolution of identified problems, where applicable, and to determine whether any information contained in the report should be classified as an Abnormal Occurrence.

The following TMI-2 special reports were reviewed.

-- LER 78-65/99X dated January 30, 1979 (ECCS actuation which occurred on November 7, 1978).

-- LER 78-69/99X dated February 28, 1979 (ECCS actuation which occurred on December 2, 1978).

The above reports were closed based on satisfactory review at the Region I office and previous review of the events during prior inspections.

7. Plant Tour (Unit 1)

At various times during the inspection, the inspector conducted tours of the Unit 1 auxiliary building, turbine building, and reactor building. The tours were conducted to observe general housekeeping and cleanliness conditions and the readiness of systems/equipment for plant startup. Findings were acceptable.

8. Unresolved Items (Unit 2)

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during this inspection are discussed in Paragraph 4.

9. Exit Interviews

The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on March 23 and 26, 1979. The inspector summarized the purpose and scope of the inspection and the findings.

REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

FEB 26 1979

EXHIBIT NO. 3
WITNESS Haverkamp
DATE 8-3-79 E. ARNOW

Docket Nos. 50-289
50-320

Metropolitan Edison Company
ATTN: Mr. J. G. Herbein
Vice President - Generation
P. O. Box 542
Reading, Pennsylvania 19640

Gentlemen:

Subject: Combined Management Meeting 50-289/79-04; 50-320/79-05

This refers to the routine corporate management meeting held at the NRC Region I Office, King of Prussia, Pennsylvania on February 9, 1979. The meeting was related to activities authorized by NRC License Nos. DPR-50 and DPR-73 and was attended by myself and others of this office and by yourself, Messrs. G. Troffer and L. Lawyer and others of your staff.

The subjects discussed at this meeting are described in the Office of Inspection and Enforcement Management Meeting Report which is enclosed with this letter.

It is our opinion that this meeting was beneficial and improved our understanding of your operations and your understanding of our inspection program and objectives.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed report will be placed in the NRC's Public Document Room.

No reply to this letter is required; however, should you have any questions concerning this meeting, we shall be pleased to discuss them with you.

Sincerely,

Boyce H. Grier
Director

7903200238

Enclosure: Office of Inspection and Enforcement Management
Meeting Report Numbers 50-289/79-04; 50-320/79-05

cc w/encl:
E. G. Wallace, Licensing Manager
J. J. Barton, Project Manager
R. C. Arnold, Vice President, Generation
L. L. Lawyer, Manager, Generation Operations - Nuclear
G. P. Miller, Superintendent
J. L. Seelinger, Unit 1 Superintendent
J. B. Logan, Unit 2 Superintendent
G. A. Kunder, Unit 2 Superintendent - Technical Support
I. R. Finfrock, Jr.
Mr. R. Conrad
G. F. Trowbridge, Esquire
Miss Mary V. Southard, Chairman, Citizens for a Safe Environment

bcc w/encl:
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REE:I Reading Room
Region Directors (III, IV) (Report Only)
Commonwealth of Pennsylvania

OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-289/79-04
50-320/79-05

Docket No. 50-289
50-320

License No. DPR-50
DPR-73 Priority — Category C,C

Licensee: Metropolitan Edison Company

P. O. Box 542

Reading, Pennsylvania 19640

Facility Name: Three Mile Island Nuclear Station, Unit 1 and 2

Meeting at: Region I Office, King of Prussia, Pennsylvania

Meeting conducted: February 9, 1979

NRC Personnel:

D. R. Haverkamp, Reactor Inspector — date signed 2-22-79

Other Region I personnel who participated in this meeting are listed in paragraph 1 of the attached report. — date signed 2-22-79

— date signed

Approved by:

R. R. Keimig, Chief, Reactor Projects Section No. 1, RO&NS — date signed 2-22-79

Meeting Summary:

Management Meeting on February 9, 1979 (Combined Report Nos. 50-289/79-04 and 50-320/79-05)

Areas Covered: Combined routine corporate management meeting for Unit 1/third corporate management meeting for Unit 2 to discuss the Office of Inspection and Enforcement inspection program and objectives and to discuss the licensee's organization, management controls, previous IE enforcement actions, operational status, plans and programs.

Region I Form 12-1
(Rev. August 77)

DETAILS

1. Personnel Attending

Metropolitan Edison Company

Mr. J. G. Herbein, Vice President - Generation
Mr. G. J. Troffer, Manager - Generation Quality Assurance
Mr. L. L. Lawyer, Manager - Generation Operations
Mr. J. F. Hilbish, Manager - Generation Licensing
Mr. G. P. Miller, Station Superintendent
Mr. J. B. Logan, Unit 2 Superintendent

Nuclear Regulatory Commission, IE, Region I

Mr. B. H. Grier, Director
Mr. J. M. Allan, Deputy Director
Mr. E. J. Brunner, Chief, Reactor Operations and Nuclear Support Branch
Mr. R. R. Keimig, Chief, Reactor Projects Section No. 1, RO&NS Branch
Mr. H. W. Crocker, Acting Chief, Radiation Support Section, FF&MS Branch
Mr. J. W. Devlin, Chief, Security and Investigation Section, Safeguards Branch
Mr. D. L. Caphton, Chief, Nuclear Support Section No. 1, RO&NS Branch
Mr. H. B. Kister, Chief, Nuclear Support Section No. 2, RO&NS Branch
Mr. S. D. Ebneter, Chief, Engineering Support Section, No. 2, RC&ES Branch
Mr. J. R. Haverkamp, Reactor Inspector
Mr. D. E. Donaldson, Reactor Inspector

2. Areas Discussed

A general discussion was held regarding the Office of Inspection and Enforcement inspection program at Three Mile Island Nuclear Station, Units 1 and 2.

The following areas were covered.

- Functional description of NRC IE and Region I organizations
- Revised inspection program
- Roles of resident and specialist inspectors
- Description of specific support section functions, concerns, and observations of licensee operations
- Summary of previous enforcement actions and licensee reports
- Observations of general conduct of licensee's operations
- Changes in general environs of facility
- Licensee items and concerns

EXHIBIT NO. 4
WITNESS: Haverkamp
DATE 8-3-79 E. ARNOW

need by 7/4

"CHANGE"

SIDE 1

Three Mile Island Nuclear Station

1001-3

Procedure Change Request No. 2-78-7

1. Procedure 2303-M2-4/B Rev. 3 EF-V-4 Motor Driven Emerg. Feedwater Pump Final Test And Valve Title
No. Present Revision No. Close. & Oper. Test

2. Recommended Revision (Include page numbers, paragraph numbers, and exact wording of recommended change. Attach additional sheets if necessary.)

See attached pages (11.0, 14.0, 17.0 and 18.0).

3. Reason for Revision

New pump reference values established because valve lineup is changed. EF-V12A/B are now closed because EF-V11A/B was leaking by. With EF-V12A/B closed, old flow rate cannot be duplicated.

4. (a) Does Revision replace a TCN? ☐ yes ☒ no
(b) If "yes" indicate the TCN Number

_____ _____

_____ _____

5. Recommended by Joseph Barbieto Date 8-10-78 6. Supervisor's Signature Joseph Barbieto Date 8-10-78

This Section completed by Procedure Coordinator

7. (a) Is procedure on Nuclear Safety Related Procedure List? (Sec. A.P. 1001 - Appendix B)
If "yes", change is reviewed by PORC and a Nuclear Safety. ☑ yes ☐ no
Evaluation is prepared (side 2 of this form). If "no", only Department Head review is required.
(b) Is procedure on Environmental Impact Procedure List? (See A.P. 1001 - Appendix B
If "yes", an Environmental Impact Evaluation must be prepared (Side 2 of this Form) ☐ yes ☑ no

8. Review (Administrative, Chemistry and Health Physics Procedures may require approval of both Unit 1 and Unit 2)

Unit 1
Department Head NA Date _____
Chairman of PORC NA Date _____

Unit 2
Department Head NA Date _____
Chairman of PORC _____ Date _____

9. Approval
*Unit Superintendent A. I. Seelinger Date 8/15/78
*NOTE: If 7 (a) or 7 (b) are "yes", Unit Superintendent must approve evaluation on the other side of this form.

10. Approval
Manager, Generation Quality Assurance NA Date _____

EXHIBIT NO. 5
WITNESS Haverkamp
DATE 8-3-79 REPORTER

June 28, 1979

Summary of I & E Inspection Results of TMI-2

Inspection Date	Findings
Feb. 27, March 2, 1979	No noncompliance noted
Feb. 15-16, 1979	[illegible]
Jan. 3--Feb. 2, 1979	[illegible]
Jan. 30-31, 1979	[illegible]
Jan. 8-11, 1979	[illegible]
Dec. 28-29, 1978	
Dec. 12-14, 1978	Noncompliance noted. Failure to implement Surveillance Procedure.
Dec. 4-8, 12-14, 1978	Noncompliance noted. Failure to perform surveillance of valves inside containment.
Nov. 7-9, 16-17, 1978	No noncompliance noted.
Oct. 16-20, 1978	
Oct. 6, 10-12, 17-19, 1978	Noncompliance noted: Failure to barricade high radiation area, failure to maintain ~~periods~~ records of efficient samplings.
Oct. 4-6, 1978	No noncompliance noted.

Inspection Date	Findings
Sept. 14-15, 19-22, 1978	No noncompliance noted.
Sept. 5-7, 1978	"
Aug. 10-11, 1978	"
July 25-27, 1978	Noncompliance noted; emergency monitoring kits contained ~~automated~~ outdated implementing procedures.
July 8-21, 31, Aug 3, 1978	Noncompliance noted; failure to maintain weld rod storage oven at proper temperature.
July 19-21, 1978	Noncompliance noted; failure to follow procedure to check ~~efficient~~ effluent samples.
June 15, 1978	No noncompliances noted.
May 10-17, 1978	Noncompliances noted; failure to perform airlock surveillance, failure to implement surveillance procedure.
May 5, 8-9, 1978	No noncompliances noted.
May 3, 1978	"
March 30-31, 1978	"
March 27-28, 1978	"
March 23-25, 1978	"
March 6, 15, 1978	Noncompliance noted; welding without approved procedures.

Inspection Date	Findings
Feb. 28, March 1, 8-9	No noncompliances noted.
Feb. 22-24, 1978	Noncompliances noted; failure to distribute drawings etc., and failure to calibrate ~~torque~~ wrenches.
Feb. 6-10, 13-14, 1978	Noncompliances noted; failure to have audible source range indication in containment.

ERRATA SHEET (Submitted to President's Comm.)

Page / Line	Reads:	Should Read
9 / 8	--- year of...	...yearly ---
10 / 4	--- as with a ---	... IWFS ---
10/5	...with a discharge of the ---	... IWFS discharge limit for
11/19	... in that ...	... event ---
11/20	... component ...	... component failure.
13/1	... I do ---	... I do not ---
13/17	... That ...	... That LER ---
18/20	I did go ---	I did not go ---
20/6	...Building ---	... Unit ---
21/4	...that side ---	... the inside ---
26/4	... Penn ---	... plant ---
28/23	... present ---	... President's ---
37/11	... service ...	... surveillance ---
38/14	... boron and ---	... borated ---
38/20	... primaries ---	... parameters ---
39/5	... design ---	... answer ---
39/19&20	There are specialists and they report the reports.	DELETE (Does not make sense as transcribed)

ERRATA SHEET

ge / Line	Reads	Should Read
39 / 21	The range of our instruments, the other instruments,	The range of -- instruments, the -- instruments,
40 / 1	-- for the error--	--- programmed --
44 / 4	... temperature --	... instrument...
44 / 17	--- were ---	... for ---
46 / 7	Radiation are ---	Radiation monitors are --
47 / 13	B-l-u-m-l-e-e...	P-l-u-m-l-e-e ---
47 / 21	Blumlee's ---	Plumlee's --
50 / 12	-- flaar ...	--- four ...
50 / 13	--block ---	... back --
51 / 10	-- drains ---	... trains ...
52 / 18	... are one --	-- allow one ---
53 / 14	... operated state ---	... operator takes --
4 / 12 and 13	If you did not identify, you'd presume it.	DELETE (Does not make sense as transcribed)
61 / 6	... which ---	... we ---
62 / 11	-- absorb ---	--- answer...
63 / 11	... special ---	... inspection ---

ERRATA SHEET

ge / Line	Reads	Should Read
66/25	... his ...	...this ...
70/10	-- plan of...	... plant ...
70/24	... organizational...	... organization to ...
71/11	... Bureau of License Assurance...	... before license issuance ...
72/25	... pump --	... prompt ...
74/2	... division ...	... decision ...
78/7	... would not accept...	-- would accept ...
80/23	... their insurance ...	-- there insuring --
87/21	That ...	plant ...
89/6	... boron and ...	... borated ...
90/24	... studying ...	... starting --
94/2	... stuff ...	... staff ...

CERTIFICATE

I certify that I have read this transcript and corrected any errors in the transcription that I have been able to identify, except for unimportant punctuation errors.

Date: September 7, 1979

Donald R. Haverkamp